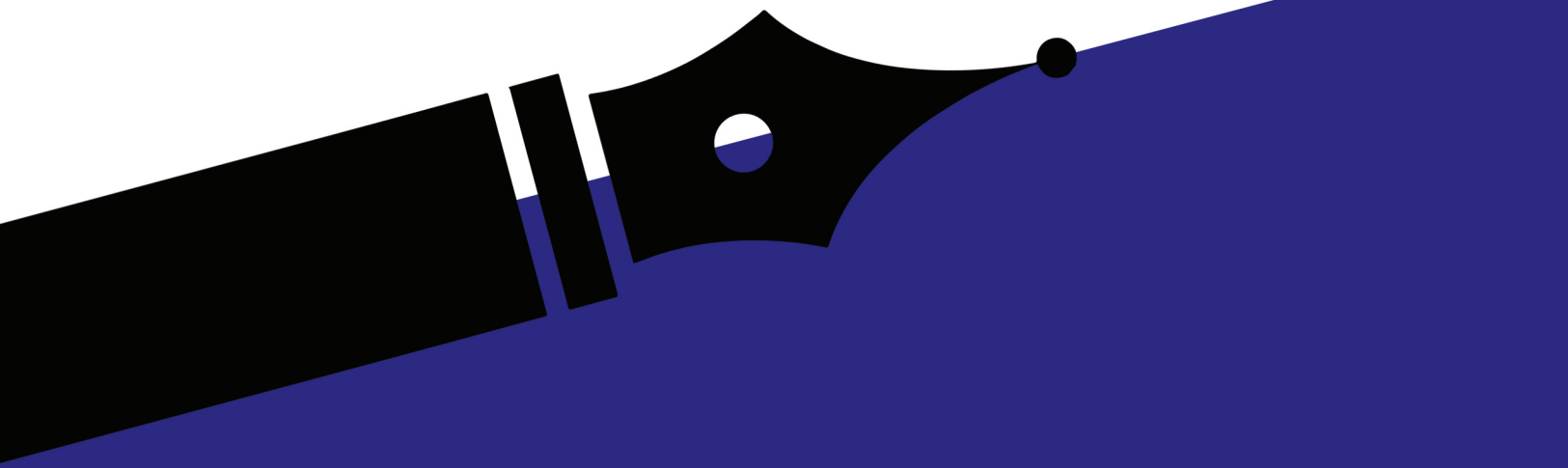
FAZL ALI COLLEGE Journal

A MULTIDISCIPLINARY JOURNAL

VOLUME: 11 (2023) ISSN: 2319-6769



FAZL ALI COLLEGE, MOKOKCHUNG
NAGALAND: 798601

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Volume: 11 (2023) **ISSN: 2319-6769**

The Fazl Ali College Journal: A Multidisciplinary and Peer Reviewed Journal is an annual publication of the Fazl Ali College, Mokokchung, Nagaland.

Year of Publication: 2023 Price: Rs. 700/-

Fazl Ali College Journal
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FAZL ALI COLLEGE JOURNAL VOLUME XI (2023)
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FOREWORD

In a bid to engage the intellect and the thirst for research in today's world, the 11th Edition of the "Fazl Ali College Journal" is now a celebrated feat and reality. The College, through this journal, has once again bridged the gap by facilitating a dialogue between those who have researched knowledge to share, and those who are curious to learn.

Academia is an endless process of information building and exchange, that is now set in a technological world. Hence, the College journal has provided a multidisciplinary platform to engage these eager researchers with a reading public. This year's edition sees an array of research topics ranging from cultural insights to an in-depth insight into vaccinations, healthcare, scientific views, humanities' perspective of literary works and even philosophical findings. The multi-engagement in various findings proves to be an enriching journal for the avid readers.

Despite the year's challenges of curricula and an endless flow of academic events and changes, the Editorial Committee has successfully brought out another issue that facilitated the work of engaging with researchers, peer reviewers and establishing a long-lasting rapport of trust in maintaining the integrity of the valuable findings. With a steady outpour of standard editions, the Journal has yet again seen the light of its 11th Edition. My gratitude and appreciation go to both the Editorial Committee and all the contributors who have given their time and effort into making this another successful edition.

(DR. I. WATI IMCHEN)
PRINCIPAL
FAZL ALI COLLEGE, MOKOKCHUNG

EDITORIAL

The context of the current is filled to the brim with information that is exchanged in seconds and consumed immediately. The fast-paced nature leaves little room for processing and deep delving into topics and ideas that need the research to enlighten people with its profound truths. The task that is left to this Journal and its editorial team has been to facilitate between these eager researchers who have done their due diligence of deep researching and to provide a trusted platform to highlight these essential findings that they have toiled and worked towards.

The 11th Edition of this multidisciplinary journal has remained true to its task of providing a plethora of research articles that come from different, contrasting fields of science, humanities, social sciences, anthropology; creating a web of connections that pursue findings with deep insight for the readers. The flood of information has not just been presented and unchecked but rather given the full effort of being reviewed and edited painstakingly, in contrast to the contemporary current of providing ignorant misinformation. The task has been to assure the quality of time and labour for the justice of the researchers as well as the readers.

As one peruses through the pages of this journal, the melting pot of the multidisciplinary aspect will clearly stand out in the spine of its contents. Cultural perspectives from the Naga contexts of various tribes as seen in the works of researchers are showcased; writers who have gone into deep excavations of folklore, government setups and the richness of the different heritages. Scientific delving into vaccinations with thorough data have been highlighted with visual representations of their findings. Even in the context of humanities, research writers have provided their findings of cross connections between traditional folklore, novel pieces and the environment, providing unique nuances. Philosophical piques of intrigue into its approach towards religion, healthcare that come from traditional contexts, and so many more perspectives have been given a space under the watchful eye of the journal for its readers.

Academia can be an ever-growing world of conferences, paper presentations and engaging with like-minded individuals that have the same thirst for knowledge sharing. The “Fazl Ali College Journal” has thus done its duty or bridging this demand and supply with quality checks marking every step of the way. We thank all the contributors who have made this a successful edition.

Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.1-10

Symbolic Architecture and the Communication Methods of the Ao-Naga *Morung*

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Abstract

Morung (Arju) of the Ao Nagas was the bachelor's dormitory where every boy had to live from adolescence until marriage. In morung, the elders passed on their social, religious, and cultural history to the younger generation through a variety of traditional forms and methods of communication. In practice, communication and culture are inextricably linked, and no human society or culture can thrive without communication. Thus, it was a group communication, collective sharing, and entertainment institution based on community development and the dissemination of social and cultural norms. The high and magnificent architecture was symbolic because it represented the strength of the village as well as their skills in architecture and the visual representatives of carved images indicate their worldview of human-animal relationships and also speak of the history of the tribe. The goal of this study is not to glorify morung or to reintroduce a new version of it, but rather to critically examine morung's sociocultural relevance in older Ao society. As a result, the purpose of this paper is to investigate the socio-cultural significance of the Ao Nagas' morung's communication methods and symbolic architecture, as well as to analyze their potential relevance for the Ao Naga society's present and future.

Keywords: Morung, Communication, Architecture, Structure, Representations

Introduction:

Since time immemorial, the human race has used primitive, simple forms of communication that have been enhanced, extended, refined and are still in use today in all societies despite continuous technological inventions and the increasing sophistication and complexity of human interaction (Bride, 1980). This demonstrates that communication was not invented in today's modern period, but that communication has always been at the heart of all human interactions and social relationships, even in the most "primitive" human societies. Morung practices, also known as the bachelor's dormitory or young men's house by the Nagas, were where every male member had to remain from the time he reached puberty until the time of his marriage. Through verbal communication, the elders taught the children about daily living, practices, and methods. It was the hub of communication and learning related to a man's duty. The forms and methods of communication in the morung were generally, what modern scholars called, "Traditional means of communication" (Thomas, 1995) referring to all communication possibilities existing and inherited in a given culture-they were part of the life and worldview of that culture (Eilers, 1969). The word communication comes from the Latin word Communis, meaning, "that which is common." It also denotes the idea of communality and community (Kumar 1989). The term implies sharing, togetherness and fellowship. Different scholars define communication in various ways, this is so because communication encompasses all elements of human existence. Carey (1989) describes communication as "a symbolic process

by which reality is produced, maintained, repaired, and transformed." Culture is a collection of beliefs, values and behaviours distinctive to a large group of people and expressed through various forms of communication. Culture is represented through dress, religion and art form in particular as well as through language. Culture is expressed through clothing, religion, and art forms, as well as language (Dimbleby, 1985).

The theoretical framework of this research paper centres around the concept of 'communication as culture', as proposed by James W. Carey (1989). The concept of culture can be approached and interpreted from different perspectives. The approach, on the other hand, is founded on the connection between culture and social communication. This 'Society related approach to communication centres on the roles played by social institutions and social processes involved', (Traben,1997).

Etymology and definition of Morung:

Morung's etymology is unknown, and many believe it is not a Naga term. Tekatemjen (1997, p.2) refers to it as an "Ahom origin" and states that the word morung is probably of Assamese origin The first American missionary to Naga Hills, Edward Winter Clark, defined the morung as "a big tree drum" from the Assamese word. In the Ao language, morung is the other name of arju. It was mandatory for the Ao Nagas to keep a gigantic drum carved out of trunks of big trees called Sungkong beside the arju or bachelor's dormitory in ancient times, and the Assamese dubbed the institution morung. The widely accepted Assamese word morung, as used by EW Clark (1911) and Christoph Von Fürer-Haimendorf, fails to communicate the entire meaning and extent of the term arju, because it was a distinct traditional institution of learning and the cornerstone of Ao-Naga culture. Apart from the general usage of the term, each Naga Tribe has its name for morung. The Aos, for example, call it Arju, the Kyongs Champo, the Angamis Kichuki, and the Konyak Ban (Horam, 1977). The term 'Arju' means "to fight with the enemy" or "to define literally." Ar or Arer means enemy and Ju or Jubang means to capture, overpower, dominate. Thus, Arju can be defined as a means to overpower an enemy.

Morung of the Ao Nagas used to be the bachelor's dormitory or young men's house, where every male member had to live from adolescence till marriage. Morung was the most important educational, socialisation, and communication institution for learning about the tribe's history and origins, ethical and moral ideals, and the spirit of community service. In morung, the elders passed on their social, religious, and cultural history to the younger generation through a variety of traditional forms and methods of communication. Thus, it was a group communication, collective sharing, and entertainment institution based on community development and disseminating social and cultural norms.

However, when the British arrived and introduced formal education, the missionaries wrote the tribal tongues on paper in Roman characters. This ushered in a modern worldview among the Nagas and also contributed to the development of tribal identity (Downs, 1992). The British rule prohibited head-hunting, which resulted in a stop of warfare between villages, and the morung ceased to be required as a guard room or as an armoury (Shimray, 1985). Eventually, the importance and significance of dormitories which are regarded as an essential institution lost their relevance and all the traditional rituals and customs, sacrifices were abolished entirely from the Ao Naga society.

***Morung* architecture and its symbolic representations:**

The high and magnificent morung building itself was very symbolic because it represented the strength of their villages as well as their skills and architecture. When a new village was founded, a suitable location for the morung was initially selected. Every Ao village had one or more morung, depending on its size and population. It was normal practice to build a morung at the village's entrance. The morung was typically 50 feet long and 20 feet

wide, with a front gable 30 feet above the ground. Except for tiny doors at the back and front, the morung was entirely closed and dark. (Mills,1973: 73-74).

The morung has eaves (Kip) as well as a protective wall (tsümong). The eaves of the thatch roof roll down near the ground. The walls are made of solid bamboo pieces, fixed in the ground very close to one another called tsümong, lightened with cane ropes to escape the sudden spear thrust at night. When you enter the front door, there is a structure made of bamboo matting fixed with wooden beams extending from one side of the wall to the other, the height of this structure is about 5 metres to prevent adversaries from crossing rapidly. The front pillar, which was normally a large log around 2 metres from the front entrance, was intricately carved with images of tiger, hornbill, lizard, snakes, and human skulls, making the morung distinctive in the hamlet. A little beyond this, there are two fireplaces, one near the front door and the other at the rear. The former is meant for the seniors and the latter for junior members, Arju is generally repaired every six years by its members.

Inside the front entrance laid the sü-mangkong (resembling a mithun in repose) a barrier consisting of a huge log laid on the ground across the entrance covered with the most slippery bamboo matting structure. It is too high for most people to jump over. Any targeted attacker who tries to step over it will undoubtedly fail due to the slipperiness used to scramble the opponent. If an enemy enters the door, he has to jump over the log creating a noise which alerts the people inside the morung. In addition, three decorative bamboo posts are tied every six feet, making the wall impregnable. Palm leaves and split bamboo bottoms cover the upper half of the front wall. A one-and-a-half-foot area is left between the upper piece of the wall and the roof for ventilation, which is likewise covered with a finely knitted bamboo split. All these fixtures cannot be broken easily. At the very entrance, was an elaborately wooden carved post with hornbill, tiger, snakes and human skulls representing the symbol of heroism. A typical Arju may feature many hearths and distinct divisions on the beaten dirt floor. The first chamber is called Tzuin (water storage), and it holds water, fuel, wooden bowls, sandstone balls, and other things on one side while serving as a urinal on the other. The second and third divisions are solely for seniors, while the fourth is for youngsters. Reeds for torches known as kumpok milen are stored in the higher portion of the ceiling, filling the full space of the ceiling from front to back and collected by its members during the winter months. In most of the Arjus, there are several thousand bundles of each kumpok milen stored for the whole year or more. (One bundle consists of 10-12 pieces about 8-10 feet long) (Venuh, 2004: 69). Both the second and third partitions have a fireplace. Rows of planks are retained on both sides of the divider as cots for each individual. Outsiders from other villages are permitted to sleep in the Arju under the careful supervision of the youths. An unknown stranger is not allowed to visit the Arju without the knowledge of Arju tir, the commander.

Symbolism and significance:

The architecture itself was highly symbolic. Morung's house was not only the largest in the community, but it was also the most ornately ornamented with carvings. Typical carvings were tiger, human skulls, hornbills, mithun heads, snakes, spears, and daos. The magnitude of the carvings and the number of human skulls were coded signals that represented a morung's might and right. The Ao Naga morungs had the weatherboards carved with figures of birds and fishes and painted in great detail with red, black and white stripes, circles and dots. The carvings depicted tattooed men and women, warriors wielding spears and daos (big knives), a human head, a Mithun head, a tiger, hornbills, reptiles, snakes, monkeys, and, on occasion, a tiger's skull or elephants.

The Ao-Naga *Morung* at Kisama Heritage Village, Kohima.

Ethnic arts are symbols that transmit meaning, whether highly conventionalized or naturalistic. They reveal information about the community and culture in which they are found. The Ao-Naga morungs' wood carvings are rich in cultural value. Not every design of the carvings had special meanings attached to them. Some like the lizards, fishes, and lines, had no definite meaning except for their frequent association with people, but most other representations were symbolic. Non-utilitarian woodcarvings were the major means of transmitting tribal emblems and value systems. In the morung, carving or painting a head was like exhibiting trophies for valour, victory, and blessing. The carving of Mithun's head on a morung was a prestige symbol that displayed riches and authority. The morung hornbill carvings represent valour, youth, attractiveness (particularly of men), grace, and the tribe's young men. The carving expressed hope that the hamlet would have many brave young men and capable leaders like the hornbills. The tiger is a symbol of the spirit realm as well as valour and courage. Elephants are a symbol of power because of their immense size and strength. And the python represents wealth. The sculptures' depictions were symbols that communicated the tribe's dominating value. The carvings on the morung's front central post represented the males of the community. The main post has to be cut from a robust, straight, tall tree and without blemish. Thus, the central post communicated the value of uprightness in men. The basic values of the tribe were there, displayed in the most prominent place of the morung.

Teaching and learning method:

Before the current official school system, Morung was the sole organised learning institution in Ao traditional society. The young lads were disciplined strictly. They were taught the history of the village and tribe, basic science, medicine, political science, economics, philosophy, religion etc. (Imchen,1993:100). The few common elements in the teaching-learning methods in oral culture were observing, listening, repeating, participating, helping and cooperating. All these elements were used in teaching young boys about carving, hunting and other lessons of the tribe. All these elements were used in teaching young boys about carving, hunting and other lessons of the tribe. In every Ao village, there were at least two morung, even in the small villages, and three or more in the bigger villages. Larger communities would have three hundred or more households. Each morung had only 20 to 25 regular members. Members were usually from the same clan and spoke the same language (mongsen or chungli). The members were divided into different age groups of seven to eight in number belonging to the same clan, and linguistic group. We can conclude that the core of morung communication was that of face-to-face conversation. Morung used a democratic method of communication in which participants were allowed to share their opinions.

Group communication:

Morung life was a collective existence. Morung members (arjusanger) were a community in and of itself. Every age group had their duties and functions so they always worked and acted together in a group. "We live in a society where not only being a group member is almost unthinkable... It is not a matter of choice at all, it is an inescapable fact of life". (Trenholm, 1986, p.174). A group, therefore, is more than a mere collection of individuals but each one is aware of and reacts to each other. Members of a group have a sense of belonging and identity. There is also shared behaviour based on rules, principles, and processes that are accepted by all members.

The method of group communication in the morung can also be examined in terms of proximity and general setting. The morung setup was arranged such that everyone could see and hear each other. Every night, a unique learning session was held in the morung. Before going to bed, everyone gathers in the 'atep' (the hearth in the centre of the morung). The learning session was held in the traditional naga seating arrangement, with the boys seated around the atep, facing the elders at the front. This traditional seating arrangement is still practised by the Nagas, especially during village community meetings. This arrangement had two meanings: first, it was a display of respect for the elders, and second, it was a sign of entire surrender to the elders' authority in the morung. This type of arrangement allowed the seniors to capture the attention of the younger members while also facilitating proper discourse among them. According to Mary Mead Clark, Nagas are excellent in public speaking since they were trained in the morung. The art of oratory which was a standard feature at all public gatherings was learned in the morung (Clark, 1907). As a result, members of the morung will be familiar with their culture, politics, diplomacy, and numerous ways of conducting themselves with others, and will be prepared to compete with anyone in any sector. The young people were taught and instructed to develop character and attitude formation as civic duties, community ethics, cooperative labour, responsibilities to oneself and society and training to become worthy citizens. Furthermore, because each age group (zünga) had less than ten members, they had plenty of opportunities to exchange and engage with one another. The majority of the group conversation occurred in an informal context. Another dynamic form of communicating acquired in the morung was the use of visual cues. The Aos uses the following signs as examples: A cross-mark on a tree's trunk indicates that it belongs to someone. A circle constructed of bamboo rope set on a heap of firewood or stones implies that if someone was discovered stealing it, a pig was imposed as a fine. A semi-circle sign made of bamboo that is preserved on the wayside or in a specified location indicates that the area is taboo, i.e. out of limits. Serving rice beer with salt in it to a man by a young maiden in tsüki, was a sign that she loved him. Salt was very precious during those days, so serving it meant that the person was very special.

According to critical analyses of morung, an authoritarian mode of communication was commonly pushed on the morung's younger members. Specific prescribed duties were imposed on the junior members of the morung. They were assigned to carry firewood, collect and store water, clean the surrounding area, and do errands for the elderly. In this way, the seniors seem to have adopted an authoritarian manner of communication. The seniors controlled the entire morung authority, and they forced the juniors to serve them. Failure to carry out the seniors' directives was penalised. Excessive exercise of authority with severe punishment was prevalent, which may have weakened morung institutions as well as other external pressures that contributed to morung disappearance.

Teaching ethical values through stories, song and dance:

The elders in the morung exhorted the younger members about ethical values in life like, the use of power, honesty or other moral principles and stories instead of giving just a simple talk. The story of the lion and the goat is one such example:

> Once upon a time, a huge lion came to drink water in a small stream. While the lion was drinking, a goat came and started drinking a short distance away down the stream. Suddenly, dirty water started to flow from the stream's source, for which the lion blamed the goat and killed it. The story underlines the misuse of power by strong or rich people over poor or weaker fellow beings.

Storytelling:

Storytelling was one of the most important forms of communication in the morung. Unlike

dance, which was reserved for special occasions, stories were recounted in informal settings practically every night by morung elders or by select senior men who were knowledgeable and talented storytellers. Ao traditional society, the stories were transmitted from generation verbally, as in other oral cultures. The stories were told not just for the sake of amusement, but also to keep social activities going. They created a bond of solidarity inside the community circles, and there was also an educational function for the young members of the community (Eilers, 1993). None of our traditional stories are meaningless even today. It reflects our customary rules, ceremonies, and taboos, as well as our social ideals, and moral and ethical existence. Every narrative contains a moral lesson for the audience. The only unfortunate part is that many of those stories are now extinct because there is no place to learn about stories and narrations like there was in the past.

The majority of Ao's stories were about village heroes, love stories, battle and conquest, and moral lessons. No particular training was given to any individual to memorize. There were no professional storytellers, only a few elderly men and women who were among the best narrators due to their unique ability and interest in storytelling. Those wise people developed more skills in the area of remembering the stories or the songs because of reciting the same stories over and over again. Because information was scarce and valuable, society held high regard for those wise elderly men and women who had preserved it and who knew and could narrate stories from the past.

During the day, Morung was almost uninhabited. Except for during day time, a handful who patrolled the village, all of the boys would go to their separate fields, leaving the morung deserted. After dinner at home, the boys would race to the morung to begin the noisy and crowded nightlife. They were busy cutting each other's hair, sharpening axes and daos, and making bamboo baskets. After such responsibilities were completed, they would gather around the fire and make jokes or listen to stories recounted by the morung, or elderly men of the village. Often they would also visit *Tsuki*[1] and spend time with the girls singing and narrating stories of the past or about themselves and their daily life activities.

Stories related to community life:

The crab narrative has hidden metaphorical meaning for the value of community life and the responsibilities of each individual's unselfish tasks in it.

Once upon a time there were four freshwater creatures, namely a crab, frog, prawn and hellgrammite (tsüsepsang), who were good friends. They decided to work in their field by turns. On the first day, they went to the field of the crab. Being the host, he left his friends working to cook for them. He wanted to cook a special curry but there was nothing to cook for them so to make the special curry, he took off his legs one by one and cooked it. Not satisfied with the legs, he jumped into the pot and made the curry special for his friends. When it was time for the meal, the crab's friends went to the kitchen and discovered what the crab had done for them (Imolemba Jamir, 2022).

Because they cannot fathom any individual living apart from the community, the Aos regard even the aquatic creatures as living in a community. The crab's deed represents self-sacrifice for the sake of the community. Many stories have animal characters, and these stories are easier to recall due to their funny nature. As a result of the above examples, we can conclude that oral thinking is complex, contemplative, and symbolic.

Saying and proverbs:

Another effective means of communication in morung society was the use of sayings and proverbs in a private or public talk. The uniqueness of Ao's statement is that it is used in conjunction with a short story. The statement makes sense only if the listeners are familiar with the tale behind it. For example, a popular Ao proverb is, 'It's like a dog and a pig working together in the field,' and to

appreciate this, one must first grasp the tale behind it. According to legend, *Lijaba* (God the Creator) sent a dog and a pig to work on his land. The pig worked extremely hard all day, whilst the dog slept the entire time. That evening the pig returned home and reported to *Lijaba* that the dog did not work at all. However, the dog, after the pig had gone, walked and ran around a hundred times in the field and returned home reporting that the pig did not do anything. The next day, *Lijaba* went to the field to inspect, on reaching the spot there were only dog's paw prints. From then on *Lijaba* allowed the dog to sleep in the house and the pig outside.[2] Everyone in the community knew such stories, so referring to such sayings, made more sense to the members of the community.

Everyone in the community understood such stories, so referring to such sayings made more sense to them. Proverbs have always taken the main role in any Ao Nagas public discourse. Fuglesang (Eilers, 1993) views proverbial communication as providing a behaviour code, communicating folk humour, sensing behavioural regulation, and providing practical counsel. Proverbs from oral culture, he believes, must be viewed in this context. They have a magical influence on people's thoughts and serve as instructional and educational tools. They can be employed as socialisation and control tools, and they also contain a treasure of tribal wisdom. Imolemba Jamir (74 years) from Ungma Village, disclosed that most of the proverbs and sayings that he knew were learned in the Morung which are vital today for Ao society. Some of the most common Ao proverbs are given here as examples.

Metongi alinung lepdoker ama[3]

Taking the existing short length and cutting it off. The expression is used when a poor person's harvest is ruined or when someone's money is stolen while he still needs money. In other words, it is analogous to a poor man struggling to survive, but unlucky events continue to impede him, exacerbating the situation.

Waro oer tempang takushi[4]

Don't go knocking on the tree stump after the crow has left. That is, do not bring up the same topic again after it has been resolved. It also implies that expressing one's rage after the enemy has left is pointless.

Likewise, there are hundreds of such proverbs, which are treasured in the memory of the elders in the villages even today. While advising children at home or young people in the morung, the elders used such proverbs in their speech which made it more meaningful and convincing.

Song and dance:

Song and dance were another accessible form of communication in the morung. Harnedo (Eilers, 1993) classifies oral tradition into two general types: The non-sung and the sung tradition. With the non-sung, he grouped it as riddles, proverbs, legends, tales and humour, anecdotes, jokes and stories. With the sung tradition, he includes songs which were sung while working and also the lyrics, folksongs and other songs.

The majority of Ao songs describe events such as joy and celebration, sadness and tragedy, wars and war heroes, clan and tribal origins, and so on. The distinctiveness of Ao's traditional modes of communication is that any public speech or story was interwoven with songs. Imchen (1993) provides an excellent explanation for this by claiming that Aos usually begin a song with a speech and always ends a tale, speech, or verbal narration with a song that is relevant to the story presented. As a result, speeches and songs are an essential aspect of communication. In contrast to talks, which lacked poetic structure, Ao songs were always lyrical. The songs were generally short, simple tunes and always sung without the accompaniment of musical instruments. Moreover, the meanings of the songs were implied rather than expressed. They were also songs that could be understood only if the story behind the song was familiar to the community.

There were no music schools among the Ao Nagas, thus music was taught at morung. In their daily interactions, the young people of Morung and Tsuki learned the art of conversing in songs as well as the art of composing songs. Because songs were viewed as a form of communication, many of the compositions were spontaneous. Many songs were also forgotten, and only those with special meaning for the hamlet or tribe were kept and passed down from generation to generation.

The songs sung while working are classified into two categories: Aos and Nagas in general chant a melodious tune while working or hauling heavy loads. Such chants were sung by everyone involved in the work— men, women, and children alike. The Aos did not consider all of the chants to be songs, but the sweet-sounding chorus could be heard from a long distance away. Typically, the chant begins slowly and with a low tone, gradually increasing in tempo and pitch, and concludes with a roaring war cry. The songs were especially popular during the harvest season when the morung age group would take turns working. They worked and sang such tunes at the same time. Horam believes that the main tribal activity of agriculture has given rise to most of the songs and dances, which are preserved up to this day. (Horam 1988: 49). Communication through songs was displayed even in arguments, debates or in settling disputes in the village court.

Another form of song was the love song. These songs were very romantic and poetic. It was either sung responsively between lovers to express their feelings or to sing along during their boredom. The Jina-Etiben love story is counted as an Ao epic. This story contains the greatest number of love songs, which speak about beauty, commitment, family rejection and loneliness. The story is about Etiben, the most beautiful woman from among all Ao villages, who was wise and from a rich family and fell in love with a poor and ordinary man called Jina. Etiben's parents objected to their relationship and got her married to another man. But the marriage ended in a divorce because Etiben could not forget Jina.

A song is given below:

Etiben sings:

Sangpang aki teraksako,

Ponglong melongsangka,

Tsungi na Zaka limino.

(Darling, though the house is a broken one, without a proper roof, even if the rain makes us wet, I want to live with you only.)

Jina responds:

Aja mejasena,

Azü meyongsuna,

Yarla den denademla

Lir mejaka yongpangtsü ashije.

(Though I don't eat rice or I don't drink beer, dear love, talking alone is like drinking fresh water from a fountain after chewing gooseberry.)

In tsüki, the love songs of passion and adoration were exchanged between lovers. "It was easier for the boys to enquire about a girl's interest and love through a song than to ask her face to face by word of mouth," I Temjen Jamir (May 9, 2022) remarked. Thus, song-based communication proved effective and meaningful for the Aos.

In Ao traditional civilization, dance was another way of communication. Ao dances were expressive and energetic in general. They were linked to myths, tales, and historical occurrences. Furthermore, they expressed their affection for animals through dance. The evidence can be found in several dances that are supposed to be based on animal movements. The python dance, hornbill dance, fish dance, and cock fights are just a few examples. Because dance was a community activity, there were no restrictions on who could join. Except for war dances and cock fights, which required a lot of physical power, women and even children were welcome to participate. According to Horam (1988), among the tribals, dancing was not limited to a few groups of people; every man

and woman engaged in this collective activity. The colourful Ao gowns were proudly shown on such occasions because dance was always associated with joy and celebration. Each person dressed according to his or her status in society.

Discussion and Conclusion:

Ao-Naga morung at Ungma Village 1947 (image taken from the book: The Nagas by Alban Von Stockhausen)

Morung was the most important traditional learning institution and the cornerstone of Ao-Naga culture. Because of its mission, nature of instruction, and propagation of ideas, it is best described in terms of a modern university or military headquarters. It can be argued that the Ao-Naga society had no formal learning institution before the advent of modern schools and colleges. However, it holds a unique place in Ao-Naga society as a learning facility that was active at all stages of human existence and was very much in the interest of village community cohesiveness. Morung used the following types of learning: storytelling, proverbs and sayings, songs and dances, and symbolic representation. These forms were employed not merely for pleasure, but each narrative, proverb, or saying contained social and cultural importance for the people. Thus, Ao-Naga oral traditions were passed down from generation to generation in the morung by teaching songs, dances, and folktales. Wood carvings of figures had great significance all of which were taught and learned in the morung. The Ao-Naga morung's symbolic representations and nonverbal behaviours are critical for keeping and passing cultural heritage and traditions from one generation to the next.

Recreated modern day Ao-Naga morung at Mongsenyimti Village.

In the present-day context, the young Naga people are trying to rebuild morung in the villages. They want to resurrect the morung to make it a place of cultural interaction between elders and young people. In some villages, it is now used as a platform to conduct educational workshops for the younger generations to learn about the folksongs, cultural symbols and their meanings and the Ao language. Without ancestral identity, all political slogans of identity would be like a tall golden statue with feet of clay. Hence, the process of exchanging the treasures of culture should not be a mere age-old tradition of the oral form; but a sense of urgency and a feeling of sincerity like the morung culture, before time costs more diffusion and loss of the lore.

Endnotes:

[1]Tsuki: Tsüki can be defined as girl's dormitory wherein the young unmarried girls were kept under the guardianship of an old women called Tsükibutsüla/matron. Usually, the home of the oldest women of the clan (Tsükibutsüla/matron) is chosen as a residence for the five to seven young girls in the village. There were several dormitories in every location (mepu/khel) because every clan have their own respective Tsüki as the Ao practice clan exogamy.

[2]Mefulila, personal communication, March 22, 2022).

[3](Mefulila, personal communication, March 22, 2022):

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.11-17

Ehthso and Hiam: Traditional Fiber Works of the Khiamniungan Nagas of Nagaland, India

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Abstract

In society, the past, present, and future are bound together. Thereby, the identity is carried down through the generations, and this relationship includes indigenous technology. Environment and culture are intertwined in humans; just as culture influences the environment, so does environment influence culture. This article explores such a case among the Khiamniungan Nagas, where they exploit locally available plants for fabric making. The processing of the fabric from plants to finished products is described. Walking three hours through rocky terrain to reach the fabric work's harvesting site is one of the difficulties in maintaining the fabric work as a living practice, a treasured cultural resource. The initiative undertaken by a group called Ehlon-Niu to preserve and assure the continuity of the tradition and to perpetuate it despite the challenges and hardship incurred by such activities is reflected as well. The article also explores the challenges posed by the availability of cheaper fabric in the market upon the survival of the indigenous knowledge of fabric making as a living culture.

Keywords: Khiamniungan, *Ehlon-Niu*, Fibre, Tradition, Plants

Introduction:

In the northeastern part of India lies the state of Nagaland, a region rich in cultural diversity and ethnic heritage. The state has 17 major Naga tribes, among which Khiamniungan is one. With their settlements spanning across the easternmost border of Nagaland, Khiamniungans share their boundaries with Myanmar in the east, Chang in the west, Konyak in the north, and Yimkhiung and Tikhir in the south.

The term "Khiamniungan" is a compound word consisting of various lexicons, 'Khiam' meaning water 'Niu' meaning mighty or great and 'Ngan' meaning Source. Thus, Khiamniungan means 'Source of Great Water'. The Khiamniungan language, a Tibeto-Burman tongue, exhibits tonal variations from village to village. Yet, despite these differences, the Khiamniungans understand each other's tones and words with ease. Their settlements, comprising nearly 200 villages are scattered across both Indian and Myanmar territories. The Khiamniungan society is structured around the fundamental units of family, clan, and village, fostering an egalitarian ethos. Sardeshpande (2017), mentions that there is a fair division of duties among the clans in socio-economic and political activities.[1] The origin and development of clans into sub-clans or minor clans is traced to Khiamngan (from where the word

'Khiamniungan' has its derivation), a claimed place of origin (Pillai 2001, 87). [2]

Through generations, the Khiamniungans have finely tuned their way of life to coexist harmoniously with nature. Their profound understanding of the environment is reflected in their clothing, tools, diet, and overall lifestyle. Agriculture has been the major source of economy for the Khiamniungans. Jhum cultivation particularly was practised since its inception. Lands were divided into family lands, clan lands, and village lands. Apart from agriculture, blacksmith was an important occupation of Wui, a Khiamniungan village with exceptional workmanship. The Khiamniungan crafts in the production of different materials such as conical hats, leggings, spears and daos (Mills 1926, 55),[3] additionally bows and poisoned arrows (Hutton 1968, 37) were popular among the other Naga tribes.[4] Julian Jacobs (1990) throws information on the procurement of pieces of iron, tin or sheet brass from Plain tea estates.[5] The Konyaks and Kalyo-Kengyus, as he mentions, were held to be masters in the production of iron tools. In regards to trade, Jacobs observed that the Kalyo-Kengyus in the east were the producers of basic conical red-and-gold cane hats which were traded to the Aos, Konyaks, Phoms, Changs and other Naga tribes. However, in the earlier writings of different anthropologists and historians, the works and responsibilities borne by the Khiamniungan women have not been properly recorded. This article is an attempt to throw light on the significance of one of the roles of the Khiamniungan women. It attempts to unfold the meticulous traditional extraction and treatment of plant fibres.

Methodology :

In acquiring the information, a qualitative method of research was followed. The collection of data was done following the given methodology:

(a) The primary source of collection of information was based on the in-depth method of oral interviews and personal observation of the activities performed.
(b) The Treatment Process of the fibre was observed, on display by the Ehlon-Niu during the Naturally Nagaland and Noklak Handicrafts Festival at Noklak on 9th Feb 2022.
(c) 14 members of Ehlon-Niu, aged from 19 to 78 years were interviewed on 13th Feb, 2022 at Choklangan Village.
(d) Semi-readied fibre and products were used for demonstration during the interview.

Choklangan:

Choklangan is a Khiamniungan village situated towards the East of Noklak town at a distance of 47 Km. Choklangan village is rich with different varieties of bamboo and men in this village are artistic in basketry making and different kinds of bamboo works. The stinging nettle plants are found in the wild forest of Choklangan. Ahlam Ki and Indoh, approximately 7 Km away from the village are places where these plants are found. The harvesters have to take a tiring walk of 2-3 hours to reach the site. Situated on the foot of Khelia Keng (Mt. Khelia), Choklangan forests are home to different kinds of flora and fauna.[6] The plants of Hiam, Stinging Nettle (Urtica Dioica) and Ehthso, Orange Wild Rhea (Debregeasia Longifolia), are some of the indigenous species found in these areas.

***Ehlon-Niu*:**

Women from the Choklangan village engaged in individual fibre craftsmanship and

gained popularity among the Khiamniungans. The demand for their products surged, attracting attention from the different parts of Khiamniungan areas. Invitations to participate and to showcase their artistic works in various programmes followed suit. The considerable sales revenue also benefited the artisans and helped them realise that collaboration could amplify their impact and provide a more stable foundation for their craft. This led to the establishment of *Ehlon-Niu* on 4th March 2010 at Choklangan. *Ehlon-Niu* is a group of women who specialize in the art of traditional weaving of Orange Wild Rhea and Stinging Nettle fibres. The word *Ehlon-Niu* is derived from three Khiamniungan words, 'Eh' meaning fibre, '*Lon*' meaning thread and '*Niu*' denoting woman. Thus, they are a group of women who thread fibres and work them out into different products. Presently, there are 25 members in the group.

Process of Harvesting:

Orange Wild Rhea and Stinging Nettle are harvested during September, October and November, before the onset of winter and cold season. During these months the skin of the plants is soft and flexible enough to be peeled easily. After these months, the onset of cold climatic conditions and snow begins to fall, making the plants and their bark rigid. It breaks easily in the nodes making the process of peeling arduous while harvesting.

The process of harvesting fibre commences by designating a specific day and preparing the necessary materials. The bamboo scrapes which are used for the removal of the outer skin of the plants are sourced either from individual households or from the morung.[7] As the men or husbands engage in the task of working on the bamboo, the women gather these scrapes. The extraction of the barks demands a significant amount of laborious effort and unwavering dedication. The journey to the forest, spanning a distance of 7 kilometres or even more, marks the next phase. When the location isn't too distant, the women venture in pairs or small groups of 2-3 individuals. On occasions where the distance of the site is far, it is commonly observed that menfolk accompany the women.

The process of harvesting the plant involves cutting it at the stem's base using a dao. Employing bamboo scrapes, the task of removing leaves and spikes ensues, with a stripping motion from the stem's bottom to top. After the thorough cleaning of the plant, a longitudinal division is made at its centre, leading to the separation of the bark from the stem. This is accomplished by meticulously peeling the bark in both directions, rendering it free from the stalk. The separated bark is then suspended around the neck of the collector for convenient transportation. Once a sufficient quantity of approximately 25-30 plant barks have been accumulated, they are systematically rolled and stored in a designated basket. The extent of fibre harvested is contingent upon the availability of suitable plants and the proficiency exhibited by the individual responsible for harvesting. This interplay between the abundance of the plants and the skilled harvester collectively dictates the quantity of fibre acquired. A skilled person on average manages to collect a basketful while an average person may get half a basket or a little more in a day. There are certain difficulties involved in the process of harvesting stinging nettle plants. Congruous to its namesake, the leaves and the spikes of the tree usually sting during the process of peeling the bark. Besides such discomfort of stinging sensation from the plants, insect bites and leeches add to the stress and discomfort of fibre harvesting.

The process of extracting Orange Wild Rhea fibre differs from that of Stinging Nettle. Orange Wild Rhea trees are found near the rivers or in the old field which has been cultivated several years ago and left for furrowing. The trees have multiple branches from whereby a bark is extracted. Using a hook or a dao, the harvesters cut or pull the branches down. The extraction is done with the same process as the stinging nettle plant. While the stinging nettle plants are found in a concentrated area(s), orange wild rhea trees are found scattered and in different places.

Treatment of the Bark:

Immediately after being brought home, the bark is dried. Either the sun or shade is used to dry it, and the fibre strands are cleaned of any debris, such as leaves or sticks, and then hung on a bamboo or tree pole. The drying process can take a few days to weeks, depending on the nature of the bark. Once the bark fibres have dried, they are gathered and stored securely to prevent breaking. The strands are then collected as needed and placed in a basket made for storage to be threaded later. The bark is covered with a specific type of damp clayey soil that is procured from a nearby community for covering the bark to let it soften and to keep it through the night. When the soil becomes too dry, it is taken out and replaced with fresh wet soil. The strand of softened bark is divided into individual cells. It is then divided based on the individual's taste for weaving in thin or thick material. After which, the edges of each cell are twisted against one another to form a long cell. In turn, this is folded up into a ball bun. The stone drop spindle is then loaded with the rolled thread. It is afterwards transformed into a hank (ehkhu) by being diagonally wound into an H-shaped winder. Depending on the texture of the fibre, it is cooked in water for 2 to 3 hours after being removed from the winder. The required amount of ash is put into the cooking pot for the easy removal of the husk or the outer skin. The husk must then be rigorously checked for removal before cooking. In the event of a shortage or depletion throughout the operation, water is retrieved and filled to its appropriate scale. After it has been cooked sufficiently, it is transported to the river to be washed. Before the strand cools down, washing is performed by pounding it with the use of a wooden piece (Eh-opkin). The strand is then re-dampened in water containing maize after undergoing this procedure. For this, a number of ears of corn are ground up and added to water. To make the fibre softer and smoother, the hank of fibre is placed within it and left for around 15-20 minutes. After that, it is kept dry, which is done for a few hours or even days, depending on how damp or dry the hank is. In preparation for further processing, the dry fibre is given a gentle massage. The fibre hank is further placed on a skeiner or one's knees or legs and rolled into a ball when it is time to weave. This is spun into a wrap beam for the weft threads and used directly for the warp threads. Eh-lei (loincloth), phachiam (sash), nethso (skirt), neylon (simple shawl), neymok (blanket), bags, mufflers and waistcoats are among the items woven and made from these fibres.

Folk song:

Women did the threading in their own homes with the convenience of one's time. Sometimes they gathered at a particular place or someone's house and threaded the fibre at night and sang a folk song as they worked. It is sung especially at night when they work in groups to avoid sleepiness and to relieve the boredom of a tedious job. This improved the efficiency of the work. The song signifies and tells about the fibres and the hard work employed in working on them. The lyrics of the song are as follows:

"Ahwem kongkong thso ni mosai,
Paosisao lomthso sai-an ie
Ehthso eh ta nungta jonshi nou
Hiam eh ta nungta jonshi nou
Eh lemle ku noi ni mosai
Eh lemle oh ni mosai."

Its English translation of the lyrics:

"Midnight bird, I haven't slept yet,
All other insects have gone to sleep,
This is called Orange Rhea fibre
This is called Stinging Nettle fibre
I'm threading still awake
I'm threading Oh I haven't slept yet."[8]

Importance of preserving the traditional fibre works:

The cultural heritage and identity of the community or region are carried by the Khiamniungan Naga textile arts. They stand for the distinctive artistic expressions and handiwork of the populace. The meticulously designed and produced traditional fibre crafts display outstanding artistic talent. They are made with materials that are produced locally and sustainably, demonstrating generations-old skills. These fibres are important artistic works that add to the Khiamniungan cultural heritage in addition to being useful objects. Traditional fibre crafts frequently need specialist expertise that has been handed down from one generation to the next. By preserving these methods, the priceless traditional knowledge and expertise are guaranteed, protected from loss, and can be passed on to future generations. Choklangan village's principal source of revenue is still agriculture, but the selling of finished goods manufactured from their distinctive fibre crafts also provides a sizable portion of the artisans' income. Traditional fibre arts must be preserved to protect cultural heritage, advance sustainable practices, preserve traditional knowledge, and strengthen local communities. Beyond only being useful, clothing and textiles have a rich cultural, aesthetic, and economic history that benefits Khiamniungan people.

Conclusion:

Since many centuries ago, it has been a common practice to weave using the fibre that was taken from these wild plants. Since *Ehlon-Niu* was founded, the process of extracting fibre and using it for various purposes has continued. The availability of ready-made fibres, wool, and textile materials as well as the emergence of commercial markets, however, have greatly reduced the production of Orange Wild Rhea and Stinging Nettle fibre. The labour-intensive, time-consuming procedure of fibre extraction and treatment has been surpassed by the preference for pre-made clothes and materials from the market. As a result, there has been a sharp decline in the synthesis of these fibres into useful products. Only a small number of things, including carry bags, mufflers, waistcoats, and shawls, are still made from finished goods made from these fibres. Instead of being incorporated into daily routines or standard apparel, these things are saved for certain occasions and used by a small number of people. Unfortunately, the weaving of traditional clothing like eh-lei (loincloth), phachiam (sash), and nethso (skirt) has been stopped.

Although traditional weaving is becoming less prevalent in daily life, there is still a noticeable demand for it in modern marketplaces, which is backed up by its functional importance. Both Khiamniungans and members of other ethnic

groups who respect these materials continue to buy and use products created from them, realising the value of both preserving the cultural legacy and satisfying practical demands for clothing and jewellery.

In the face of several obstacles, some actions and measures should be taken to advance the practice and maintain the tradition of textile works. In the regions where the fibre plants are found, logging and deforestation should be minimised and discouraged. On March 9, 2020, the Nagaland government designated a few acres of Choklangan forest as a Biodiversity Peace Corridor. Such an effort will result in preserving the animals and plants including stinging nettle and orange wild rhea. It is also important to impart to girls the knowledge and skills necessary to extract, process, and weave these fibres. Another method of conserving the cultural tradition of stinging nettle and orange wild rhea fibre extraction is through video documentation. The preservation of these practices will be more successful if multidisciplinary research is used and these practices are examined from various perspectives.

Endnotes:

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[3]Mills, J.P. (1926) 2003. The Ao Nagas. Reprint. Kohima: Directorate of Art and Culture Government of Nagaland.

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[6]Khelia Keng is one of the highest mountains of Nagaland at an altitude of 3462 metres above sea level. This mountain also serves as a geographical boundary delineating the territories of India and Myanmar.

[7]When men cut and smooth the bamboo for basketry works, the removal of irregularities, rough spots or uneven textures from the stalks, cut into a desired length, is done by scraping. These scrapes are collected which is used during the extraction of plant bark.

[8]The term ‘Midnight bird’ is a metaphorical expression used to describe a bird that produces sounds at night hours.

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Kevitsunuo Linyu, FAC Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.18-24

The Interplay of Emotions and Learning; Towards a Positive Learning Environment

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Abstract

In the symphony of learning, emotions provide the vibrant notes that give depth and richness to the educational experience. Understanding and harnessing the link between emotions and learning allows educators to create harmonious environments that optimize engagement, motivation, and memory retention. By embracing emotions as an integral part of the learning process, educators and learners alike can master the inner symphony, unlocking the full potential of education and fostering a lifelong love for learning. This paper delves into the intricate relationship between emotions and learning, exploring how emotional experiences can orchestrate and harmonize cognitive processes to optimize educational outcomes. It also places emphasis on the integral role of teachers in recognizing the link between emotions and learning and to integrate it into their teaching methodology to bring about a transformative learning experience for students.

Keywords: Emotions, Positive emotions, effective learning

Introduction

In the vast symphony of human experience, emotions play a powerful role in shaping our thoughts, actions, and overall well-being. Beyond mere fleeting sensations, emotions have been increasingly recognized as influential factors in the process of learning. One significant aspect of the emotions-learning nexus lies in the formation and retrieval of memories. When an event is emotionally charged, whether positive or negative, the associated information is more likely to be encoded and retained. This phenomenon, known as emotional memory enhancement, can be harnessed to create meaningful and impactful learning experiences. Emotions also play a crucial role in driving motivation and emotional engagement in the learning process. Positive emotions can fuel intrinsic motivation, enabling learners to become self-driven seekers of knowledge. A joyful learning environment that celebrates progress and acknowledges effort nurtures a sense of competence and autonomy, fostering a lifelong love for learning. Within such a premise, the paper seeks to establish the role of emotions in learning and propose a framework which can be used by teachers to impact a positive learning environment which can be conducive for effective learning.

Understanding emotions

Etymologically, the word emotion comes from the Latin word *emovere* which means ‘to move’ or ‘to move away’. In this term, emotions may

be defined as *"the tendency to act based on the feelings the person is experiencing"* (Beard and Wilson, 2010). McDougall (1949) defines emotion as "an affective experience that one undergoes during an instinctive excitement. For example, when a child perceives a bull coming towards him (cognition) he experiences an affective experience in the form of the arousal of the emotion of fear and consequently tries to run away (conative aspect of one's behaviour)". He also discovered 14 basic instincts and stated that every emotion is the product of some instinctive behaviour. For instance, flight or escape is accompanied by the emotion of fear, pugnacity or combat is accompanied by the emotion of anger, submission is accompanied by negative self-feeling, laughter by amusement etc. This understanding of emotion implies that emotions are central to behaviours and behavioural changes or in other words it brings to light the regulatory power of emotions on the human behaviour. Having understood the role of emotions in shaping personalities and behaviours, it may be safe to state that the role of emotions in pedagogy is significant. This paper is an attempt at establishing the link between emotions and learning.

The Interplay of Emotions and Learning

Emotions are not separate entities from the learning process; instead, they form an integral part of it. The learning atmosphere becomes the major concern as one considers effective and healthy learning. Besides the physical factors like infrastructure and hygiene the psychological aspect of the learning atmosphere also deserves major attention. Learning is more effective when the learners are enjoying. Research has revealed that emotions influence attention, motivation, memory formation, and decision-making which are the key components of effective learning. Positive emotions, such as curiosity, excitement, and joy, have been found to enhance engagement, focus, and information retention. They ignite a sense of intrinsic motivation, allowing learners to embrace challenges and explore new horizons.

Conversely, negative emotions, such as anxiety or frustration, can hinder cognitive performance, impede memory consolidation, and diminish overall learning outcomes. A learning atmosphere charged with negative emotions is in many ways the biggest hindrance to learning. The learners in a state of negative emotions are handicapped and cannot learn. Positive emotions can boost motivation and negative emotion can drain out motivation. Therefore, it becomes important for the teachers to create channels for positive emotions in the learners. This also implies that there should be a willingness or readiness to learn. In support of this perspective, Beard and Wilson (2010) observes that emotion is inextricably linked to learning and states; *"for learning to occur and an opportunity for learning not to be rejected, there has to be an attitudinal disposition towards the event*". They emphasised on the role of emotion or the affective domain as "the underlying foundation for all learning". According to them the primary emotions are aggression, boredom, hope, rejection, sadness and fear. Among these primary emotions, they pointed out that 'fear' is one of the primary emotions that have an important impact on learning.

To support this perspective, they listed the works of writers such as Gray (1999) who pointed out that there is an emerging literature on the negative aspects of fear-based parenting, citing evidence that young people, in these climates are likely to self-destruct and Fineman (1997) who also brought to light the works of many influential writers on the subject of the debilitating nature that anxiety, fear and stress

have in interfering with learning. They based their theory of learning on prior experience stating that the past consists of banked emotional experiences which can both drive forward and restrict new learning. This implies that educators should seek to provide the right learning experience as the kind of emotional experience either negative or positive will influence the degree and type of learning. In this context Postle (1993, p. 37) describes three kinds of negative learning experience that can have negative impact on learning:

1. Omitted Learning- lack of love in an upbringing, which results in a person being unable to receive or give love
2. Distorted Learning- Can Occur when a person is told that he or she is hopeless, not talented, etc.
3. Distressed Learning- learning that occurs with distress in the form of forced learning and compliance.

Such negative emotional learning experiences can inhibit both present and future learning. Further, it has a significant influence in one's outlook of life, the interaction with one's own experiences and also with others. In the same light Alan Mortiboys (2005) also says that *"if the emotional environment is wrong then learning will become a struggle"* while stressing the importance of creating and planning the right emotional environment for learning. He states that if the emotional environment is dominated by negative emotions such as 'annoyed', 'frustration', 'impatient', 'anger', 'excluded', 'depressed', 'alienation', 'resentment', 'humiliated', 'intimidated' then the brain switches into the 'fight or flight mode' and physiological processes are activated which restrict the functions in the brain that assist learning.

Review of Related Studies

Having stated the above, this section of the paper presents a review of some studies that further strengthen the link between emotions and learning. It may first be stated that there is growing body of research in recent years that supports the integral role of emotions in the contexts of learning. In a study conducted by Gaeta et al. (2021), the researchers contended that positive emotions need to be nurtured because they expand individuals' intellectual, physical and social resources, increasing the reserves they can draw when challenges or opportunities occur in learning. In a previous study, Pekrun et al. (2002), the positive emotions have been established as having a significant role in drawing students' attention to learning tasks and facilitate the use of flexible learning strategies such as elaboration, critical thinking and metacognition. In a later study, the researchers further established that the positive emotions such as willingness to learn and enjoyment, positively related to motivation, effort, learning self-regulation and academic performance (Pekrun et al. 2007).

Negative emotions such as boredom on the other hand were found to be significant in reducing persistence, effort, intrinsic motivation and attention and promote shallow information processing methods (Pekrun et al., 2007). This can be supplemented by the study conducted by Cho and Heron (2015) which found that the negative emotions negatively relate to students' learning strategies such as elaboration, metacognitive self-regulation and critical thinking. According to these researchers, students experiencing such negative emotions spend their cognitive resources on irrelevant thoughts which can decrease their concentration leading to poor academic performance.

Towards a positive learning environment

The sections above have attempted at establishing a link between emotions and learning while placing emphasis on how negative emotions can hinder effective learning. The following presents some possible ways in which the teacher can create a positive learning environment within the classroom to enable effective learning;

a) Teacher Talk

Teacher talk may be defined as the language in the classroom that takes up a major portion of class time in giving directions, explaining activities and checking students understanding. Scholars have pointed out that teacher talk makes up around 70% of classroom language (Cook, 2000: Chaudron, 1988). It may be noted that according to pedagogical theory the language that teachers use in the classroom determines to a large degree whether a class can succeed or not and therefore, "teachers should monitor and evaluate their own language, not only as an essential input to learners, but also as social lubricant that keeps the pedagogical wheels turning" (Poppi, 2005). This implies that the teachers talk is crucial, the manner in which they use the language while assigning tasks or giving feedback is important as it will determine the kind of response that is elicited from the learners. Teacher talk is one chief agent that can heighten or disrupt the learning atmosphere. According to Thomas (1987), there are many factors that shape the emotional environment of learning and one of the most important is the language that the teachers use. He goes on to say that the language that the teachers use at the beginning of a session may be the most crucial as it sets the tone. The teacher talk imbued with positive emotions is effective in encouraging and motivating the learners and this imbuement with positive emotions can be achieved by the choice of words that the teachers use. The teachers should monitor their language and frame it in such a way that it does not intensify the learners' negative emotions, instead it should attempt at allaying it. This can be further illustrated by an example: a learner who has internal fears is unable to give a suitable answer to the teacher and the teacher says, *'You cannot answer even a simple question? How did you even get a seat in this class?'* Such a verbal behaviour would intensify the learners' fear and anxieties and in later life he will be inhibited in responding for fear of receiving such feedbacks again. Teacher talks of this nature, devoid of any understanding of learners should be avoided.

b) Assignments and Materials-

Assignments and materials can play a significant role in impacting positive emotions in students. If the assignments are beyond the comprehension of the students, they either choose avoidance or find an alternative route both of which obstructs learning. Teachers need to be aware of the importance of adapting materials as well as designing assignments in motivating students. The creation of materials and assignments must be based on what makes students motivated and interested to learn. According to Andmaerh A. E. (1994), students tend to exhibit the failure syndrome at early signs of difficulty. Teachers should therefore provide clear and concise instructions for assignments, ensuring that students understand what is expected of them. Clear expectations reduce confusion and anxiety, allowing students to focus on the task at hand. The assignments and materials that are

used should have real-world connections or personal relevance to students' lives because when students see the value and significance of what they are learning, it can generate a sense of purpose and intrinsic motivation, leading to positive emotions. Teachers should also offer students with choices within the assignments, such as selecting topics, formats, or approaches as allowing students to have some autonomy and ownership over their learning would promote a sense of control and empowerment, which can foster positive emotions. Further, incorporating a variety of instructional materials and formats, such as multimedia resources, interactive activities, or hands-on projects can greatly trigger positive emotions in the students. Engaging and interactive assignments help maintain student interest, enhance motivation, and evoke positive emotions. Providing opportunities for students to work together collaborate, and share ideas can also impact positive emotions. Cooperative assignments encourage teamwork, social interaction, and a sense of belonging, leading to positive emotions.

c) **Assessment and Evaluation**

Assessment and evaluation play a crucial role in shaping students' learning experiences and emotions. Examinations or assessments for grades have a negative connotation when learners view it as exclusively grade determiners. The assessment strategies generally induce anxiety and fear among students which according to Hembree (1988) would cause poor performance. Millet et al. (2006) stated that performance anxiety related to examinations and assessment strategies could negatively impact students' future career paths if it is not minimised. In this light, it may be stated that the search for effective strategies for mitigating assessment related anxiety should be an educational priority. The use of alternative assessment such as self-assessment, collaborative assessment, project-based assessment and technology based should be considered.

Implications on the role of teachers

Based on the discussion above, the most important implication that emerges is the central importance of the teachers in orchestrating a positive learning environment which involves thoughtful consideration of teacher communication, assignment design, and assessment practices. Teachers who prioritize emotional well-being and engage in strategies to promote positive emotions can greatly enhance the overall learning experience for their students. This, in turn, leads to improved engagement, motivation, and ultimately, better educational outcomes.

Teachers play a pivotal role in shaping the emotional climate of the classroom. They should be skilled in using positive and constructive language, providing encouragement, and offering constructive feedback. Effective communication also involves active listening, where teachers understand students' concerns and feelings. Teachers should also adapt their teaching strategies to cater to individual students' emotional needs. This includes differentiating instruction to accommodate varying levels of comprehension and providing choices within assignments to allow for autonomy and personal relevance. Teaching Materials should be engaging, relevant, and thoughtfully designed to evoke positive emotions. They may also be required to design assessment methods that reduce anxiety and foster a deeper

understanding of the subject matter. Beyond academics, teachers should be attuned to students' well-being. They may need to connect students with appropriate resources, such as counsellors or support services, when emotional challenges or stressors arise.

This implies that teachers should receive training and support in emotional intelligence and empathy. Teachers should engage in ongoing professional development to enhance their skills in creating a positive learning environment. This might include workshops on emotional intelligence, effective communication, and innovative teaching methods. In summary, the implications of creating a positive learning environment highlight the need for teachers to be emotionally aware, effective communicators, adaptable educators, and advocates for students' emotional well-being. Teachers play a central role in shaping the emotional climate of the classroom, and by embracing these implications, they can create environments that optimise student engagement, motivation, and learning outcomes.

Conclusion

A positive learning environment goes beyond physical attributes and encompasses emotional, social, and psychological factors that contribute to a conducive-atmosphere for real learning to take place. It may be stated that students would thrive in a positive learning environment. When they feel safe, respected, and supported, they would be more likely to actively participate, explore new ideas, and take risks in their learning journey. Such an environment would foster a sense of belonging and encourage students to embrace their unique identities and perspectives. With the fear of judgment or failure diminished, students would truly engage in the learning process. When students are surrounded by teachers who believe in their potential and provide constructive feedback, they are more likely to develop a growth mindset. They become motivated to set and pursue meaningful goals, driven by their own intrinsic desire to learn and grow. In conclusion, a positive learning environment has a profound impact on real learning. It fosters motivation, collaboration, curiosity, and emotional well-being, creating an atmosphere where students can truly engage, explore, and grow. By cultivating such an environment, educators and educational institutions can play a vital role in nurturing the intellectual and personal development of every learner.

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.25-40

Prospect of Future Vaccination Through The Lens of Geriatric Population: A Structural Equation Model Approach Based on The COVID-19 Vaccine

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Abstract

This study explores the perceptions and experiences of the geriatric population in the Mokokchung district, Nagaland, North East India, regarding COVID-19 vaccination and their willingness to participate in future vaccination drives. Using a Structural Equation Model (SEM), the research assessed five variables: Experience, Hospitality, Perception, Satisfaction, and Future vaccination. Findings revealed that satisfaction with the vaccination process had the most significant positive correlation with the older population's future willingness to participate (0.575), followed by the influence of hospitality on their vaccination experience (0.257). Perception of COVID-19 and its vaccination moderately influenced vaccination experience (0.176). The correlation between experience and satisfaction (0.051) was statistically insignificant ($p = 0.681$). The study emphasizes the importance of creating a healthy neighbourhood, encouraging social participation, and fostering supportive living arrangements for older adults. Addressing vaccine misconceptions and providing reliable information are essential to boost confidence in vaccination. Policymakers and healthcare providers should consider these factors to ensure a supportive environment for the elderly and promote preventive behavioural traits. Despite some limitations, these insights contribute to a healthier, more resilient community facing future health challenges.

Keywords: SEM, North-East India, COVID-19 perception, Gerontology.

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INTRODUCTION

According to the Institute of Gerontology at the University of Georgia, Gerontology is a multidisciplinary scientific inquiry focused on comprehending the intricacies of the aging process. Its primary objective is to gain insight into the various phenomena and challenges of the elderly population, aiming to enhance their overall quality of life. Understanding older adults' vulnerability is necessary for physical and social reasons (World Economic Forum, March 12, 2020). Aging is linked with various biological changes with considerably weak immunity related to age-related illnesses and susceptibility to infectious diseases (Bajaj et al. 2021, 2). Meanwhile, the novel coronavirus, commonly known as COVID-19 or SARS-CoV-2, garnered considerable notoriety for its impact worldwide. This respiratory syndrome has created profound disruptions, affected countless lives, and caused global turmoil (Muralidar et al. 2020, 86). Blake and Divyanshi report that due to the pandemic, socio-economic hardships,

escalating poverty rates, economic downturns, escalated healthcare expenditures, educational transformations, and a pronounced digital divide have emerged (World Bank Group, December 14, 2020).

However, a significant twist in this unfolding narrative is the pivotal role played by age in this formidable contagion. Global evidence substantiates that advancing age constitutes a pronounced risk factor for severe COVID-19 and its associated deleterious health outcomes. This assertion is reinforced by the chillingly high case fatality ratios (CFR) reported among patients in their 70s and 80s, which stand at 12.8%-20.2%, contrasting starkly with the comparatively nominal 0.4% CFR observed among individuals aged 40 and below (Onder et al. 2020, 1776). The heightened susceptibility of the elderly population to infection is due to an age-related immunological remodelling process, compounded by chronic conditions and comorbidities (Lim et al. 2020, 549). Consequently, the vulnerability of the aged demographic is starkly accentuated (Li et al. 2011, 466; Pawelec 2018, 4). Moreover, the domicile-bound older populace faces an augmented mortality risk, adding another layer of complexity to the prevailing situation (Nilsson et al. 2021, 2). Additionally, the issue of vaccine hesitancy presents a vexing challenge, impacting the safeguarding of vulnerable older adults through vaccination initiatives. The World Health Organization (WHO) categorizes vaccine hesitancy into three dimensions - confidence, complacency, and convenience - further complicating efforts to implement comprehensive vaccination drives (WHO, August 18, 2015). An in-depth comprehension of the perceptions and beliefs of this population is thus imperative for devising effective vaccination programs catered to the geriatric cohort.

Adopting the structural equation model (SEM) as an analytical tool reinforces the research resourcefulness. SEM offers a robust mechanism to explain intricate relationships between multiple variables and latent constructs, unveiling insights into latent variables within the observable data (Sadia et al. 2018, 21). By employing factor analysis, confirmatory factor analysis, and path analysis, SEM facilitates the estimation of latent variables by examining various observed variables (Martynova et al. 2018, 325). Thus, SEM provides a robust methodological foundation for formulating hypotheses based on theoretical constructs or empirical observations (Iacobucci 2009, 673). Given the critical vulnerability of the geriatric population, the present study proposes a hypothetical model to explore the interplay of diverse influential factors and offer relevant recommendations to fortify future vaccination endeavours within this demographic. The research attempts to achieve the following:

1. To analyze the Geriatric population's insight of COVID-19 and its vaccination.
2. Development of an SEM to aid in future vaccination drives.
3. To provide recommendations and measures for improvement in further vaccination.

METHODOLOGY

Significance of the study: In contemporary society, older individuals often find themselves marginalized and viewed as burdensome or economically draining for those still in the workforce. The aging process is often met with discomfort and perceived as a sign of weakness, leading to efforts to slow down or disregard its natural course despite older adults' significant societal importance and contributions (Onyenemezu & Olumati 2013, 151).

The COVID-19 pandemic has impacted humanity irrespective of age; however, according to a UN report, the older population has been notably more susceptible than other age groups. This heightened vulnerability is primarily attributed to their higher prevalence of comorbidities and weakened immunity (Dhama et al. 2020, 2938). The pandemic's sweeping changes in daily life, such as social isolation, heightened emphasis on hygiene, disruption of physical activities, promotion of digital technologies, and various other readjustments, have adversely affected the health and well-being of the elderly population (Jaarsveld 2020, 2). Given these circumstances, safeguarding the older generation becomes paramount, and vaccination emerges as a crucial tool. Mass vaccination is a practical approach to curbing the virus's rapid spread (Cohen 2020, 2018). To achieve this, assessing community-level hospitality, perceptions surrounding vaccination, past experiences, and overall satisfaction with the vaccination process is vital. Understanding the strengths and limitations within the current context will pave the way for a more efficient and effective vaccination process moving forward.

Study Area: Mokokchung district in Nagaland was selected as the study area. According to the 2011 census, the district encompasses 108 villages and is characterized by its physiographic features, which consist of six distinct hills. The district is bordered by Tuensang and Longleng districts to the east, Wokha district to the west, Zunheboto district to the south, and the state of Assam to the north

Sampling Procedure: The villages for the study were chosen utilizing a cluster sampling technique. The entire population was divided into sections or clusters based on specific demographic parameters, namely villages with the highest number of households according to the 2011 census, explicitly targeting participants aged 60 years and above. The selected villages included Ungma, with 2294 households; Chuchuyimpang, with 853 households; Mangmetong, with 775 households; and Longsa, with 772 households, respectively. The snowball sampling technique was employed to identify the respondents for the study. This method involves identifying initial participants who fit the required criteria and then asking them to refer or nominate other potential participants who meet the study's eligibility criteria. This process continues iteratively, creating a chain of referrals until the desired sample size is achieved.

Sample size: 200 respondents aged 60 years and above were selected for the study, irrespective of gender, occupation, personal status, or health condition. The sample was drawn from four villages, with an equal representation of 50 respondents from each selected village.

Tools of data collection: The research drew upon secondary data sources, comprising books, articles, official reports, documentation, and various written records. These resources provided valuable information and insights for the study. A set of interview schedules was meticulously crafted for primary data collection, considering that many of the targeted respondents were illiterate. The interviews were based on the selected questionnaires. Moreover, to enhance the accuracy and comprehensiveness of the data collected during the interviews, modern technological aids such as mobile phone cameras and audio recorders were utilized. These tools were crucial in capturing visual and auditory elements, ensuring no valuable information was overlooked or lost during data collection.

Data analysis: Data analysis was performed by

the Statistical Package for Social Sciences (SPSS version 26.0) and the Analysis of Moment Structure (AMOS version 21.0.)

RESULTS

Profile of respondents: 93 male and 107 female respondents were recorded during the study. Among these participants, the majority identified as farmers, constituting 158 individuals, while the remaining 42 were pensioners. Regarding the COVID-19 vaccination, it was noted that 180 respondents had willingly undergone the vaccination process, indicating their acceptance of the vaccination drive. On the other hand, 20 respondents chose to refuse participation in the vaccination initiative. The age range of the participants varied from 60 to 98 years, with a calculated mean age of 74.6 ± 8.8. Notably, the respondents' educational background predominantly fell within the "No education" and "Class VII" standard levels, as illustrated in **Figure 1**.

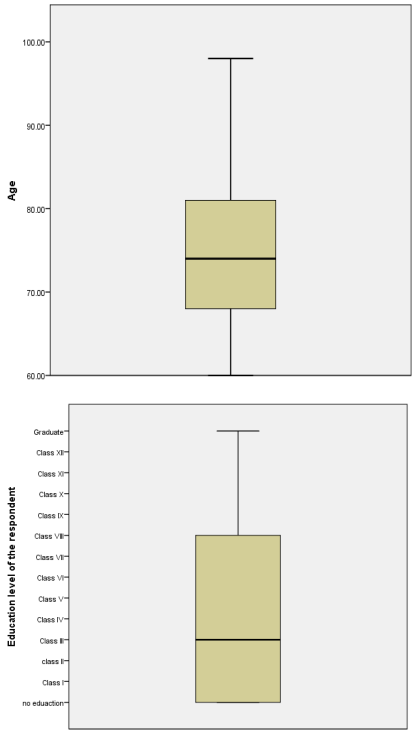

Figure 1: Age spectrum and education level of the respondent

Exploratory factor analysis: Factor analysis is a powerful tool to simplify a relatively complex dataset with numerous variables by creating a smaller set of factors. Before the factor analysis, the data underwent the Kaiser-Meyer-Olkin (KMO) and Bartlett's tests to assess their significance and appropriateness. **Table 1** displays the results of the KMO and Bartlett's Test, with higher values indicating greater suitability for factor analysis. Concerning the geriatric population's perception of future vaccination, the KMO measure of sampling adequacy (MSA) is 0.733, and Bartlett's test of sphericity is significant (Chi-square= 1891.232, $p<0.001$). The factors were extracted using Oblimin rotation with Kaiser Normalization, resulting in a 5-factor solution (**Table 2**), demonstrating a good factor solution in the output. To achieve a favourable factor solution, each variable should exhibit high loadings on one factor and low loadings on all other factors in the matrix (Ajai & Sanjaya 2006, 143).

Based on the five principal components extracted, the five variables were named as follows:

1. Perception of COVID-19 and vaccination among the geriatric population
2. Hospitality received by the geriatric population in their environment
3. Experience of the geriatric population during the vaccination drive and in their environment
4. Satisfaction among the geriatric population during the vaccination drives and from their environment
5. Future willingness to participate in vaccination drives

Using these five variables, a set of hypotheses was formulated (**Table 3),** and a hypothesized model was proposed (**Fig. 2**). This model aims to elucidate the relationships between the identified

variables and provide insights into the geriatric population's perception and attitudes towards future vaccination initiatives.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.733
Bartlett's Test of Sphericity	Approx. Chi-Square	1891.232
	Df	171
	Sig.	.001

Table 2: Structure Matrix

	Components				
	1	2	3	4	5
H3	.942				
H2	.906				
H4	.888				
H1	.854				
S2		.811			
S1		.804			
S4		.803			
S3		.711			
P3			.818		
P4			.796		
P2			.791		
P1			.715		
E2				.861	
E4				.856	
E3				.768	
E1				.754	
F4					.867
F5					.619

Table 3: Hypothesis framed

H1 Hospitality Influences Experiences
H2 Perception influences Experiences
H3 Experiences Influence Satisfaction
H4 Satisfaction Influences Future

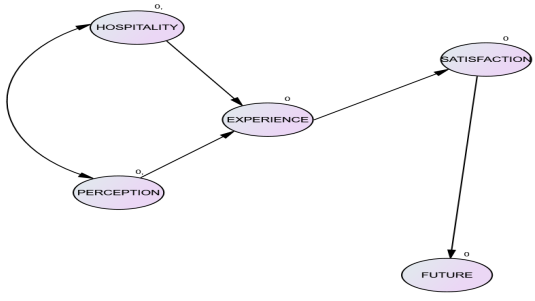

Figure 2: Hypothesized relationship of the SEM model

Construct reliability: To assess the reliability of the five measures utilized in the study, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) were calculated and presented in **Table 4**. Given that Likert-type scales were used in the questionnaire, Cronbach's alpha coefficient was employed, in line with the recommendation by Joseph and Rosemary (2003) for assessing reliability and consistency in such cases. The Cronbach's alpha scores for all the variables exceeded 0.7, indicating the questionnaire's high reliability and internal consistency (Wang et al. 2019, 5). This demonstrates that the items within each construct are highly correlated, ensuring the robustness of the measurement scales. CR was also computed for all the measures, and the results surpassed the threshold value of 0.60, as suggested by Fornell and Larcker (1981, 39). The CR value above 0.60 indicates that the measurement model is reliable, and it can be inferred that the constructs accurately measure the underlying latent factors. Although the average variance extracted (AVE) values were lower than the recommended threshold of 0.5; it is crucial to consider that all five constructs exhibited CR values well above the recommended level of 0.60 (Long, 2012, 1331). As Fornell and Larcker (1981, 39) propose, AVE may be a conservative estimate, and researchers may conclude construct validity based on the higher CR values. In summary, the results of Cronbach's alpha and composite reliability support the reliability and internal consistency of the measurement scales used in the study. While AVE values were lower than the recommended threshold, the high CR values provide confidence in the reliability and validity of the constructs.

Table 4: Construct reliability

Variables	**AVE**	**CR**	**Cronbach's Alpha**
Hospitality	0.751	0.923	0.920
Perception	0.487	0.790	0.786
Experience	0.562	0.833	0.831
Satisfaction	0.495	0.796	0.800
Future	0.485	0.780	0.752

SEM fit assessment: To evaluate the model fit, several model-fit indices were examined, including Chi-square/degrees of freedom (χ^2/df), comparative fit index (CFI), goodness of fit index (GFI), incremental fit index (IFI), Tucker Lewis index (TLI), and root mean square error of approximation (RMSEA), as presented in **Table 5**. It was observed that the Chi-square statistics

yielded a p-value of <0.01, indicating a lack of good fit. However, Schumaker and Lomax (1996, 125) assert that for sample sizes of 200 or larger, the Chi-Square statistics may be affected, rendering a significant probability level unattainable. Given that the sample size in the present study was 200, reliance solely on the Chi-square statistics for model fit evaluation may not be appropriate. As a more comprehensive approach, other model-fit indices were taken into account. Upon further interpretation, it was found that all observed values of CFI, GFI, IFI, TLI, and RMSEA fell well within the recommended ranges, suggesting an adequate model fit. These indices provide further assurance that the proposed model appropriately represents the relationships between the variables and aligns well with the collected data. Considering the limitations of the Chi-square statistics for larger sample sizes, the combination of other model-fit indices supports the conclusion that the model demonstrates a satisfactory fit to the data in the present study.

Table 5: Model fit indices

Fit Indices	CFA	SEM	Suggested value
Chi-square	225.913(p=0.00) DF-125	233.635(p=0.00) Df- 130	p-value >0.05
Chi-square/degree of freedom (x2 /d.f.)	1.807	1.797	≤ 5.00 (Hair *et al*., 1998)
Comparative Fit index (CFI)	.936	.934	>0.90 (Hu and Bentler, 1999)
Goodness of Fit Index (GFI)	.909	.906	>0.90 (Hair *et al*., 2006)
Incremental Fit Index (IFI)	.937	.935	Approaches 1
Tucker Lewis Index (TLI)	.912	.913	≥ 0.90 (Hair *et al*., 1998)
Root mean square error of approximation (RMSEA)	.064	.063	< 0.08 (Hair *et a*l., 2006)

Pathway analysis and SEM

SEM variables: The pathway analysis is presented in Figure 3. Following are the SEM variables

Observed, endogenous variable:

1. Experience: Participants indicated their experience on a five-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strong Agree). (e.g., I have previous experience with vaccination)
2. Satisfaction: Participants indicated their Satisfaction on a five-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strong Agree). (e.g., Satisfied with the neighbourhood)
3. Future: Participants indicated their Future on a five-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strong Agree). (e.g., Willing to get a vaccination in the future)

Observed exogenous

4. Hospitality: Participants indicated their Hospitality on a five-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strong Agree). (e.g., I feel secure in the neighbourhood that I reside in)
5. Perception: Participants indicated their Perception on a five-point Likert scale (1=Strongly Disagree, 2=Disagree,

3 = Neutral, 4 = Agree, and 5 = Strong Agree).

(e.g., Vaccination curbs the spread of the virus)

Unobserved exogenous variables

1. e23: Error term for Experience
2. e24: Error term for Satisfaction
3. e25: Error term for Future

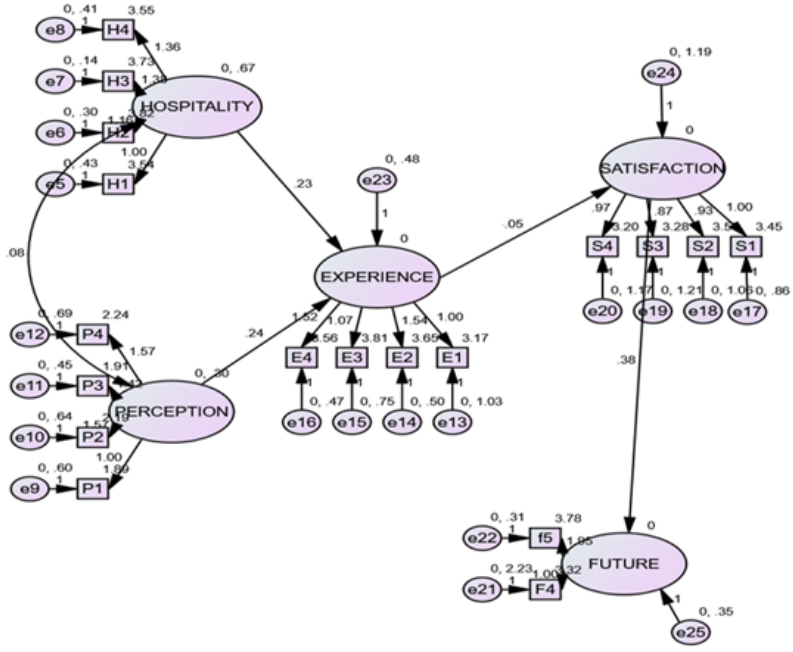

Figure 3: SEM model

Table 6: Variables in the Structural Equation Model Analysis

Variables			Unstandardized co-efficient (B)	S.E of B	Standardized co-efficient (B)	t value	p value
Experience	<---	Hospitality	0.232	0.074	0.257	3.125	0.002
Experience	<---	Perception	0.239	0.118	0.176	2.026	0.043
Satisfaction	<---	Experience	0.051	0.124	0.035	0.412	0.681
Future	<---	Satisfaction	0.380	0.120	0.575	3.166	0.002

Based on the information presented in **Table 6**, the following observations are made: The path coefficient of Hospitality on Experience is 0.232. This indicates that Experience would increase by 0.232 for every unit increase in Hospitality, and the relationship is highly statistically significant (p = 0.002). The path coefficient of Perception on Experience is 0.239. This means that Experience would increase by 0.239

for every unit increase in Perception, and the relationship is moderately statistically significant (p = 0.043). The path coefficient of Experience on Satisfaction is 0.051, indicating that Satisfaction would increase by 0.051 for every unit increase in Experience. However, this relationship is not statistically significant (p = 0.681). The path coefficient of Satisfaction on Future vaccination is 0.380. This implies that Future vaccination tendency would increase by 0.380 for every unit increase in Satisfaction, and this relationship is highly significant (p = 0.002).

Based on these findings, hypotheses H1 (Hospitality → Experience), H2 (Perception → Experience), and H4 (Satisfaction → Future vaccination) are accepted (Table 7). Furthermore, the standardized coefficients provide insights into the relative influence of each path in the structural equation model. Satisfaction of the older population is found to have the most significant impact (0.575) on Future vaccination, followed by Hospitality received influencing Experience (0.257). Perception of COVID-19 and its vaccination has a relatively lower influence on Experience (0.176), and lastly, Experience is observed to have the least impact on Satisfaction (0.035). In conclusion, satisfaction emerges as the most influential factor in this structural equation model, followed by hospitality. These findings highlight the significance of satisfaction in shaping the future vaccination tendencies of the older population.

Table 7: Hypothesis

H-I Hospitality influences experiences	Accepted
H-II Perception influences experiences	Accepted
H-III Experiences influences satisfaction	Rejected
H-IV Satisfaction influences future	Accepted

DISCUSSION

This study represents the first attempt to construct a Structural Equation Model (SEM) based on COVID-19 vaccination for the geriatric population residing in the Mokokchung district of Nagaland. The significance of this research lies in recognizing the crucial role that every individual in society, including the elderly, plays, as emphasized by Kapur (2018, 1). The study specifically focuses on the vulnerable geriatric population amidst the prevailing COVID-19 scenario, aiming to create a society that values and empathizes with older adults, as Soto-Perez-de-Celis advocates (2020, 2). The findings reveal that although most of the aging population in the study received vaccination, a minority remained undecided about participating in the vaccination drive. According to a UN report (2020, 7), elderly individuals locked down and quarantined with caretakers or family members faced abuse, violence, and neglect, significantly impacting their pandemic experience. Conversely, co-residing with supportive peers or engaging in social activities increased well-being among older adults (Djundeva et al. 2019, 1411). Social contact is vital in reducing perceived isolation among older adults (Wu & Chan 2012, 7). Thus, a robust association exists between the aging population's social participation and the socio-physical neighbourhood, which promotes their well-being and encourages participation in activities (Hwang & Sim 2021, 10). Creating a favourable environment accompanied by social leisure activities was essential for increasing the well-being of older adults in a community. The exacerbation of social isolation during the COVID-19 pandemic has profoundly affected the mental and emotional well-being of older adults, potentially affecting their vaccination decisions (Hwang et al. 2020, 1). Therefore, the importance

of family dynamics and the role of social support networks also emerged as significant sociological influencers of vaccine acceptance (Al-Ghuraibi et al. 2022, 3)

Perception plays a crucial role in influencing preventive behavior within a population. Increased exposure to health professionals, news, and other media sources enhances alertness and aids in risk assessments (Khosravi 2020, 1). Older individuals expressed higher concern about COVID-19 and its associated health risks during the pandemic. This fear triggers threat appraisal, which is vital for adopting preventive behaviour (Bitan et al. 2020, 1; Gerritsenb 2020, 1876). A better understanding of the origin and various risks associated with COVID-19 stimulates behavioural changes (Shirahmadi et al. 2020, 2). Therefore, increased exposure to official sources of information promotes preventive behaviours (Khosravi 2020, 1). Trusting in governmental initiatives has a strong positive correlation with preventive behaviours (Al-Rasheed 2020, 552), and an increased perception of risk leads to specific actions to avoid illness (Adunlin et al. 2020, 3). However, negative perceptions and experiences may hinder this preventive stimulus. Some respondents in the study had negative experiences and perceptions of vaccines, including fear of drug administration, pain, past side effects, vaccine ineffectiveness, and misconceptions about vaccines (Pugliese-Garcia et al. 2018, 5619). Fabricated viral messages from various outlets and conspiracy theories negate information from official sources (Banai et al. 2021, 7455; Pummerer et al. 2021, 49), leading to a decrease in behavioural risk assessment (Kim & Kim 2021, 70). Some individuals refuse vaccination due to scepticism about the vaccine's positive effects (Alabbad et al. 2018, 491). The study reveals a strong positive correlation between the perception of COVID-19 information sources and COVID-19 preventive experience. The emergence of new COVID-19 mutations challenges community preparedness for transmission, treatment, and diagnosis (Zieneldien et al. 2021, 12). There is also concern about the unknown side effects of vaccines among the population (Kashte et al. 2021, 726). The study demonstrates that increased satisfaction with vaccination drives correlates with an increased willingness to participate in future vaccination. This increased satisfaction is associated with proper information dissemination, hospitable health worker approaches the absence of side effects, and a sociable neighbourhood. This is vital as the cultural context of the Mokokchung district may play a pivotal role, with reports of cultural beliefs and norms influencing vaccine acceptance presented by Al-Ghuraibi et al. (2022, 11)

Ultimately, increased threat assessment (Perception) and Hospitality received lead to higher satisfaction among the older population, resulting in an increased willingness for future vaccination. These findings support the hypothesis that satisfaction positively influences future vaccination willingness. Although the statistical significance between Experience and Satisfaction was not observed (H-III rejected, $p=0.681$), the researchers believe that larger sample size and variation in data collection tools may improve statistical significance. Therefore, this variable remains included in the current hypothesized model. In conclusion, this study sheds light on the significance of Satisfaction and Hospitality in shaping the attitudes of the geriatric population toward future vaccination drives. It emphasizes the importance of considering the perceptions and experiences of older adults in vaccination initiatives to promote their well-being and overall community health.

CONCLUSION

In the present study identified and analysed five latent variables: Experience, Hospitality, Perception, Satisfaction, and Future. The model fit indices of the Structural Equation Model (SEM) were within the accepted values, indicating an acceptable fit of the model to the data. Based on the standardized coefficients, we observed that Satisfaction had the highest positive correlation (0.575) with Future vaccination, followed by Hospitality's influence on Experience (0.257), and lastly, Perception's impact on Experience (0.176). These findings highlight the significance of Satisfaction and Hospitality in shaping the willingness of the older population to participate in future vaccination drives and the role of Perception in influencing their overall experiences related to vaccination. In light of the study's results, the following recommendations are proposed to promote increased well-being and preventive behavioural traits among the geriatric population:

1. Creating a Healthy Neighbourhood: Efforts should be made to establish and maintain a healthy and supportive neighbourhood environment for the older population. This may include accessible healthcare facilities, green spaces, and safety measures to promote a sense of well-being and security.
2. Regular Social Participation: Encouraging regular social participation among older adults can improve overall well-being. Organizing social activities, community gatherings, and programs that engage the aging population can help reduce feelings of isolation and promote a sense of belonging.
3. Co-residence with Considerate Peers: Foster living arrangements allow older adults to co-reside with considerate peers who provide support and companionship. Such living arrangements can positively impact their mental and emotional well-being.
4. Favourable Environment and Social Leisure Activities: Designing environments that offer opportunities for social leisure activities can enhance the well-being of older adults. Providing spaces for social interactions and leisure pursuits can contribute to their overall life satisfaction.
5. Increased Exposure to Health Professionals and Reliable Information: Encouraging older adults to seek information from health professionals and reliable sources can increase their awareness of health risks and preventive measures. Regular updates from trustworthy media sources can also aid in risk assessment.
6. Addressing Vaccine Misconceptions: Efforts should be made to address vaccine misconceptions and concerns. Providing clear and accurate information about the vaccines' safety and efficacy can help dispel doubts and increase acceptance.
7. Controlled Exposure to Misleading Information: Older adults should be encouraged to evaluate information from various sources critically. Educating them about the potential dangers of false viral messages and conspiracy

theories can help minimize the influence of misleading information.

8. Addressing Misconceptions about Vaccines: Addressing misconceptions about the who, whom, and how of vaccines is essential. Providing comprehensive information about vaccines and debunking myths can enhance their understanding and confidence in vaccination.

By implementing these recommendations, policymakers, healthcare providers, and community organizations can contribute to the well-being and health of the geriatric population. It is essential to create a supportive and empathetic environment that addresses older adults' unique needs and concerns to ensure a healthier and more resilient community.

Research limitations: The present study has its set of limitations which needs to be considered when interpreting the results and generalizing the findings:

1. Limited Sample Size: The study faced time constraints, resulting in a smaller sample size or a limited population being considered. A larger sample could have provided more comprehensive and representative results. As a result, the findings may only partially capture some of the diversity and nuances of the geriatric population in the Mokokchung district, Nagaland, or other regions.
2. Specific Group Focus: The study concentrates solely on a specific group of older people in the Mokokchung district, Nagaland, North East India. Consequently, the conclusions and recommendations drawn from this research are specific to this particular group. They may not apply to other sections of the elderly population or different geographic regions. The cultural, socio-economic, and health-related factors of other elderly people may differ significantly, influencing their perceptions, experiences, and attitudes toward vaccination.

Acknowledgment

We acknowledge all the respondents for their invaluable time.

Declarations:

Author Contribution: All authors contributed equally

Ethics Approval: Not applicable.

Consent to Participate: All authors and respondents have their permission to participate

Consent for Publication: All authors and respondents have their permission to publish their work

Funding: Na

Conflict of interest: All authors declare no conflict of interest.

Availability of data and materials: Data made available on reasonable request.

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.41-47

Ecosophy in the Select Folktales of the Konyak Nagas

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Abstract

The Konyak Nagas are one of the major Naga indigenous tribes of Nagaland. The Konyaks are known for their rich oral traditions that has been passed down orally from generation to generation and where much of the tale has not been recorded in writing. The aim of this paper is to explore the inherent ecological wisdom in select folktales of the Konyak Nagas written by Wangjin, Konyak and Konyak, in the book, *Konyak Naga Folktales – A collection* (2013). It will help us to understand the Konyak Nagas' indigenous social and cultural practices, their beliefs and worldviews which are interlinked to the ecological web of mutual coexistence of all life forms on earth. This understanding can help promote pro-environmental behavior- of responsible practices, reciprocity and balance in man's relationship with the natural world.

Keywords: Konyak Naga, folktale, sacred, rituals, ecology, kinship, reciprocity, balance

Nagaland, one of the North Eastern states of India, is home to seventeen (17) major indigenous tribes and the Konyak Nagas are one of the major Naga tribes inhabiting the Eastern-most part of the state. Nagas have rich repositories of oral traditions which have primarily been the means of archiving history for the Nagas and the art of storytelling is interwoven in the fabric of oral tradition. The Nagas' oral tradition of storytelling is replete with different forms of literature such as folktales, folk songs, folk poems, proverbs and riddles, rituals and ceremonies and so on. Their oral traditions are 'the living dynamic practice that includes an interactive and spiritual relationship to specific places that is expressed and perpetuated through forms of ritual and ceremony with the power to heal and to cause harm' (Porter & Roemer 2005, 43).

The socio-cultural and ecological worldview of the Konyak Nagas is their belief in a sense of kinship with the rest of the world where human, natural and the supernatural world live in tandem with one another. This sacred kinship is evident in almost all the folktales of the Konyak Nagas. The three varying tales of 'The Origin of Rice,' narrates about the interconnection of all life forms (Wangjin et al. 2013, 88-93). The first variation tale narrates about the villagers of Changlang village where they faced the mysterious incidents of their children disappearing from the village. The reason behind the incident was none other than the malevolent spirits. When one of them is caught by the villagers, it gives them rice grains in return for its release. The second variation narrates about a woman and her son who lived in the forest, and who are given different seeds of

paddy, maize and millet by the forest spirit and also continuously helped by the spirit in all their activities. Konyaks attributed their knowledge of cultivation, woodwork and sculpting, weaving, their livelihood, and prosperity to the supernatural elements as revealed in the tales. The third variation tale of the 'Origin of Rice' narrates how the Konyaks migrated from one place to another in search of food and shelter and crossing over the Deilao Valley towards the present area through Dikhu river (Wangjin et al. 2013, 92-93). When they reached a mountainous area, they climbed up its cliff top which they named 'Wungbei' meaning the 'hanging sky' (Wangjin et al. 2013, 92). There they found two huge rocks identified as 'male and female' and another rock in the shape of a paddy carrying baskets of the Konyaks. As they settled there for some time, they discovered different types of weeds and plants growing out of the female rock of which one of the plants was the red rice. They named the female rock as 'Tahnyim Longnyu' meaning 'stone where paddy grows' and marked their settlement there (Wangjin et al. 2013, 92). It is also said that the present habitat of Kongan village is on top of this mountain.

Land indeed occupies an important place in the lives of the Konyak Nagas, for it is from their land, their place of origin, that their identity, culture and tradition, is derived from. The tale not only describes the pristine and fertile ecology of the tribe where they make their settlements but also attributes the land with the 'feminine life force of the universe; a mother to all…the source and the being of the people, and all [we] are equally the being of the earth' (Fleck 1993, 233). This feminine power of fertility and procreation that the Mother Earth offers to all creations transcends to that of the other natural world as well (Imsong 2009, 155).

The tale also speaks of the Konyak Naga tribe's belongingness and identity to a particular place in which they share common memories of the past, portraying the intimate connection between place, self and community. As Esther Konyak writes, "The belief that as 'land belonged to the human, the human belonged to the land' was a strong ethical and moral foundation of everyday Konyak life. And therefore, 'The loss of land is seen as loss of identity, an alienation from nature'" (FNR 2018, 53). Land is not only a piece of property to the Nagas but a part of their being and therefore, the location, the land, the place of their dwelling and civilization includes the concepts of homeland, culture, religion, spiritual sites, the natural environment, other natural resources which are all sacred to them as they are sites from where their ancestors emerged (Imsong 2009, 159-160). Whenever land dispute arises among the individuals, the settlement of the disputes involves the clan and the community at large. The protection of the land ownership by the community conveys the 'religious sensibility of community response and relationship and expresses a deep sense of attachment between people and the land they inhabit' (Garrard 2007, 126).

However, the pristine ecology that the tribe once shared with all is deteriorating with the colonization of their land by the Britishers. The settlements around the place mentioned in this particular tale and beyond the place became a place of Coal extraction for the colonizers in the late 19th and early 20th centuries leading to the establishment of a coal loading station at Naginimora which is still existent even today; and eventually by the government at present and other individuals, to derive economic prosperity from their lands. Today, the local communities where coal is extracted, faces displacement and dislocation of

their homes, deforestation, landslides, pollution of water sources, destruction of cultivable lands, unhygienic and risky conditions of mining, loss of lives and livelihood. What had once linked the self and the community intimately i.e., the land is now being commodified for economic prosperity and development. What we can do to minimize the impact of the present ecological crisis that we face today is to "put our inner house in order - the inner house of our communities, our nations, our gender, our species" and thus, enhance our relationship with nature in ways beneficial to both to people and to our environment (Fox 1998, 229).

The tale of 'The Heavenly Princess' narrates the tale of a young man named Ngampa in Wakching village who planted Canna lily (Aw-iy) in his garden, which was dark red and extremely beautiful and bloomed in all seasons (Wangjin et al. 2013, 60-62). He took such care of the plant that he was disheartened to find it continuously being plucked every night. As he waited for the culprit, one whole night, he found to his surprise, a small thread rolling down from the sky and a girl descending from it and plucking the full bloomed flower. She was an angelic being, exceptionally beautiful whom he named 'Helem' and they were soon married. Like any other human, Helem began to learn all types of work and duties. In the course of their life on earth together, they purchased a plot of land to cultivate crops which was filled with big trees and had to be cleared for cultivation. Time and again throughout the tale, we find them approaching the Supreme Being's assistance and advice in uprooting the trees, clearing away the debris and the weeds in their field. Even during their surplus and overflowing harvest of paddy, Helem is advised by the Supreme Being to untie her hair and run around the hut. However, this makes the paddy vanished from her sight. And once again she calls upon the Supreme Being to restore the lost paddy, where she is then advised to slaughter a rooster and perform a sacrifice. The sacrificial ritual brings back the lost paddy. It is a belief among the Konyaks that before the harvest, they have to perform a ritual to appropriate the spirit and observe ceremonies after the harvest acknowledging the Supreme Being for his blessings. Even today, this post-harvest festival is celebrated by the Konyak which is known as, 'Lao Ong Mo.' Helem continually takes the advice of the Supreme Being even when she decides to end her life. It is believed that when she was crushed to pieces by the animals as she awaited her end, her remains were metamorphosed into three different birds, 'Muyak,' 'Shokphat' and 'Gonggong' (Wangjin et al. 2013, 62).

The coexistence of man, animals and spirit in the natural environment and the transformation of man into insects, birds, animals and spirits is a widely accepted folk belief among the Nagas. Powers of transformation interrelated animate and inanimate beings in a reverse form of spiritual anthropomorphism depicting their shared bonds of kinship and unity (Lincoln 1983, 25). Such unity is seen in the marriage of Ngampa and Helem and the transformation of Helem into different types of birds in the mentioned tale. It bespoke of a time in which mutual co-existence of the spirit world and the natural world was accepted as a natural course of life among the indigenous Naga tribes. Deep ethical regard for the earth and the sky and reverence for the natural world is seen in the invocation of the Supreme Being, '*Kahwang,'* (the omnipresent Spirit on the earth, '*Kah*' and the Sky, '*Wang,*') in all their daily activities – clearing of the jungles, cutting of trees, weeding, cultivation and harvest of crops, festivals, rituals and ceremonies.

Taboos are an integral part of the folkways of the Nagas. In the tale, it can be observed that when Helem untied her hair while harvesting, she lost her surplus crops to unknown elements. It became an important taboo for the tribe to not untie their hair while harvesting nor carry the paddy through the backdoor of the hut. The Konyaks consider it taboo to sit on the rice bag, to throw or waste rice or edibles without any reason and to be too boastful of one's harvest. Observance of the taboo was to ensure the balance in the ecological world of the community. The context of the observance of taboo portrays the worldview of the Konyak Nagas where the secular is blended with the religious and the physical with the spiritual. This is similar to the worldview of the Native Americans as written by Booth and Jacobs (1998) in, *Ties that Bind: Native American Beliefs as a Foundation for Environmental Consciousness:* 'Everything is a recognition and affirmation of the sacredness of life' which is why it is difficult to 'split between their secular and the sacred and between humanity and the rest of creation' (261).

Later, the restoration of the lost paddy is made possible by performing a sacrificial chicken ritual before starting the harvest and appeasement is offered to the natural and spiritual world by celebrating the Post-Harvest Festival (Lao Ong Mo) for the bountiful supplies. The Konyaks, like the other Naga tribes, pronounced blessings of good health, abundance, fertility and good life in all their daily activities through rituals and ceremonies. The Aoleang Monyu festival of the Konyaks is celebrated to pronounce blessings for the New Year and Lao Ong Mo is the thanksgiving celebration for the harvest. The making of rituals and ceremonies is an ecological virtue showing reverence towards nature, 'an act of celebrating sacred times and sacred places and the sacred beings with whom people share this planet' (Fox 1998, 234).

The story, 'The Origin of Tattoo' narrates how in those days, a group of young men from a certain Konyak village went to the forest for hunting and came upon a strange and mysterious animal never seen before (Wangjin et al. 2013, 85-86). It led to a debate amongst themselves whether to eat the meat or not. An old man suggested that it was wise for them to butcher and distribute the meat among themselves. Heeding the old man's advice, they carried the animal to the village, butchered and distributed the meat to all the households and members of the village except for an old widow who lived at the edge of the village. Within the next few days and months, an unusual sign and calamity came upon their village. The Rooster stopped crowing, the rice beer became wasted, sickness and diseases increased, the land grew barren and harvests was poor. This unusual phenomenon compelled them to summon a shaman to investigate and find the reason for these misfortunes. After a long period of ritual, ceremonies and prayer, the shaman conveyed the message that they had killed an animal that belonged to the Supreme Being and that the Supreme Being was angry with them. The shamans also warned the villagers that they would not be able to live and prosper anymore in the same village they had lived and prospered for ages. Having received this ominous message, the villagers dispersed and scattered to different places. When the inhabitant of another village heard about these misfortunes, they decided to tattoo themselves on their face as reverence to the spirit and also to prevent themselves from the wrath of the Supreme Being and find its favor. The news of this particular villagers tattooing their faces spread to another village and other villagers decided to tattoo their shoulder. This chain of tattoo continued in different villages with each opting for different patterns and designs. And that is how tattooing in different styles and patterns emerged.

The Konyak Nagas lived as a closely knitted family, generously sharing each other's material and spiritual wealth with each another. Values of loyalty, harmony, cooperation, helpfulness; respect and reverence, mutual co-existence and responsibility are accorded great importance in their lives. It is taboo for them to violate any of these values. The proximity of the spiritual world to the world of men dictates that men live a highly moral life, considering the taboos carefully and avoiding their violation because repercussions of violations of taboos can be felt on earth (Iralu 2000, 73). In the tale, it can be observed that they violated the values of respect, reverence and mutual co-existence by killing the mysterious animal out of curiosity and not because of their need and by ignoring the plight of the impoverished i.e. the old widow, in not sharing the meat with her. It indicates the failure of man to understand the animals and the poor and weak as beings who share kinship with all creatures and the spiritual world, for everything has a being, a life and a self-consciousness, and the earth itself is perceived as a living, conscious being which must be treated with respect and care (Booth and Jacobs 1998, 257). Failure to understand this sacredness created imbalance in their cosmic universe tearing it apart irreparably. The wrongful act of the community incurs the wrath of the Supreme Being and disastrous calamity befalls upon them in the form of famine, earthquake and landslides to the extent of making them leave their home. "For everything that was taken, something had to be offered in return…and a fair exchange for what had been taken to maintain the balance" (Booth and Jacobs 1998, 261); and what the tribe's people had to offer for taking away the life of a mysterious animal and not including the widow as their kin was to make rituals, an act of appropriation in which they had to tattoo different parts of their body which later became a part of their life and identity. This making of the rituals enables the community to heal itself, enlighten itself, gain favour from everyone and to let go; and that is how the tribe passes on their value systems of eco-consciousness and eco-sensitivity to the young through rituals, songs, ceremonies and festivals (Fox 1998, 234). The tale thus reflects and perpetuates the Konyak Nagas' cultural and ecological worldview of maintaining relationships of mutual respect, reciprocity and caring with human, natural and spiritual beings through their religious beliefs and ceremonial rituals (Booth and Jacobs 1998, 258).

One of the Konyaks' folktales, 'The Story of a Crab,' narrates a chain of chaotic events in the lives and habitat of the animal kingdom creating imbalance in the natural world (Wangjin et al. 2013, 13-14). The story starts with a crab accidentally dropping a Hodsonia fruit (Pai), when asked by the squirrel to share with it, on a peacefully sleeping earthworm. Chaos ensued as the startled earthworm panicked and wriggled all over the place entangling itself onto the leg of a deer grazing nearby. Taken by surprise, the deer ran as fast as it could hustling into a groove of wild boars who ran amok shaking the banana plantation which was home to a colony of bats. The agitated bats then flew here and there looking for shelter only to find an elephant's trunk as their safety net which in turn choked the elephant leading to its death. The sudden demise of the elephant spread far and wide and the tiger had to call upon all the creatures to assemble for its funeral service. During the funeral, when everyone was weeping for the elephant chanting, they suddenly heard someone addressing, "My beloved…my child… my child!" (Wangjin et al. 2013, 13). It was a goat and when enquired why the goat had addressed the largest animal as a child, it justified that its

grey beard deems it fit to address it so. The other creatures were annoyed with the displeasing act of the goat and cursed the goat for life which is why it is believed that goats suffer from fits and seizures even to this day. Meanwhile, the creatures after investigation came to learn that it was the crab that created the mayhem in the first place resulting in the death of the elephant. When asked to explain, he had no answer and ran away from the angry mob taking refuge under a huge rock. All the animals took turns to bring out the crab from its hiding place but to no avail. Finally, a gibbon taking advantage of his long upper limbs decided to take the chance and as soon as he tried to grab the crab, the crab attacked him with its sharp claws giving a painful facial expression which is why it is believed that gibbons carry painful expression and never drinks from the stream to quench their thirst from that day onwards. Left with no option to avenge the crab, all the creatures leaped on the rock and jumped on it to crush the crab with their weight. This led to the flattening of the crab which was once believed to be oval.

The tale emphasizes the "inter-relationship of all people [all life forms] where no one can act within a vacuum; for everyone's choices ripple throughout the population" just as the dropping of the nut creates a ripple effect throughout the tale (Coulombe 2011, 72). The tale is an anecdote to show the interconnectedness of multiple threads of all life forms and everything that is on Earth with no particular species occupying a superior or central position; and once this interconnection is destructed, it could lead to a cascading sequence of events in the whole cosmic system as was created in the world of the animal kingdom in the tale (Gupta 2022, 5). Through the tale, one can but imagine the advocacy for community over individualism, the unity and interconnectedness of all things- of people to land, of stories to people, of people to people (Coulombe 2011, 73). Balance can be maintained when one recognizes the world beyond oneself and considers others inclusively and holistically.

Oral traditions are rich repositories on the indigenous ways of social, cultural, religious and spiritual life. The tales explicates how the sacred kinship that man shared with inanimate and animate beings and the reverence given to nature through rituals, ceremonies and festivals helps maintain balance in the tribal community. The essence of the Konyak Naga tribe is being in harmony with nature and other tribes and their folktales reveals valuable insights that can inform us to understand ourselves, our tribes, our culture and our environment. The ecological sensibilities evident in the tribe's folktales can be utilized in bringing about a transformational change and deliberate willingness to learn from and conform to indigenous traditional ecological practices in dealing with the pressing issue of the ecological crisis that humanity is facing today. This can help us reshape our dealings with nature- revering all life forms with a sense of mutual respect, harmony, responsibility and balance leading us to the discovery of new directions for the contemporary world.

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Sentilemla Lemtur, FAC Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.48-58

Environmental Discrimination and Violence: A Discourse in Search of Environmental Justice in *Where the Crawdads Sing* by Delia Owens

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Abstract

Environmental Justice or Ecojustice advocates to sensitize the human kind of a sense of environmentally powered equity, acknowledgement and fairness in treatment of humans as well as non-human kind whether flora, fauna or physical environment. Ecojustice understands the importance of a continued co-existence of every natural species on earth and therefore finds the plight of non-human kind as an echo of poorly served conduct, primarily by affluent people. This paper aims to deliver an analysis of the popular text *Where the Crawdads Sing* by Delia Owens in alignment with violent disturbances caused to physical environment based on a normalized conception of solely gazing at nature from a patronizing and discriminating vantage. The seventeen principles of ecojustice adopted during the First National People of Color Environmental Leadership Summit intends to mitigate an urgency of acknowledging and improving the environmental plight of actively and passively oppressed communities of people along with problems faced by the physical environment. The marshes and Kya in *Where the Crawdads Sing* are easily identified as the face of oppressed kind and Kya's experiences and voice in the text merges the message of environmentally discriminated people as well as that of the physical environment. Inequality of treatment, condescending and oppressive gaze, abandonment, mistreatment, violence, sense of entitlement and judgement therefore are some of the environmental plights in the text which the paper aims to problematize.

Keywords : Environment, Justice, Judgement, Oppression, Oppressive gaze, Violence, Discrimination, co-existence

Introduction

The post-modern 21st century has witnessed exponentially in its nascent years an impactful influence of environmentally challenged discourses. Environmentalism is not a new philosophy or approach to enlightenment; nature has been praised and worshipped in ancient texts and the wisdom of living closely in cooperation with the physical environment is shared in ancient practices. Romanticism during the late 18th century and initial 19th century marks the phase of celebrating nature and promoting the status and importance of nature for internal and external sustenance and American Transcendentalism and Nature Writing has given nature a profound position of being a presence that is not only significant on the outside but one that

creates a deeper impact internally. They imparted a close living with nature and found its influence in that proximity of closeness. By the late 20th century, many ecologically challenged writers and thinkers contributed works reflecting the risky conditions that man had caused to the environment. Rachel Carson's *Silent Spring* in 1962 unearthed the danger of excessive usage of DDT in the environment without understanding its hazardous impact. One of the reasons for the outburst of environmentally charged debates and discourses in the 20th century is the impact of the Industrial Revolution and the two World Wars which had disastrous impact on the earth in totality. In recent years environmental philosophy, environmental history, ecocriticism, environmental anthropology, environmental justice etc., have been investing much in positioning the problematics of the environment in the map of academic and critical discourse without formal support. Whereas ecocriticism was formally constituted under the wings of the Association for the Study of Literature and Environment, many lacked such a formal body of study. By the early 21st century Environmental Humanities was formed and accepted in academia to stand as the formal discipline that powers all the aforementioned branches of study. According to Prof. Dr. Schmidt et al. of the University of Augsburg, the first European MA course for EH was launched at Bath Spa University, United Kingdom, in 2016 to bring "humanities and sciences together to build creative responses to environmental challenges." (Prof. Dr. Schmidt et al. 225) and two of the pioneering journals are of Environmental Humanities are *Environmental Humanities* and *Resilience: A Journal of the Environmental Humanities.*

Environmentally powered discourses come in various forms and perspectives, among the many lenses Ecojustice holds an impactful place as it brings forth socially fueled environmental problems as well as environmentally fueled social problems often dumped upon minorities or racially isolated communities. Ecojustice in academic discourse is powered by the body of Environmental Humanities. It acknowledges the entitlement of existence both for humans as well as the non-human strings of the ecosystem. Ecological justice identifies the ecosystem as a separate entity, capable of functioning independently. Thus, unfair treatment of nature through economically charged human interventions like pollution-inducing industries, factories, encroachments, and extractions are checked and challenged by it. While ecojustice is a broader dome of challenging and batting the plight of ecology, environmental justice is another name which is synonymously articulated as ecojustice. However, the term environment encompasses everything that physically as well as abstractly surrounds and influences the earth and therefore environmental justice although following ecojustice, not just finds the plight of non-human kind but also voices for the environmental adversities of the human kind. Known as the "father of Environmental Justice" Dr. Robert D. Bullard, initiated Environmental Justice against environmental racism when he contributed much support to the Bean v. Southwestern Waste Management, Inc. lawsuit which was filed by "Black residents in Huston, Texas" (Young, np) against waste disposal management. Environmental Justice centrally stands against discrimination-borne mismanagement, violence, misjudgment, unfair treatment, bias and oppression of minority communities relating to environmental matters. It opposes the laid-back, unethical and patronising attitude of finding certain communities of people as easy targets to throw garbage at, building factories far away from the city yet near residents

of a distant locality or neighbourhood and gazing with contempt at the same people as residents of unhygienic spots.

Environmental Justice at its core involves environmental law and Human Rights as it stands for justice against environmental injustice caused to the environment and a certain community of its residents who occupy the lower position of socio-political strata. It also tends to attain an extreme political status with governmental policies and public protests for change. This paper, however, is an attempt to focus on the pulse of environmental injustice such as discrimination of the easily dismissible or the minority, violence, oppression and a sense of entitlement of the "haves" against "have nots" and the judgmental or censorious attitude of the urbane people against the marsh and Kya, the central character in the text. The heart of this discourse is evaluating the problems of discriminatory gaze, preconceived judgement and vilification of a certain category or section of people or land by those who are socially and politically positioned, privileged and economically fit for the urban culture.

Environmental Justice or ecojustice advocates to sensitise humans' kind of a sense of environmentally powered equity, acknowledgement and fairness in the treatment of humans as well as non-human kind whether flora, fauna or physical environment. Ecojustice understands the importance of a continued co-existence of every natural species on earth and therefore finds the environmentally stimulated plight of humans and non-humankind as an echo of poorly served conduct, primarily by affluent people. This paper thus aims to deliver an analysis of the popular text *Where the Crawdads Sing* by Delia Owens in alignment with violent disturbances caused to the physical environment and its residents based on a normalised conception of solely gazing at nature from a patronising and discriminating vantage. The marshes and Kya in *Where the Crawdads Sing* are easily identified as the face of an oppressed kind and Kya's experiences and voice in the text merges the message of environmentally discriminated people as well as that of the physical environment. Inequality of treatment, condescending and oppressive gaze, abandonment, mistreatment, violence, sense of entitlement and judgement therefore are some of the environmental plights in the text which the paper aims to problematise. The seventeen principles of ecojustice adopted during the First National People of Colour Environmental Leadership Summit intend to mitigate an urgency of acknowledging and improving the environmental plight of actively and passively oppressed communities of people along with problems faced by the physical environment. The intent of this paper is thus, to identify some of the seventeen principles of ecojustice and examine their relevance to the primary text which is a popular narrative also developed into a motion picture in 2022.

Environmental Justice propagated by Bullard intends to sensitise the world about the discrimination and oppressive treatment against people of colour concerning environmental problems. Robert D. Bullard states about the 1979 "Bean v. Southwestern Waste Management, Inc." lawsuit that,

> From the early 1920s through 1978, more than 80 per cent of Houston's garbage landfills and incinerators were located in mostly Black neighbourhoods — even though Blacks made up only 25 per cent of the city's population. The residents were not able to halt the landfill, but they were able to impact the city and state waste facility siting regulations. (Bullard, np).

This lawsuit stands as the first of its kind that fought environmental discrimination which according to Bullard enabled people to put "environmental racism on the map", it fuelled the organisation of the "First National People of Colour Environmental Leadership Summit on October 24-27, 1991, in Washington DC" where the seventeen principles of environmental justice were adopted to redefine the concept of the environment as inclusive of every kind, race, colour and class of people along with the plants and animals of the earth. Mentioned below are the seventeen principles of Environmental Justice:

1. Environmental Justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.
2. Environmental Justice demands that public policy be based on mutual respect and justice for all people, free from any form of discrimination or bias.
3. Environmental Justice mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.
4. Environmental Justice calls for universal protection from nuclear testing, extraction, production and disposal of toxic/hazardous wastes and poisons and nuclear testing that threaten the fundamental right to clean air, land, water, and food.
5. Environmental Justice affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.
6. Environmental Justice demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and containment at the point of production.
7. Environmental Justice demands the right to participate as equal partners at every level of decision-making, including needs assessment, planning, implementation, enforcement and evaluation.
8. Environmental Justice affirms the right of all workers to a safe and healthy work environment without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.
9. Environmental Justice protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.
10. Environmental Justice considers governmental acts of environmental injustice a violation of international law, the Universal Declaration on Human Rights, and the United Nations Convention on Genocide.
11. Environmental Justice must recognise a special legal and natural relationship of Native Peoples to the U.S. government through treaties, agreements, compacts, and covenants affirming sovereignty and self-determination.
12. Environmental Justice affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honouring the cultural integrity of all our communities, and providing fair access for all to the full range of resources.
13. Environmental Justice calls for the strict enforcement of principles of informed consent and a halt to the testing of experimental

reproductive and medical procedures and vaccinations on people of colour.

14. Environmental Justice opposes the destructive operations of multi-national corporations.
15. Environmental Justice opposes military occupation, repression and exploitation of lands, peoples and cultures, and other life forms.
16. Environmental Justice calls for the education of present and future generations which emphasises social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.
17. Environmental Justice requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritise our lifestyles to ensure the health of the natural world for present and future generations.

These principles are active and has worked for the welfare, protection and to serve justice to many communities of people against various act of environmental discrimination and injustice. Keeping the limitations of this paper such as the parameters of the plot in the primary text and the handful yet distinctive environmental arguments it highlights, the paper shall inspect the text through the stance of the first two principles of Environmental Justice.

Delia Owens' *Where the Crawdads Sing*

Where the Crawdads Sing is Delia Owens' debut novel. The author is an active zoologist and a conservationist and is said to have co-authored "three internationally bestselling nonfiction books". The book was listed as a Sunday Times bestseller and New York Times best seller in the years 2018 and 2019 and was recently produced as a popular movie in 2022 by actor Reese Witherspoon and Lauren Neustadter. *Where the Crawdads Sing* paints a gripping narrative about Catherine Daniella Clark who is also known as Kya. The tale also fits into the genre of bildungsroman as the plot traces her growth from a young age till she is laid to rest eternally. Kya grows up learning to face and get through tough circumstances of life such as witnessing her abusive father lashing out his aggression at her mother and surviving alone after everyone abandons her in the shack. However, the toughest challenge for Kya which also left a lifelong impression on her was to see her mother leave her behind and fly away out of their troublesome nest without turning back. Thus, Kya's character development begins at a very nascent age making her experiences as well as the journey of the readers through it indispensable.

Growing up in the marshes, Kya is known by the people of Barkley Clove as the "marsh girl". She could not spend a day in school because of the way she was looked at and gazed at by her classmates. Fitting into the standards of the town's way of life was another challenge therefore maturity sets in at a very young age for Kya as she begins to figure out life on her own. Her meeting and development of an organic bond with Tate brings her a sense of security after several experiences of abandonment by her family. For the first time she feels like she can trust someone other than herself, which is why when Tate does not keep his promise to return on the 4th of July, the severity of feeling abandoned is more than before. Intervention of people from the urban locality in Kya's life and marshes always ended unfavourably and Kya found herself betrayed and beaten. Among

all kinds of intervention Chase Andrews' proves to be the most fatal and violent and when Chase is found dead in the swamp, Kya is immediately arrested under suspicion of being involved in the sudden death of the "star quarterback and town hot shot" Chase Andrews (Owens, 24).

Enquiring the "sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction" in *Where the Crawdads Sing.*

The first principle of Environmental Justice establishes nature as a sacred, divine and nurturing realm by personifying it as "Mother Earth". The physical environment of the earth therefore is believed to be alive and constantly in a state of process and progress bringing forth evolutionary changes which according to Aldo Leopold, "the father of wildlife ecology" is often interfered with by "Man's invention of tools" that "has enabled him to make changes of unprecedented violence, rapidity, and scope." (Leopold, 217). "The sacredness of Mother Earth" significantly endows nature with nurturing and protecting quality which also provides and feeds its children (both living and non-living) with resources. The quality of sacredness on the other hand positions nature as an entity that is sanctified and revered. Sanctity and reverence come from being pure, fair, impartial in treatment and absence of malice which is a godly quality; therefore, "the sacredness of Mother Earth" endows nature as an entity that can separately function on its own.

Nature in the text is represented through the presence of marshes. The central action of the text takes place in the marsh such as Kya's wretched childhood experiences. She experiences abandonment from an early age when her mother and everyone else leave her never to return, one after the other her brothers and sisters leave her and finally her father stops coming back home. Surrounded by such incomprehensible experiences for a young girl, the marsh becomes Kya's shelter and the birds her companion. She celebrates her birthday with seagulls, which is a representation of innocent companionship between Kya and nature. Delia Owens also easily and sharply states in the text that Kya's sorrow remained but they were settled after a while in the deepest bottom of her heart and whenever she sought comfort, she "laid her hand upon the breathing, wet earth, and the marsh became her home." (Owens, 34).

Marsh as sketched by the author is a place that sheltered many castaways, runaway slaves and robbers. It was not a place favoured by people who were in search of "serious land" meaning economically prosperous. The place had a rough identity of its own, ironically carved by human interference yet it was bountiful as Owens mentions, "A man who didn't mind scrabbling for supper would never starve" in the marshes (8). Kya's sustenance was easy because she made an effort to "scrabble" for mussels and oysters to be sold at Jumpin's store. She earned money for her basic requirements and bought them even though her childish spirit tempted her to buy candy. Lines such as, "It took all her might not to buy a Sugar Daddy instead of a candle" and, "Buying her gas and groceries surely made her a grown-up." (76) significantly emphasise the dawn of Kya's maturity at an early stage of life. The marsh taught her life skills, survival skills and living independently just as it was. The "sacredness of Mother Earth" is thus observed in the marsh which protects, provides and nurtures Kya and "Ecological unity" is found in Kya's submission, acceptance and communion with the terrain of the marsh. Kya represents the being whether human or non-human who harbours only existence and survival without jeopardizing

others who are existing side by side with her.

The "interdependence of all species" is a simple and basic knowledge that holds a deep wisdom of earth's sustenance. It is scientifically known that every species of living as well as non-living matter on earth is dependent on each other co-operating intricately, which Aldo Leopold affirms that ecologist calls "the symbiosis" (Leopold, 202). A harmonious interdependence of species is observed in the text between Kya and the great outdoor marsh. She not only desires to live under the protective shade of the marshes but expresses a keen desire to record and learn about it, therefore when Chase enquired what she would do with her "journal or collected specimens" of feathers, shells, flowers and grasses she expresses, "I am keeping records so I can learn about the marsh." (177). Owens mentions that while many from the town including Chase saw the marsh for its economic purpose such as fishing and farming, Kya saw and interacted with it as if it was alive, as if it was a constant companion (176).

Another instance of interdependence is observed between Kya, Jumpin and his wife, and Tate and her attorney Tom Milton. These characters in the text are people whose life and endeavours are simple and far from complication, they live by hardly interfering and impacting others adversely. These characters in the text have only shown cooperation and communication for the benefit of each other. While Jumpin is the first person to help Kya earn money by buying her mussels and oysters, Tate helps her to learn reading and writing and find a genuine company of friendship in him. However, attorney Milton could not be on the same page as the people of Barkley Clove to accuse Kya of murdering Chase Andrews because she lived in the marshes and they had an affair before Chase was married. Other than the marshes, Kya's space of security is at Jumpin's shop among the owners and with Tate. Interdependency of species according to the principle of environmental justice strongly directs towards ecological units, however, the text delivers these units in the form of characters. These characters are also a part of the ecosystem and the biotic symbiosis in nature and therefore, their interdependency as found in the plot stands legit. Their interaction and communion with each other establish a harmonious bond which also contribute to the well-being of the environment they share.

The principle of Environmental Justice also advocates the right to be free from ecological destruction for every species or unit of an ecosystem which includes living and non-living or the human and non-human kind. The right to be free from ecological destruction or to benefit from environmental laws is a problematic stance in the text. Kya is threatened as she is slyly pursued by Chase Andrews to quench his lust. He manipulates and makes her believe in the illusion of a pleasant future together and later Chase hunts her as a predator hunting his prey when she denies his access and approach towards her. Chase Andrews to Kya represents what government or the law often promises to the people but is left unfulfilled. Chase promises Kya a healthy future together, a home and a family to which Kya succumbs and completely submits herself to him as they intimately spend a night at a cheap hotel. Often rehabilitation cases of road construction, dam buildings, deforestation etc., reflect what Kya experienced i.e., a faulty promise hoping that people submit their properties only to obtain a half-baked compensation. Kya witnessed much violence when she was a child, much abuse that distanced her from her "ma". She lost everything to the flaming temperament of her father and Chase Andrews expressed signs of bringing her back the same intensive clouds of fear

and violence. Her destruction was inevitable at the hands of an egoistic man such as Chase Andrews. However, Kya was the marsh girl, the daughter of the marsh and she knew the routine ways of the swamp and marsh that it "absorbed" everything "silently" and deaths were never a "tragedy, certainly not a sin" to the swamp (1). Kya knew the fear of being a prey but she grew up learning to free herself from being it, therefore when Chase wanted to violate her, she acted like the firefly which lures its mate to be beheaded after their mating ritual. The right to be free from ecological destruction paves the way for the right to live without fear of violence, in peace and harmony. There have been many accounts in the past as well as present of ecological destructions in the form of pollution, exhaustion of resources, unchecked encroachments and poaching, endangering wild plants, animals and birds, negligence of indigenous and economically deficient people and depriving them of environmental rights and privileges. According to the reports of the Food and Agriculture Organisation of the United Nations, 420 million hectares of forest have been lost since 1990. CNN reports that 852 fin whales were slaughtered in Iceland from 2006 to 2018, Robert Bullard initiated Environmental Justice because "Houston's garbage landfill and incinerators were located in the black neighbourhood" which suggested negligence and environmental discrimination of certain communities of people based on race and colour. These ecological destructions share a parallel endeavour with Kya's experience as a target of violence and oppression.

An Examination of "Mutual Respect", "Justice for all People" and "Free from any form of discrimination or bias" in Where the Crawdads Sing.

Kya, the Jumpins and the marsh represent the socially dejected and excluded kinds. Their exclusion and discrimination stems from their identity of place and race. The marsh is deemed as dangerous, dark and wild, where menacing and vicious secrets are hidden. Therefore, Kya's self upbringing in the marshes deems her equally dangerous as the marsh. She is known as the "marsh girl" or "marsh trash" and "swamp trash", whereas her name is Catherine Daniella Clark which no one bothered to address. Labelling her as the "marsh girl" directs every gaze upon her when she walks out from her cabin to the town. From a psychological perspective, labelling someone positively or negatively impacts the nature and character of the person. Positive labels encourage and motivate the person to do well, whereas negative labels are signs of insults, mockery and discouragement. The label consciously or unconsciously makes others develop a preconceived idea about the person. Kya's label by the people of Barkley Clove as "the marsh girl" constructs a biased and judgemental contention about her. Therefore, when the Methodist preacher's wife Mrs. Teressa White saw her daughter talking to Kya at Jumpin's store she immediately held her away warning her not to go near Kya as she was "dirty". Mrs. Teressa also shares her disgust against Kya and people from the marsh with another woman saying,

> I wish those people wouldn't come to town. Look at her. Filth. Plumb nasty. There is that stomach flu goin' around and I just know for a fact it came in with them. Last year they brought in that case of measles, and that's serious. (66)

Mutual respect, justice and freedom from discrimination or bias is the central objective of the second principle of Environmental Justice. The advocacy of these aforementioned matters arises from the presence of discrimination and

biased attitudes and the absence of mutual respect and justice in environmental matters. Kya being a victim of prejudice and discrimination from the people of Barkley Clove is marked in the instance when people thought that it would not make any difference to her whether she attended school or not. "What difference would it make to marsh people who'd do a few months of school, maybe, then never be seen again." (28). Children in the school ignored her, "But they, like everyone else ignored her" (29) and she decides never to go to school and embarrass herself again. Shops and gas station keepers chase her away even though she has money to purchase supplies, Mr. Johnny Lane who "referred to her family as swamp trash" (46) chased her away calling her "swamp rat".

Apart from Kya, Jumpin is also a victim of prejudice, discrimination and insults since he belongs to the black community. Barkley Clove knew how to separate what they considered acceptable and discardable as the town is described to have separate churches and schools for the black community and the white community. Kids teased Jumpin saying, "Aren't we lucky. Here comes a nigger walkin' to nigger town" while, "one of the boys reached down, picked up a stone, and slung it at Jumpin's back" (101) but retaliation or teaching the boys a lesson on manners was a matter handled best only if one stood in equity of class, race and colour. Jumpin owned no equity with the boys so he never reacted or retaliated.

The court scene in the text is another intriguing deliberation carefully knitted by the author. The court scene becomes a ground of debate and discourse to deliver justice. Often packed with few people to none, the court gets flooded with citizens of Barkley Clove because the sensational case involved "the marsh girl" who they believed to be "part wolf", "or the missing link between ape and man" (340). Kya is arrested and prosecuted for the murder of Chase Andrews and the jury who must decide her case after careful deliberation is packed with people who have always gazed and saw her as the "marsh trash", "marsh girl" and "swamp rat". For the aforementioned reason of prejudice, Kya's attorney Mr. Milton pleads to move the case to another town but the plea is denied. Mr. Milton fears the possibility of biased judgment that may arise in the court because of the preconceived idea about Kya that she came from the wild marsh. However, when the prosecutor could not prove and provide any evidence that could determine Kya's involvement in the death of Chase Andrews, Mr. Milton questioned the jury and the audience if they excluded Miss Clark because she was different, or whether she was different because they excluded her. He affirms that all of them have called her the "Marsh Girl" but "scientific institutions recognise her as the Marsh expert" and concludes by stating that, "it is time, at last, for us to be fair to the Marsh Girl." (341) Deliverance of justice in the text concerns with the cleansing of prejudice, discrimination and oppression of nature in any shape, size, colour or kind rather than whether Kya murdered Chase or not. It is a display of a courtroom debate to bring the oppressed and the oppressor under one roof and deliberate on whether the oppression and the entitlement and feeling prepotent upon the ecological or natural units such as indigenous people, economically needy people, the forest and its wild inhabitants is reasonable at all.

Conclusion

Kya represents the marsh, the birds, the people, and the animals who are targets of environmental discrimination, easy picks to be blamed and bullied because they belong to a place which is labelled as wild and dangerous.

The marsh simply exists as a part of the larger geography, providing habitats for seagulls and other birds, fishes, crawdads and many other aquatic animals. Being known as dangerous and threatening stems from people's fear of the unknown, therefore both Kya and the marsh are equally subjected to prejudice and discrimination from the people of Barkly Clove. Kya's statement to Jodie, "I never hated people. They hated me. They laughed at me. They left me. They harassed me. They attacked me." (350) is a testament and a voice of every victim both human and non-human who experienced environmental injustice such as violence, abandonment, discrimination, exclusion and prejudice. Delia Owen's text distinctly marks the discourse of environmental injustice through her characters and the rich landscape of swamps and marshes to which Reese Witherspoon and Lauren Neustadter's popular movie impartially breathes life. Popular texts such as *Where the Crawdads Sing* are vessels that transmit ecologically powered disquisitions, texts as this delivers ecological consciousness among readers and viewers which is often the significant step to instate environmental change.

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.59-70

Traditional Healthcare Approaches By Indigenous People In Assam And Their Scientific Relevance (A Review)

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Abstract

Assam is nestled in the north-eastern corner of India with a tropical monsoon climate and rich flora and fauna. Geographically, it extends from 22˚19' to 28˚16' North Latitude and 89˚42' to 96˚30' East Longitude. Assam is home to a diverse array of indigenous tribal communities, each with its unique cultural practices and beliefs. Their knowledge of herbal medicine and healthcare has been passed down through generations. It is estimated that Assam is endowed with more than 2000 medicinal compounds, of which 1,500 are derived from plant origin and the remaining from animal and mineral origins. For example, *Bambusa valgeris* shoots have high nutritional values and medicinal properties such as anti-hypertensive, anti-hyperlipidemic, and anti-diabetic. The denizens of Assam have played a pivotal role in domesticating various wild plants and herbs for their curative potential, ensuring the continued availability of resources integral to maintaining good health, such as *Abelmoschus manihot* (Usipak) for chronic bronchitis, *Abrus precatorius* (Latumoni) for cough and cold**,** *Desmodium laniforum* (Bhuter chira) for amenorrhoea and uterine infection**,** etc. The collective indigenous wisdom has not only inspired researchers but also underscored the importance of a symbiotic relationship with nature. Globally, the World Health Organization estimates that 80% of individuals in developing nations rely on traditional medicine for their primary healthcare needs, and about 3.5 to 4 billion people worldwide rely on plants as sources of medicine. However, these invaluable resources are now perilously endangered, with many already lost to time and ignorance. To safeguard this traditional medicinal knowledge, concerted conservation efforts are paramount. Initiatives like rigorous documentation, scientific validation of traditional remedies, sustainable cultivation, and educational programs should be taken to preserve this heritage. By combining indigenous wisdom with modern scientific rigor, we can ensure the continuation of these time-honored practices for generations, preserving both culture and biodiversity.

Keywords: Indigenous, Herbal medicine, Sustainable cultivation, Traditional knowledge.

1. Introduction

As we know, human knowledge results from past experiences, the human tendency to understand nature, and the conclusive measures taken based on existing knowledge. Thus, the importance of traditional and cultural practices in framing the outline of this existing knowledge hub is viable. Different cultures have different traditional approaches concerning health care, which mainly depend on the availability of natural resources, geographical area, vegetation, medicinal plants, and their ancestral beliefs. The traditional and cultural practices in the

context of health care can lead to the door of many potential research interests. The scientific relevance and logical explanations behind many traditional prevention and cure measures are poorly understood. Thus, it requires a thorough review to provide insight and relevant scientific explanations for those approaches.

Northeast India, or NE India, has a rich array of plant resources, constituting a significant portion of the Indo-Myanmar biodiversity hotspot. This region is also acknowledged as one of the 25 global biodiversity hotspots, an official recognition in the field of conservation (Myers et al. 2001). It is home to numerous ethnic groups and tribes, showcasing a remarkable cultural diversity (Teron & Borthakur, 2012). According to census 2011, this region is inhabited by a total of 427 distinct tribal groups, each possessing its own unique and traditional cultural identity (Borah & Prasad, 2017). Among the eight north-eastern states of India, Assam stands as the second largest, distinguished by its wealth of ethnic and cultural diversity, as well as its abundance of forest resources and wildlife sanctuaries.

The State of Assam, often referred to as the "land of the red river and blue hills" serves as the gateway to Northeast India. Geographically, it stretches from 22°19' to 28°16' North Latitude and 89°42' to 96°30' East Longitude, nestled between the foothills of the Eastern Himalayas and the Patkai and Naga Hill Ranges. Assam shares its northern border with Bhutan and to the east with Arunachal Pradesh. Along the southern periphery lie Nagaland, Manipur, and Mizoram. To the southwest, it is neighboured by Meghalaya, while West Bengal and Bangladesh flank it to the west. The state is administratively divided into 33 districts (Assam Disaster Management Authority). Since the state of Assam is known to have a tropical monsoon climate with the maximum amount of rainfall, therefore has rich vegetation. Assam is the homeland of various diverse communities, each having its cultural heritage. Prominent groups include the Bodo, Karbi, Mishing, Tiwa, Deori, Rabha, Sonowal Kachari, Dimasa, Ahom, Chutia, Garo, Kuki, and Kachari, each contributing to the vibrant diversity of Assamese culture. The people of Assam are generally living close to nature and they are influenced more by traditional, socio-cultural, and environmental dimensions in their day-to-day practices.

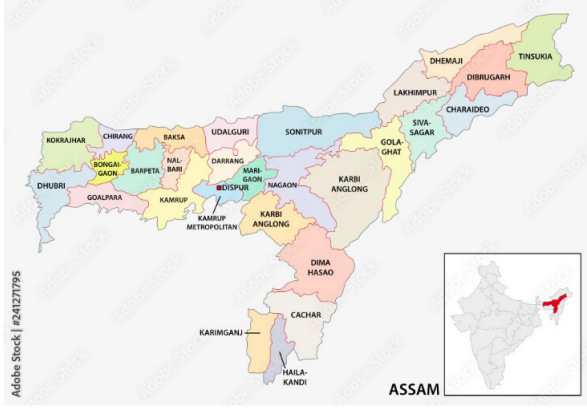

Fig: Map of Assam with different districts

Source: https://stock.adobe.com/in/images/administrative-and-political-map-of-indian-state-of-assam-india/241271795

Fig: Map of North-Eastern region of India

Source: https://upload.wikimedia.org/wikipedia/commons/d/d3/Northeast_india_map.png

Indeed, the knowledge of ethnomedicine holds deep historical roots. The utilization of plants and their derivatives in various aspects of human life has been extensive, with their medicinal applications dating back to ancient times, marking the very inception of human civilization. In India, employing medicinal plants can be traced back to the prehistoric period, underscoring the enduring significance of traditional medicine in the country's cultural heritage (Ballabh & Chaurasia, 2007). The Himalayas, a region of profound natural diversity, bear witness to the early recognition of medicinal plant properties. The Rigveda, a seminal work penned between 4500 BC and 1600 BC, stands as the earliest known compendium of human knowledge, detailing 67 plants with therapeutic value. Following the Rigveda, Ayurveda, the cornerstone of Hindu culture's science of life and art of healing, expounds upon the medicinal significance of an impressive 1200 plants. This heritage of wisdom, steeped in antiquity, places India at the forefront of early contributors to the world's understanding of the healing properties of plants. The utilization of diverse plants by various ethnic communities in remote regions, guided by Traditional Knowledge, holds significant importance in treating various diseases (Pushpangadan & Atal, 1984; Upadhyay et al. 2007). Even today, thousands of individuals rely on nature for sustenance, including food, fuel, medicines, and livelihoods (Sarma & Bhattacharjya, 2006; Saikia et al. 2010; Yinebeb et al. 2022; Kunwar et al. 2022). Herbal remedies are experiencing a surge in popularity owing to their effectiveness and reduced incidence of side effects. Formulations derived from herbs have been shown to have considerably fewer adverse effects in comparison to allopathic medicines (Banerjee et al. 2018; Kala et al. 2006). This resurgence of interest in herbal medicine is driven by a growing recognition of its potential to offer effective and safe alternatives for healthcare.

Numerous studies have underscored the critical role of Traditional Knowledge in medicine for unearthing new and innovative drugs. As the efficacy of synthetic medicines gradually wanes, and pathogens develop resistance against specific treatments, the imperative to uncover novel drugs becomes evident (Gold & Moellering, 1996; Walsh & Amyes, 2004; Yap et al. 2014). The wealth of Traditional Knowledge regarding medicinal plants and their efficacy against various ailments is a promising resource for developing highly effective medicines (Bhattacharjya & Borah, 2008). This reinforces the notion that tapping into traditional wisdom can offer valuable insights and solutions for contemporary healthcare challenges.

2. Methodology

This review is based on a comprehensive collection of studies published from 1984 until now, encompassing a wide range of relevant research in the context of the North-eastern region, especially the Assam people. To conduct our extensive bibliographic research, we employed keywords such as "Indigenous," "Herbal medicine," "Sustainable cultivation," and "Traditional knowledge." These keywords were utilized to search databases, including Google Scholar, Scopus, Web of Science, and Science Direct. Additionally, we expanded our search beyond online resources to encompass newspaper articles, books, and gray literature, such as NGO reports.

The gathered materials underwent an initial screening process to eliminate redundant data. Subsequently, we systematically compiled information about traditional knowledge studies and conducted a section-wise analysis of traditional healthcare approaches. This rigorous methodology ensures that our review is as comprehensive and up-to-date as possible, offering valuable insights into the subject matter.

3. Traditional Health care approaches and their scientific relevance:

3.1 Traditional medicinal plants found and their uses:

The global community's interest in medicinal plants is steadily increasing due to their minimal side effects and cost-effectiveness. According to the World Health Organization, approximately 80% of individuals in developing countries depend on traditional medicine for their primary healthcare requirements, with about 85% of these traditional practices involving the use of plant extracts. This highlights that a staggering 3.5 to 4 billion people worldwide rely on plants for their healthcare needs. This emphasizes the crucial role that medicinal plants play in global healthcare systems, particularly in regions where access to modern medical resources may be limited (Baruh et al. 2014). Assam is part of the eastern Himalayan biodiversity of India. It is home to many indigenous tribal groups with varied cultural practices and beliefs, but most of their knowledge of herbal medicine came from the same sources. It is estimated that there are 2,000 drugs for curing, preventing, and maintaining hygiene, out of which 1,500 are of plant origin and the rest are from animal and mineral origins.

Bamboo plantations (*Bambusa Valgeris*) are found in various parts of Assam, and bamboo shoots are popular ingredients in local recipes and pickles. They have high nutritional values and medicinal properties, i.e., anti-hypertensive, anti-hyperlipidemic, and anti-diabetic. The decoctions of the bamboo roots are used internally to promote urine flow (Sharma& Pegu, 2011). They also have religious virtues and are used in traditional rituals among the inhabitants. The Drumstick plant (*Moringa Olifera)* is also extensively used in traditional medicine and has properties such as antiepileptic, antioxidant, anti-ulcerative, anti-diabetic, hepatoprotective, cardioprotective, antihypertensive, and many more. Its leaves and flowers are consumed as foods and found to have zeatin, quercetin, beta-sitosterol, caffeoylquinic acid, and kaempferol compounds present in it (Al-Shahat et al. 2022).

Many wild plants and herbs are being domesticated by natives of Assam for their medicinal properties and effects in maintaining good health, such as *Abelmoschus manihot* (Usipak, Aibika), *Abrus precatorius* (Latumoni)*, Desmodium laniforum* (Bhuter chira)*, Thunbergiacoccinea* (Changalota, Nillata, Nilakontho)**,** *Spilenthes acmella*(Huhoni bon)**,** *Colocasia esculentas* (Kola kochu)**,** *Enydra fluctuns* (Melechi)) and *Blechnum orientale* **(**Dhekia). These plants have medicinal properties to treat oral, stomach and urine infections, pain, headache, skin disease, jaundice etc. (Ghosh & Parida, 2015). Plants such as *Streblus asper* (Swara), *Areca catechu* (Tamol), *Psidium guajava*, *Jatropha curcas* (Bhut-ara), *Vitex negundo* (Posotia), etc. are used by the tribes of western Assam

to maintain oral hygiene and cure ulcers (Deka & Nath, 2014). Gunaram Khanikar, a distinguished herbal medicinal expert of Assam, has made substantial contributions to the field. His book "Xahajlabhya Bon Dorobor Gun" (2012) has become a household name in Assam, offering remedies and preventative measures for a multitude of diseases, leveraging the abundant locally found herbal medicinal plants (Khanikar, 2012). Additionally, his medicines have gained international recognition, being exported to countries including Thailand, Nepal, China, Canada, and others.

The table below encapsulates significant plants and their applications in Assam, featuring their English name, local names, scientific nomenclature, form of medicinal application, and the ailments they address (Ghosh & Parida, 2015; Deka & Nath, 2014; Khanikar, 2012).

Sl. No	**Plants name (English)**	**Local name (Assamese)**	**Scientific name**	**Form of medicine**	**Integral disease**
1	Holy Basil	Tulakhi	*Ocimum tenuiflorum*	Extracted juice	Allergy
2	Neem	Neem	*Azadirachta indica*	Extracted juice and raw leaves	Measles
3	Shunk vine	Bhedailota	*Paederia Foetida*	Seed paste	Toothache
4	Purpureum Rosc.	Moran aada	*Zingiber pupureum*	Paste	Mums
5	Soap nut	Monisal	*Sapindus mukorossi garth*	Extracted juice	Tonsillitis
6	Henna	Jetuka	*Lausonia inermis*	Extracted juice	Abscess
7	Leucas	Duron bon	*Leucas aspara*	Leaves or Flowers	Cold, fever, pneumonia
8	Indianm pennywont	Bor Manimuni	*Centella asiatica*	Extracted juice	Dysentery
9	Rough cocklebur	Agara	*Xanthium strumarium*	Seeds	Pneumonia
10	Guava	Modhuri	*Psidium guyava*	Leaf buds	Diarrhoea
11	Taro	Kalakasu	*Colacasia esculenta*	Stem	cut injury
12	Indian Snakeroot	Sarpagandha	*Rauvolfia serpentina*	Root	Abdominal pain
13	Pineapple	Anaras	*Ananas comosus*	Soft & White portion of leaves	Worm problems
14	Bitterweed	Kalpatita	*Andrographis paniculate*	Whole Plant	Liver disease (Jaundice)
15	Indian Coral Tree	Madar	*Erythena indica.*	Bark	Jaundice
16	Mangosteen	Thekera	*Garcinia pedunculata*	Fruits	Diarrhoea & Dysentery
17	Papaya	Amita	*Carica papaya*	Newly appeared small fruits	Liver diseases (fatty liver, enlarged liver)

18	Physic nut	Bhotera	*Jatropha curcas*	Bark	Diarrhoea and vomiting
19	Climbing hemp weed	Jaibangla	*Mikania scandens*	Leaves	External bleedings
20	Coral Jasmine	Sewali	*Nyctanthes arbor-tristis*	Flowers	Malaria, worm infestation
21	Spanish cherry	Bakul	*Mimusops elengi*	Bark	Disease of oral cavity (Pyorrhea, Bleeding gums, etc.)
22	Country mallow	Jabakutari	*Abutilon indicum*	Root	Diarrhoea and vomiting
23	Lesser balloon vine	Kapalphuta	*Cardiospermum halicacabum*	Root	Vomiting
24	Sensitive plant	Nilajiban	*Mimosa pudica*	Whole plant	Itching, Bleeding problems
25	Castor Bean	Era gach	*Ricinus communis*	Leaves	Pain & swelling
26	Spiny amaranth	Katakhutura	*Amaranthus spinosus*	Whole plant	Anemia, night blindness
27	Creeping woodsorrel	Tengesi tenga	*Oxalis corniculate*	Whole plant	Flatulence , Dysentery , loss of memory
28	Fish mint	Masandari	*Houttuynia cordata*	Whole plant	Diarrhoea, Dysentery
29	Drumstick tree	Sajana	*Moringa oleifera*	Fruits, bark	Night blindness, Pain & swelling
30	Indian Asparagus	Satmul	*Asparagus racemosus*	Rhizome	Weakness & lethargy
31	Elephant Apple	Owtenga	*Dillenia indica*	Fruit	Prevention of Chicken Pox.

Table 1. Locally found medicinal plants and their uses

3.2 Traditional Zootherapy:

Zootherapy is defined as the healing of human animals by using medicines prepared from different animals and animal-derived by-products. Among the large group of tribal inhabitants of the Northeast region, only a few use animals in traditional medicine. A total of 108 ethnomedicinal animals and animal products are being used by major tribes such as Biate in Dimahasao, Karbi, and indigenous inhabitants in adjoining areas of Pobitara Wildlife Sanctuary (Borah et al. 2017). The study also found 45 different animals, including insects which are used to treat 40 ailments such as

asthma, pneumonia, cancer, fever, piles, gastric, diabetes, snake bite, pox are Mole cricket, fireflies, cockroaches, ants, rice bugs, Muga silkworm, praying mantis, earthworm, freshwater snail, frog, Assamese snakehead fish (single mas), cobra, mongoose, porcupine, fox, buffalo, etc (Borah et al. 2017; Teron & Borthakur, 2012).

The table below gives the details of some commonly found animals used in traditional medicine (Borah et al. 2017; Teron & Borthakur, 2012; Verma et al. 2014).

Sl. No	Animal name (English)	Local name (Assamese)	Scientific name	Form of medicine	Integral disease
1	Mole cricket	Kumot	*Scapteriscus borellii*	Alimentary canal	Intestinal worm (thread worm)
2	Fire Flies	Junaki paruwa	*Lampyridae sp.*	Whole body	Cancer
3	Honey bee	Mou makhi	*Apis cerna indica*	Whole body, honey	Cancer, Coughs, flu, asthma
4	Cockroach	Poitasura	*Periplaneta Americana*	Whole body	Asthma
5	Hornet	Kodu	*Vespa affinis*	Whole body	Cancer
6	Green tree ant	Amoli poruw	*Oecphylla smaragdina*	Whole body	Sinus ,Cancer, Epistapix (bleeding from nose)
7	Muga silk worm	Muga palu	*Antheraea assamensis*	Whole body	Protein loss
8	Praying mantis	Gagini foring	*Mantis religiosa*	Cocoon with larva	Otorrhoea (Wound in ear)
9	Freshwater snail	Shamuk	*Pila spp.*	Whole body	Better eye sight
10	Magur	Magur mas	*Clarias batrachus*	Whole body	Fever, cough and cold
11	Assamese snake head	Chengeli mas	*Channa stewartia*	Whole body	Diabetes, fever, pain
12	Bat	Bor Baduli	*Pteropus gigantus*	Meat	Asthma
13	Porcupine	Ketela pohu	*Hystrix indica*	Elementary canal	Pre-menstrual pain

Table 2: Locally found animals and their use in medicines.

3.3 Healthcare through Hygiene

Although tribal groups in Assam have a similar way of life, the same customs and traditional practices vary among them. Assamese is the common language shared among communities of Assam, and Bihu is the main festival celebrated throughout Assam. Bihu is a harvesting festival known by different names among its tribes, such as Baisagu in Boro, Ali ai ligang in Mising, etc. It involves customs that emphasize maintaining hygiene before or after the celebration. Ahom, Chutia, Koch, and Kalita

communities start the festival by bathing themselves and their cattle with *Vigna Mungo* (Mati mah) and *Curcuma longa* (Halodhi). It is believed to be an effective prevention against skin diseases. *Vigna Mungo* has antioxidant and inflammatory properties, which help in removing injurious stimuli and initiate the healing process. The presence of inflammatory mediators called 'eicosanoids' in *Vigna Mungo* are synthesized by cyclooxygenases (cox) and lipooxygenases (lox) in cell types associated with inflammatory disorders. (Rajagopal et al. 2016)

Similarly, Boro people mop the floor and walls of their mud houses with cow dung as a custom for cleanliness and hygiene. Cow dung acts as a mosquito repellent and cleansing agent. Cow dung contains a diverse group of microorganisms, such as *Acinetobacter*, *Bacillus*, *Pseudomonas*, *Serratia*, and *Alcaligenes spp*., which can degrade hazardous organic pollutants. (Gupta et al. 2016)

Mising people use approximately thirty medicinal plants in the '*Dobur Uie*' ritual. These plants are used in the treatment of various water-borne diseases like diarrhoea, indigestion, flatulence, stomach problems, liver problems, etc. As the water sources in rural areas are not hygienic, this practice or ritual ensures hygiene and prevents bacterial and viral diseases. Some very rare plants identified to be used in Dobur Uie celebration are *Zanthoxylum nitidum*, *Pueraria tuberose, Naranvelia zeylanica* etc. (Sharma & Pegu, 2011).

The necessity to maintain hygiene during the death or birth of a person leads to many traditional beliefs and practices. People from ancient times followed some sanitation and hygiene measures to ensure the safety of the vulnerable. As we know, a newborn baby is vulnerable to germs, bacteria, and viruses in the outside world. Some cultural practices of some communities of Assam, such as Deori, Mising, Ahom, etc., consider it taboo to come in close contact with the mother and the child. They consider the house a place of impurity and termed them as '*Sua*'. Furthermore, the people break this impurity by performing some rituals after a period of 10-15 days. The ritual is called '*Hudi*', and it follows the preparation of '*kachu jhal'* with chicken (curry prepared from arum stem, black pepper, ginger, etc.) where the mother first puts food in the baby's mouth and eats the rest. During this period, the mother and the child are kept in isolation even the family members are restricted from any social event. In this period, the baby is assumed to develop some immunity to its environment and the isolation prevents any germs or bacterial contact with the child. In addition, the mother is fed with nutrient-rich food.

It is also a common practice among most communities to sprinkle purity water before and after any ritual. The ingredients of this purity water might vary among different groups but share the common idea of sanitization. The tribes in Assam prepare this purity water with gold water, silver water, copper water, and basil leaves and particularly use a rare herb locally known as *Durun bon* to stir the water. This plant is scientifically known as *Leucas aspara* and has medicinal, antipyretic, and insect-repellent properties. This mixture, along with ions from silver, gold, or copper, possesses antibacterial properties and acts as a sanitizer (Shah et al. 2010).

Certain day-to-day traditional practices are performed exclusively to ensure sanitation and hygiene. Examples of such practices are –

1. Smoking dry neem leaves with coconut fibres surrounding the house to repel mosquitoes and house flies, particularly in the evening. This process is commonly known as '*Dhuna'* in Assamese society.
2. The people of Assam traditionally use ashes left from burning wood to wash utensils and hands. It is a strong alkali with a pH ranging from 10-12, and most bacteria cannot survive in such pH. A similar practice is found in Deori ritual called '*Laa*', where the community's women rub their teeth with iron ash and oil paste. This practice also encourages oral hygiene along with their cultural significance.
3. People traditionally use '*citronella (Cymbopogon nardus)* to mop house floors to have insect-repellent properties, it can be used in aromatherapy to eliminate headaches, and fatigue and improve energy levels.

4. Importance of traditional healthcare approaches

The traditional knowledge about medicinal uses and sanitation properties of local natural resources is very helpful in understanding nature and maintaining a safe environment. Their traditional knowledge motivates scientists and research communities to devise new ways to tackle and prevent diseases. Blind following and without proper scientific knowledge of their traditional and cultural practices can lead to superstitions, wrong treatment, and social discrimination. Moreover, over-exploitation of rare and endangered species can lead to their extinction. Thus, for an efficient growth of human knowledge are must follow scientific approach along with traditional knowledge and respect one others cultural practices.

Traditional health approaches by indigenous people hold immense significance on multiple fronts. These practices passed down through generations, represent a profound connection to their ancestral roots and cultural identity. They encompass holistic well-being, addressing not only physical ailments but also spiritual and mental health, reinforcing a sense of community and unity. Moreover, traditional health methods often rely on sustainable and environmentally friendly practices, promoting biodiversity conservation and ecological balance. In regions where, modern healthcare may be inaccessible or expensive, these age-old practices serve as a vital lifeline, ensuring that indigenous communities have access to healthcare that is both culturally competent and affordable.

Furthermore, the traditional knowledge embedded in these health approaches is a valuable resource for the broader healthcare landscape. Indigenous practices offer insights into using local flora and fauna for medicinal purposes, potentially contributing to developing new treatments and drugs. Recognizing and integrating these practices into mainstream healthcare systems not only respects the cultural heritage of indigenous communities but also enhances the overall resilience and effectiveness of healthcare provision, ultimately benefiting society as a whole.

5. Future prospective

In the coming years, traditional healthcare approaches by indigenous people are poised to play a pivotal role in shaping more inclusive and effective healthcare systems worldwide. As recognition of the value of indigenous knowledge grows, there is a

concerted effort to integrate these practices into mainstream healthcare. This integration not only respects the cultural heritage of indigenous communities but also enriches modern medicine with centuries-old wisdom. Collaborations between traditional healers and modern healthcare practitioners are rising, fostering a more holistic approach to patient care. This collaborative effort is likely to lead to the development of novel treatments and therapies that draw on the strengths of both traditional and modern medicine.

Furthermore, the preservation and revitalization of traditional healthcare practices are gaining momentum. Efforts to document and transmit this invaluable knowledge to younger generations are underway, ensuring it continues to thrive. Cultural centers and educational initiatives are being established to safeguard these practices, allowing them to evolve and adapt while maintaining their core principles. This preservation not only serves to benefit indigenous communities but also contributes to a more diverse and enriched global healthcare landscape, where a broader spectrum of healing practices can coexist and complement one another.

Conclusion

In conclusion, the future of traditional healthcare approaches by indigenous people holds immense promise for both these communities and the broader healthcare landscape. The integration of age-old wisdom with modern medical practices stands to revolutionize patient care, offering more comprehensive and culturally sensitive treatment options. Efforts to preserve and revitalize traditional knowledge ensure these invaluable practices continue to thrive and adapt to the evolving healthcare landscape. As research and collaboration between indigenous healers and modern practitioners continue to expand, the potential for discovering innovative treatments and therapies grows exponentially. Embracing and respecting these traditional approaches not only empowers indigenous communities but also enriches the global healthcare paradigm, paving the way for a more inclusive, holistic, and effective approach to health and well-being for all.

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.71-82

The Ao Traditional Village Government: The Process of Succession: A Case Study

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Abstract

The study of the Naga traditional self-governing institution is essential because the system is still practised in almost all Naga villages. In the Naga society and culture study, the village identity occupies the most important position. The Ao villages are very distinct in their administration, which is based on a well-knit clan system and a well-established self-governing institution - the '*Putu Menden*'. This paper inscribes the basics of the organisation of Village Administration and its structure at Chungliyimti, the qualifications of Tatar Member, the tenure system, the size and the cycles of the *Putu Menden*. An attractive traditional meat sharing practice is included in *Putu Menden's* succession process. Interestingly, the process of succession has practical variations among the various Ao villages with time and practice; hence, a case study on the process of succession of a few villages is presented. This could open up, for researchers, important sources of knowledge about the traditional power structure, meat sharing and its organisation. In the successive study, case studies of more villages could be included.

Key Words: Naga Culture, Ao *Putu Menden*, qualifications, tenure, size, structure, Chungliyimti, Cycle of Putu Menden, succession Process, selection of representatives, Meat sharing. Case studies, Villages

Introduction

In the study of the Naga society and culture, the village identity occupies the most important position in respect of every tribe…the Naga villages are more homogeneous, self- sustaining and independent. They are very distinct in Village administration, distribution of clans, socio cultural network and practices (Jamir and Lanunungsang, 2005, 37). The family of race called the 'Nagas' popularly came into use only after the event of the British to this land. Until then, each tribe was distinct in its culture and practices and was better known by their tribe name as Aos, Semas, Angamis, Konyaks, etc. Traditionally Nagas lived in villages and each village has a government that is sovereign and independent, internally supreme and externally free from outside control (Temjensosang 2013, 1-2). Agriculture is indispensable to livelihood of the people and their traditional self- government is linked with its activities.

The Naga villages are the most permanent social and political unit for all practical purposes. Naga villages have different forms of government, according to their tribe, as we can see from the classifications of J.H. Hutton and Verrier Elwin which are considered as more appropriate. J.H.

Hutton mentioned four types of polity: (1) Sumi and Chang, (2) Konyak, (3) Ao and Tangkhul, (4) Angami, Rengma, Lotha and apparently Sangtam (Pochury)- Pochury now recognized as a Naga tribe on 21st April 1991) (Mills J.P, 1980). According to Verrier Elwin, the Sumi and Chang practiced hereditary chief ship; the Konyak had a very powerful Anghs (Chiefs); the Aos are governed by bodies of elders; and the Angami, Lotha, Rengma and others were extremely democratic (Nagaland 1961, 6-7). But the general administrations of the villages of all the tribe are quite similar, based on tradition.

It is significant to study the working of the Naga traditional governing institutions due to the fact that the system is still practiced. Similar viewpoint is stated by others as, in the North-East, one finds two simultaneous democratic institutions at work, a modern democratic system vis-à-vis a traditional system among the Hill tribes (Hazarika, 2006). Despite the fact that modern system of governance has been ushered in since Nagaland State got Statehood on 1st December 1963, yet age-old traditional practices and values prevail (Amer 2015, 38).

The Ao villages are very distinct in its administration based on a well- knit clan system. A well- established Ao village administration is a mini state, a unique democratic republic. In the past, the Ao system of government was a miniature state having a republican form of government with a well- established *Putu Menden* by the chosen representatives of various clans (Jamir and Lanunungsang, 2005, 38). This system of government is called *Putu Menden. 'Putu'* refers to thirty years-a person's prime period of life. *'Menden'* refers to Seat; therefore, *Putu Menden* means the selected group of people who rule the village for 30 years. *Putu Menden*, during their term is said to have owned the sky above, (the sun and the moon) the land, water and air under the jurisdiction. The members of the *Putu Menden* are also known as *Tatar* which means entitlement. On a similar line a Scholar writes, the *Tatars* or the chosen leaders exercise their supreme power collectively in the village administration. This system of administration originated at *Chungliyimti* and continues to be the core power structure of the Ao villages (Tatongkala 2014, 61). Thus, the *Putu Menden* enjoys legislative, executive and judicial powers. The new village administration can therefore make new rules and annul old ones.

This paper looks at the organisation of Ao traditional governance system at *Chungliyimti,* the qualifications to be a *Tatar* Member, tenure system, the size and the cycles of the *Putu Menden.* The traditional Meat sharing practice is also introduced in the case study of traditional succession process of this unique administration.

The Organisation of *Putu Menden* at *Chungliyimti*

Chungliyimti is very important in the study of Ao culture; this is the first village they have established after emerging from *Longtrok (*six stones) they were *Pongener-Tongpok, Longkumer-Longpok* and Jamir-*Longchakrep* (Adams, P.F, 1940). Later on, as the population increased, a number of sub-clans were formed from each of these three clans and in the long run these sub-clans became major clans and started forming more sub clan from them (Jamir, Kibangwar 2016, 7). According to oral tradition, it is told that during the time of *Chungliyimti*, wars, disputes and death were unknown. People lived a simple and peaceful life but after a certain period, animals came into being, making such a life impossible. In addition, the growth of population was inevitable and increasing

household not only needed an administration, it also gave rise to political consciousness. Thus, people felt the need of an administration and control so they selected a group of people to protect and administer the village, and subsequently, organised the *Chungliyimti Sholang Menden* (Meat sharing) the first organization of village governance system based on meat sharing and allocation of authority and privileges according to the share of meat. This village governance system has come to be known as *Putu Menden.* They selected people from age group of above thirty and the group was named as *Medemsanger Pusu* because people see them as '*pur kulemsor nubo medem* (age group, equal in stature, agility and boldness). Some, assert that the Tatars are selected from seven *zünga* in an age group of 21 years which they coin it as *Shomeka nung asortem.* They selected the various categories of *Tatars* representing the clans as rulers and the eldest from amongst the *Tatars* of *Tongpok* ancestry was given the *Ung***.**

The Tatars are given the supreme authority to govern the village. They make the law, execute and interpret it. The *Ung* is given the ceremonial head of the village administration (similar to the position of Indian President). He acts as a priest and a *Kimen* (Assembly House). The new *Putu Menden* sit at his house as the *Unger Salang* and decide rules and regulations and meat sharing. There is *Ung Tonglu* (Deputy *Ung*) who helps the *Ung* in the exercise of his power and acts as *Ung* in his absence.

The *Putu* killed a perfect bull, perfect from horn to toe and *Sholen shopang latet* (meat-sharing) is completed. Their forefathers advise them to lead and administer peacefully and secure the village and its people. To set up the Village government according to the will of God they approached and took the guidance of *Ongangla*. (*Tsapongpi, Tsüngremkumer is* a person who can communicate with God).

The rapid growth of population was inevitable and increase of household. It also made agriculture land insufficient, started shortage of food, water and even firewood. Thus, the people of *Chungliyimti* decided to move for a better settlement. They went across a suspension cane bridge they built (*Arr Apu*) across Dikhu River (Tsula), and settled at *Aonglenden* - the present Ungma Village. Later, they shifted to the nearby hill known as *Koridang* from there they reverted back to Ungma. But it is told, during settlement at *Koridang* many of them migrated in search of better settlements and formed many of the Ao villages.

Qualifications to be a *Tatar* member of *Putu Menden*

The following qualifications are laid down for a *Tatar* Member of the *Putu Menden* without much variation among the Ao villages.

To be eligible for the Tatar seat of the *Putu Menden*, a representative has to be:

1. at the age of 30 or above, should be a bona-fide and chosen member of a clan;
2. physically fit person with good moral character;
3. a legitimately married person;
4. a very rich person among the clan members;
5. a person who can sacrifice his life for the village;
6. a pioneer of the Village;
7. not a thief, robber or a murderer.

Tenure

Originally, the term of a *Putu Menden* is thirty (30) years. However, due to time and practice, there are variations from village to village. Ungma, Longkhum, Chuchuyimpang and Mopungchuket *Putu Menden* rule for 30 years.

Longsa *Putu Menden* rules for 20 years. In many other villages, there is practice of rule for 5 or 6 years, but they are re-chosen even more than once, provided the *Tatar* is found suitable or his clan group proposes his name to represent them again. This system is more common in smaller villages. In this way, some clan members may continue to hold its membership more than his tenure-ship if his clan numbers are fewer. In the system, a team of *Tatars* retires in its own time and a new team comes to power in turn. Evolvement of this new administrative system was one of the significant achievements in the early period of civilization beginning from *Chungliyimti.*

The size of Putu Menden

The size of *Putu Menden* varies from village to village depending on the size of population and the number of clans. Ungma village *Putu Menden* at present is very large consisting of about 310 members. It is to be noted that Ungma village selects six categories of *Tatars* from a clan from respective *Menden*. Longsa and Mopungchuket village *Putu Menden* are also considerably large, they select only four categories of *Tatars*. However, in smaller villages there are about 15 to 12 members according to size of the population in their village.

The cycle of Putu Menden

1. ***Medemsanger Putu***: This is the first *Putu Menden*; the selected rulers in this *Putu* were from same age group, equal in physical stature, agility, boldness and strength, hence '*Medem'* means equal thus they were equal people. They desired to rule without retiring, however, they were compelled to hand over their power to the next generation, after 30 years rule, they became old. They handed over the *Putu Menden* to the next generation.
2. ***Mejensanger Putu***: The *Tatars* of this generation were vigorous and wise. Their motto was 'Be the ruler', without becoming old. They thought they can rule forever hence this group of rulers were named as *Mejensanger Putu* meaning never becoming old.
3. ***Mopungsanger Putu:*** *Mopung* (meaning wind) thus the generation of wind people which denotes the group is quick, can entangle and are uncatchable like the wind. Therefore, they called this *putu* as *Mopungsanger Putu*.
4. ***Kosasanger Putu:*** *Kosa* (meaning broken- the generation of broken people who die young). In fact, in this generation, people died during their prime time. It was told, they were forced to fight with wild animals, during this new generation, the practice of tiger hunt by the community was also common.
5. ***Riyongsanger Putu:*** *Riyong* (proclamation of war), the generation of people who proclaim the war. While at Chungliyimti, it was a time of war with many foes of neighbouring villages; such as *Lisuru, Anar*, and *Oronger* etc. This situation took place after the reign of *Kosasanger*. Immediately after the entry of the new *Putu,* war broke out. Thus, this generation was called *Riyongsanger Putu*. During this generation, more headhunting practices were at hand and they were real fighters and war heroes.

J. P. Mills stated that the *Chongli* recognize a cycle of five generations, which are named as follows: *Mechensangr* (those who do not run away), *Mopungsangr* (wind people), *Koshasangr* (broken people, i.e., men of this generation die young), *Riyongsangr* (many people), *Metemsangr* (equal people). The meanings given are warlike the traditional ones and very likely fictitious. Dr.

Clark translates the names as follows: truthful generation, bad generation, swaggering generation, generation, and united generation. Each generation of councillors takes the name of the cycle coming after that of its predecessors, till *Medemsanger* is reached, when a fresh start is made at *Mejensanger*. As the length of a generation varies locally, all villages are not in the same generation at the same time (Mills 2003, 181-182). The *Medemsanger Putu* is the first set up of *Putu Menden* at Chungliyimti. Thus, the process of succession of *Putu Menden* rotates starting from *Medemsanger Putu* till *Riyongsanger Putu* and the cycle start again.

Creation of new *Menden*/*Menden Sabang:*

There are two ways of creating the *Menden/ Menden Sabang* in the village; one is the formation of a new *menden by* force- breaking away without approval, whereas the other is the creation of a new *Menden* with due permission by the *Putu Menden.* Since the Clan is the basis of selection of *Putu Tatar* and in some villages, there are only primary clans that are very large in number of households- they are divided into two or more *Menden*/*Menden Sabang (*seats) division of a big clan into two or more seats is to increase the representation (Similar to delimitation of constituencies). For instance, the *Pongen* clan of a *Menden* can be divided into two or more seats (*Menden Sabang*) so as to enable them to double the representatives. Hence, the different categories of Tatars are selected from the newly created *Menden/ Menden Sabang.* Similar Seat creation is practised in most of the Ao Villages.

The Succession or Taking Over of *Putu Menden*

Peterson J. has believed it is disturbing that the mechanisms for the transferral of power remain disconcertingly vague and ambiguous. Effective leadership depends on having the right personalities in-charge and this is never an easy task (Peterson 2001, 580). Contrary to the assertion, succession process of the Ao *Putu Menden* is well organised according to the age-old tradition which is standardized in every details. The Ao villages are very distinct and independent of each other and thus, reconcile on trivial practical differences in application such as the process of succession of village administration. In the same vein, Along Longkumer asserts that Nagas being rooted in the tradition of consensus building and selecting the most capable, communities have continued their age-old tradition of selecting leaders and representatives to govern them. This is in contrast to modern day democracy of having elections where money and muscle power along with party politics prevails to a large extent…our forefathers were already practicing a pure form of democracy within their respective village republic (Longkumer 2018, 4).[1] *Putu Atsungtep* (Succession) is not only meant for transfer of power from one *Putu Menden* to another but it is also meant for change of a generation which is replaced by another (Ao, Tajen 1980, 126).

Every *Putu Menden* has to retire on the completion of its thirty years term and a new team of representatives will take their seat which is known as *Mendentsüng* (succession or takeover).

As one asserts, sometimes before the end of its full term for thirty years, a *Putu Menden*, for reasons, goes out of office generally two years before the end of existing *Putu*. The existing *Tazüngpurs* inform *Lanu Mapang* (senior most for the next *putu*) of the next *Putu Zünga* so that *Lanu Mapang* will get sufficient time to be prepare for change of *Tatar Putu Menden* (Ibid, 1980, 126). As J.P. Mills, (1926) claims, the most striking feature of the *Chongli* system is that

at the end of every generation, all the councillors of a *khel* vacate office and a new body takes their place. Every *Chongli* village has a standardized generation of many years, usually between twenty-five and thirty. When the time comes to vacate office there is almost always a violent quarrel. The office holders, reluctant to relinquish their power and shares of meat, argue that their time is not up yet, while the younger generations are eager to take their place. It must have often happened in the past that the old men were able to put up a stout fight and prolong their period of office, or that the young men have been able to oust their elders before their time was up, for might is often right in Naga life (Mills 2003, 182). It is to be noted that with the event of modernity the outlook of the people has changed. *Tatars* of the retiring *Putu* and the new representatives rather exercise mutual understanding and the process of succession is done with appreciation, praise and good advice.

Case study

I include here a case study of the succession process of a few Ao villages I frequently visit, which is in a way not complete, as we all know that ours is an oral tradition and even the resource person cannot remember the whole rich traditions at one go. With this little primary data, we try to understand their variations in practice after being customized in their village republics for many years. We found variations in nomenclatures, *Putu* cycles, names and categories of rulers, the tenure system, size of the *Putu* and specifically, differences in meat sharing. It can be an opening for the youngsters to research further and suggest a possible uniformity on the succession process among different villages. More villages could be included in the successive study.

Longsa Village

In Longsa Village[2], succession occurs after the completion of twenty (20) years.[3] The traditional village government is known as *Pusu Menden* (will use the general term *Putu Menden*). The present cycle is *Mejensanger Pusu*. They took over in the year 2020. The size of the *Putu Menden* is 67 Tatars. The category of rulers according to their position are:

1. *Lenyong/Samen*
2. *Shopi 1*
3. *Shopi 2*
4. *Shoshanglak*

Ung is, by tradition, selected from amongst the Tatars of the *Pongen* clan, who function as *Kimen*' (Assembly house) and titular head of the Village. The *Putu Menden* sit at *Ung*'s place and makes rules and resolutions, meat-sharing and all-important matters of the Village.

Aola is selected from among the *Tatars* of the *Jamir* Clan. He is also known as *Nashijongba* (one who spears the bull /to kill the bull). He is the head of the *Onger Salang* (traditional self-governing government) and exercises the highest authority in the Village.

There are seven *Menden Sabang* in the Village with three primary Clans, namely *Pongener, Longkumer* and *Jamir,* and each *Menden Sabang* selects the four categories of Tatars from each of the three clans. The condition for creating a new Menden Sabang is about 80 Households. One year before the succession, during the 19th year of ruling Putu, all the *Menden Sabang* clans select their representatives for the new *Putu Menden*, which is to start with the succession process.

The following is the sequence of events for the succession strictly based on tradition.

Firstly, during the *Tsüngremmong* festival, the new *Putu* representatives have to do *Sholi*

(buying of meat). It is said that *Lenyong/Samen* has to buy a share of 500 pieces of meat, *Shopi-1* 300 pieces of meat, *Shopi-2* 200 pieces of meat and *Shoshanglak* with 100 pieces of meat; the number of pieces of meat varies according to the clan members or the size of the *Menden Sabang*. The select Tatar to be *Ung* has to buy extra 100 pieces of meat. The allotted pieces of meat are put in a Naga basket with plantain leaves and covered by *Shoküptsü Pomet* (big rounded meat) which is cut to cover the basket of meat. They take it to the jungle, and all the clan members must be present. Only the retiring *Tatar* members are not allowed. In the jungle, they organize speeches by the new *Tatars* known as *Nülaksü* (a traditional form of a powerful speech where every sentence is pronounced along with a spear being thrust on the soil). They speak of sequences of their culture and traditions right from the *Chungliyimti* and about the village histories. They then feast on the meat that is bought by the new putu representatives and come back to the village singing war and glorious songs. After reaching the Village, they march throughout the village, singing traditional songs. During the night, they have *Kimak* (a surprise visit by a large group of people*). Kimak* is sometimes invited. It means all the clan members visit the house of their representative for the new *Putu Menden*. Normally, during these visits, the visitors sing traditional victory songs related to the house owner's clan and in return, expect to be offered *Shotok* (a well-prepared meat about five pieces stitched in bamboo stick) along with *mechemtsü* (first juice of rice beer) which is specially prepared for the occasion. The retiring *Tatars* also gather at a place nearby and sing traditional songs soothing and praising each other for their past glories. Secondly, the selected representatives of all clans (*Menden Sabang*) for the new *Putu Menden* have to give *Shoshi* (returning of meat) to the retiring representatives of their clan as the retiring *Tatar* have given a bull while assuming the seat of *Tatar.* Thus, the practice of returning a big bull to the retiring *Tatar* is completed.

Thirdly, the same year after the harvest, to complete the succession/takeover, all different clans of the *Menden Sabang* collectively give a big bull to the new *Putu Menden*. This bull should be perfect from horn to toe, which is a tradition. This is the first and very important meat sharing by the new *Putu Menden Tatars,* known as *salangshotok* (Putu Tatar meat sharing). This is done at the *Putu Salang /Onger Salang* (the meat cutting platform) of the *Putu Menden*. There is an evident tradition of killing and sharing this bull's meat. In Longsa village, The *Lenyong* of the *Jamir* clan is given the title of *Nashijongba Aola*. He is the only person to spear the bull. So, he will kill the bull with his spear and then put the *sangshe* (a jungle thorny bush) on the bull's body and cut it with a sharp dao, as he proclaims:

Oh, bless our Putu with warriors,

Give us victory against the enemy from east to west,

Let there be no diseases and epidemics

Let there be no fire in the Village

Please give us a good harvest and prosperity.

This traditional cutting of *sangshe* with proclamation is called *Sadaklep* (cutting with challenge and prediction). Then, they distribute the meat parts of the animal strictly according to the customary meat-sharing system. The head is for the *Ung* of the *Pongen* clan; *Longkümer* has to pull out the fat in the stomach, and *Jamir* takes a slice of liver along with the gall bladder, also known as *Azümedem.* After taking due share of meat by

the *Lenyong* and *Shopi-1* of respective clans at the *Onger Salang,* the remaining meat is divided equally among the *Menden Sabang*, where the *Shopi-2* and the *Sosanglak* are given their share of meat. Again, all members of the Village will give another bull and a pig to the new *Putu Menden*. This is called *Tsükdongmen* (Paddy tax) first syllable 'Tsük' means 'paddy' and 'dongmen' means tax collection. Hence, the two animals are given to the *Putu Menden* by the citizens as tax.

In the olden days, the selected representatives for the new *Putu Menden* should give the *Kitem* (River fish wrapped in plantain leaves). Interestingly, they use this system to appreciate the old *Putu Tatar* for his achievements during their term. From the forefathers' days, river fish was treated as a special dish for the rich and the rulers. It is one of the specialities to be given as a gift. The procedure of *kitem* is that the new representative to be next *Tatar* should visit the senior's house and praise them for their successful term and take their blessing.

In all this sequence of succession process there is traditionally accustomed abstinence system for the representatives of both the new *putu* and retiring *putu,* this is treated as inviolable and essential for the new *Putu* to accomplish in their term.

Ungma Village

In the present study I am covering only the succession process of Ungma *Yimpang*[4] which I am more familiar with, but the process may be very similar in the case of *Yimlang* of Ungma. In Ungma Village**,** the succession takes place after the completion of thirty (30) years; their traditional village administration is known as *Pusu Menden* (will use the general term *Putu Menden*). The present cycle is *Kosasanger Pusu,* which took over in the year 2014. The size of their *Putu Menden* is comparatively very large, consisting of 220 Tatars. The categories of rulers according to their position are:

1) *Tazüng*
2) *Tekong*
3) *Lasho*
4) *Wasang*
5) *Tarjung*
6) *Jameja*

Ung is by tradition, selected from amongst the *Tatars* of the *Tongpok* ancestry, from amongst the *Tatars* viz., *Tekong, Lasho* or *Wasang*. He functions as Assembly House as the new *Pusu Menden* sits at his place and makes rules and regulations, meat sharing (*Shojung-shoben latet),* and also during annual payment collection (*Sarumoluk*) and count.

Ung süngdong (Deputy *Ung),* who is selected from the *Longpok* ancestry. The *süngdong* helps the *Ung* in exercise of his duties and acts as *Ung* in his absence.

Ojen Ungpo (similar to *Aola)* is selected from among the *Tatars* of the *Longjakrep* ancestry. He is given the privilege to head the village administration and exercises the highest traditional authority.

Tzüdongmen *are* selected from the three ancestries known as *Songteptrok* (six members each from three clans) most of them are equally capable but could not be accommodated in the *Tatars*.

There are Five *Menden* in the Village, represented by three primary Clans of *Tongpok, Longpok and Longjakrep* ancestry and each *Menden* selects the six categories of Tatars

from each clan. The five *Menden* are unique and independent as regard to succession, organization and sharing of meat. The share of meat one gets signifies his position, power and privileges. The tradition practiced during *Chungliyimti, Aonglenden* and *Koridang* is conspicuous by its presence and order.

The following are the sequence of events for the succession.

The selected representatives of all clans for the new *Putu Menden* have to give *Shoshi* (returning of meat) to the retiring representatives of their clan who had given a bull while assuming the seat of *Tatar*. This means returning a bull to the retiring *Tatar*.

The selected representatives for the new *Putu Menden* should give the *Kitang* (supporting gesture). Interestingly, they use this system to appreciate the old *Putu Tatar* for his achievements during their term. The procedure of *kitang* is that, the new representative to be next *Tatar* should visit the senior's house, praise their successful representation, and take blessing from them.

Then, the *Atsüngtep* (succession) takes place at the *Mendentsüng Salang –'Shojung-shoben latetdak'* (the Village meat sharing platform). In all this succession process, there is traditionally accustomed abstinence system for the representatives of both the new *putu* and retiring *putu Tatars,* this is treated as inviolable and essential for the new *putu* to accomplish in their term.

Mopungchuket Village

In Mopungchuket[5] the traditional village administration is known as *Putu Menden*. Succession takes place after the completion of 30 years. The present Cycle is *Medemsanger Putu Menden*; they took over in 2018. There are 22 Tatars at present and six clans, namely; *Ozükum, Jamir, Longkumer, Lemtur, Aier* and *Ochi*. The categories of rulers according to their position are;

1) *Tazüngpur*
2) *Senyim*
3) *Shi Mulong*
4) *Wangchang*

Ung is by tradition, selected from amongst the *Tatars* of *Ozükum* clan. He functions as Assembly House for the Putu *Menden.* The new *putu* sits at his place and makes rules and regulations and do the *Shitsüng –shikolak latet* (traditional meat sharing).

Ung Tonglong (Deputy *Ung*) is also selected from the *Ozükum* clan. He helps the *Ung* in exercise of his duties and acts as *Ung* in his absence. There are 2 *Ungs*, one each selected from two *Mepu*, (*Khel*) and the eldest *Ung* is given the *tambuti* (Leadership).

The process of taking and handing over the *Putu Menden* is generally done after the harvest is completed or specifically during the month of October. The first thing to start before the succession of new representatives selected for the next *Putu Menden* have to do *Kishi Kilaba* (ask for approval) from the retiring *Putu Menden*.

Secondly, the selected *Tatars* altogether give one perfect bull to the retiring *Putu Tatars* during the *Ainlenapidang* (on the day of cleaning the paths connecting the neighbouring villages). Thirdly, they nominate an *Ung* from the *Ozukum* clan; Fourthly, they select a *Tazüngpur* each from amongst the clans who are well versed in customs and traditions, and fifthly, they select Eight (8) *Senyim, Ung, Ung Tonglong, Shi Mulong, Wangchang* respectively.

Then only the succession starts; firstly, the two eldest *Tazüngpu*r will give one bull each.

Secondly, two *Tazüngpur* will give one bull. Thirdly, four *Senyim, Unger,* and *wangchang* altogether, seven of them will give one bull. Thus, a total of seven bulls are sacrificed to approve the succession. The bull must be *Apetasüng maket* (perfect from horn to toe) which also must be an *Anüdok Nashi* (a Bull from the east) or maybe it means that the bull must be an agile one.

From *Chungliyimti,* forefathers, on the day of ritual at the pond *Tsüsen Tsübo* (First pond), the meat share of the clan and the Tatars, *Yimlishi or Shitsüng-shikolak latet* (Meat sharing) have been accomplished; the head is given to the *Remsong, Pongen* and *Ozükum,* the *Shi-Molung* (Chest portion) to the *Jamir* clan, *Wangchang* (neck portion) is given to *Longkumer* clan.

The same year, as part of the succession process, they will go to *Alisümang* (A place) after the completion of *Saru mener* (after the tax collection). On that day, eight *Tazüngpur Tatars* will prepare meat for the whole entourage, which will be carried in the traditional basket. Work distribution will be strictly according to tradition. Those selected *Tatars* for the new *Putu* will settle towards the east side, and the retiring *Tatars* of the *Putu* and youngsters will sit towards the west. On the day of *Alisümang*, no visitors or no one from outside the village are allowed. It is forbidden with *anembong* (abstinence). In the olden days, trespasser have to pay with their head.

They clear the jungle; construct fresh pathways and demarcate it with *Shimakatsü* (bamboo sticks) and then start *anembong* a traditional abstinence for seven (7) days. During these seven days period, no one even the villagers are not allowed to set foot at the *Alisümang. Alisümang* can be seen clearly from many Ao Ranges: *Ongpangkong, Langpangkong and Changkikong.* Villages of these Ranges can easily see and confirm the taken over by the new *Putu.* After seven days of abstinence, the *Unger* and the *Shi mulong* will walk first and remove the bamboo sticks *(shimakatsü);* only then can the village community walk. That is how '*Alisümang*' is especially connected to the age-old traditional succession process of the *Putu Menden* of Mopungchuket Village.

Conclusion

The Ao system of Village Administration first originated at *Chungliyimti* and continues to hold till today. In almost all the Ao villages, two administrative setups can be seen- the traditional one, formed by *Tatars* of the *Putu Menden*, whereas, the modern system is called Village Council, which is organised as per the Nagaland Village Council Act, the members of this system include the *Tatars* and the G.B.s of the Village. But in actual practice, the core functions and policies of any importance are initiated in the traditional *Putu Menden* called *Salang*. Even though it is an oral tradition, they practice it with minute details. One rational practice that continues till today is Ao

villages have not succumbed to the State political masters in the selection of new *Tatars* and the succession process – but rather committed to the age-old practices. The pure democratic convention of succession must be thoroughly studied and preserved as a source of knowledge because key traditional activities are linked with the succession process. This will help future researchers in terms of information and consistency in the succession process.

Endnotes:

[1]Along Longkumer, in the Sunday Post, Special supplement (October 28, 2018). writes about the Succession of an Ao Village.

[2] Interview & Approval: Kazutemtjen Tatar, Aochuba Tatar, L Bendangwati Tatar and Longsa Onger Salang (Longsa 2019 & 2023)

[3]Longsa Village earlier practiced thirty (30) years of rule, but during *Kosasanger Putu* (during 20 years of its *Putu*) struggled in vain in a raid, so they gave the leadership of the raid to *Züngalepzük (*Age group for the next *putu)* with a promise to handover the rule if they are victorious in the raid. That day the *züngalepzük* was victorious in the raid and thus, they took the rule. From that *putu* onwards succession takes place by the end of twenty years.

[4]Interview with Imtidongba Tatar, Lipokzulu Tatar, Imkum Tatar, Tebutedi. Imolemba Jamir & Tebutedi. Longrikaba Lkr (Ungma 2022 &2023)

[5]Material from Akumjungba Lkr and final approval by Medemsanger Putu Menden (Mopungchuket 2023)

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.83-92

Domestication of Wild Edible Strain of *Pleurotus pulmonarius* (Fr.) Quél. (Oyster mushroom) from Mokokchung District in Nagaland State, India: A Prospect for Sustainable Livelihood.

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Abstract

Mushroom Cultivation is a sustainable farming activity that contributes to food security as well as the recycling of nutrients in the ecosystem. Mushrooms are saprophytic macrofungi that decompose dead biomass matters as substrates for its growth. Mushrooms have a high content of proteins, vitamins, and minerals. In Nagaland, exotic strains of Oyster mushrooms have been taken up for cultivation in the past few years. However, there has been no reports on cultivation of the wild edible mushrooms for economic purpose in the state, despite many species of wild edible mushrooms being reported as potential food source. In view of the huge number of wild edible mushrooms in the state, a study has been conducted with the objective of the domestication of wild edible mushrooms. In this study, a wild strain of Pleurotus pulmonarius Oyster mushroom was gathered from its natural habitat in Mokokchung, and the germplasm was isolated and spawn developed using standardised scientific techniques. Experiments were carried out under both controlled temperature and natural climatic conditions to assess growth performance and yield. The findings of this experiment demonstrated that domesticating the wild mushroom Pleurotus pulmonarius can help boost the region's economy and sustainable livelihood.

Keywords: domestication, germplasm, wild *Pleurotus pulmonarius*, substrates, biological efficiency, sustainable livelihood.

Introduction

Mushroom cultivation is emerging as an additional farming activity in many parts of the world. Mushrooms are basically saprophytic macrofungi that can grow on various dead and decaying biomass matters and thus, contribute to the recycling of nutrients in the ecosystem. Edible mushrooms are rich in proteins, minerals, vitamins, and fibre, low in calories and cholesterol. Mushrooms are considered nutraceuticals which may possess both nutritional and medicinal properties. There are about 2000 edible species of wild mushroom, only a few are widely accepted as food items and about a dozen of them have been domesticated and artificially cultivated globally; viz. Agaricus, Lentinula, Pleurotus, Auricularia, Volvariella, Flammulina, Tremella, and a few other species were brought under cultivation (Biswas et al. 2012).

Mushroom cultivation utilises various agricultural wastes and crop residues viz. paddy straw, wheat straw, sugarcane bagasse, cereal and

pulses husks and stalks, etc. as substrate media. The utilization of abundant agricultural wastes and residues is considered mushroom cultivation an eco-friendly farming activity. However, the method of mushroom cultivation is quite dissimilar compared with the other crop cultivation methods since mushrooms are non-photosynthetic and achlorophyllous, they grow on dead organic matter as decomposers in the absence of sunlight. Mushroom cultivation techniques involve the application of microbiological technology to develop the planting inoculum called the spawn. The study of the life cycle and ecology of the mushroom is an important aspect of the successful domestication of wild edible mushrooms under an artificial control environment.

It is recognised as landless—, indoor— and vertical farming, it provides ample opportunities like income generation for the landless farmers and women in particular. Mushrooms are grown at a very low cost since cultivation is done indoors with low requirements for water as compared to other crops (FAO, 2017).

As stated by Gilhotra. H., et al. (2023) mushroom cultivation not only generates employment but also helps in the socio-economic development of farmers and landless labourers. The commercial cultivation of mushrooms in the world started after World War II and in 2020, it achieved the figure of 42 million tonnes of mushroom production globally. In the present food economy, mushroom cultivation technique has been recognised as an important component of the expanding mushroom biotechnology industry.

Today, mushrooms are cultivated in more than 100 countries and China is the leading producer with a 95% share of the global market (FAOSTAT, 2022). The mushroom market in India is dominated by 5 genera viz. *Agaricus* (white Button mushroom), *Volvariella* (Paddy straw mushroom), *Calocybe indica* (Milky mushroom), *Lentinula edodes* (Shitake) and *Pleurotus* (Oyster mushroom). In India, due to significant variations in the climatic conditions and diverse geographical regions, the cultivation of different mushrooms is concentrated in different regions. White button mushroom is mainly grown in the northwest region, milky mushroom is prominent in the southern part, paddy straw mushroom is more localised in the coastal region of Odisha, and shitake and oyster mushroom are confined to North East India (Gilhotra H. et al. 2023). According to Royse et al. (2017), the oyster mushroom is one group of edible mushrooms commercially cultivated on paddy straw, wheat straw, sawdust, etc., and ranks second worldwide.

In the North Eastern region of India, oyster mushroom has the maximum share of mushroom production and consumption (Rajesha et al. 2018). In Nagaland, two exotic strains of oyster mushrooms belonging to *Pleurotus florida* and *Pleurotus sajor-caju* have been cultivated by the local farmers in small-scale farms as seasonal crops in both hills and plain areas. The ideal growing season in hills is from March to October and in plains from October to March (Rajesha et al. 2018). In Nagaland, particularly the tribal community considers mushrooms a rare delicacy and there is a regular collection of wild edible mushrooms during rainy seasons in the villages. Some of the species of wild edible mushrooms are available in the local market during the growing season at high prices. Ao and Deb (2019), reported 52 species of wild edible mushrooms including 3 species of wild oyster mushrooms belonging to *Pleurotus citrinopileatus*, *Pleurotus ostreatus*, and *Pleurotus pulmonarius* from Nagaland as

potential food sources. However, there has been no reports on cultivation of the wild edible mushrooms in the state for economic purpose, despite many species found in the forest. In view of the abundant wild edible mushrooms in the state, the present study has been conducted with the objective to see the feasibility of domestication of the *Pleurotus pulmonarius*, which is a common wild strain of oyster mushrooms in the region. *Pleurotus pulmonarius* is generally appreciated for its chemical constituents that possess many health benefits and have been considered as functional foods. Among the edible Oyster mushrooms, *Pleurotus pulmonarius* contain pharmacological properties such as antioxidants, anti-tumour, anti-cholinesterase, anti-inflammatory, reduced blood sugar level, and immune-modulatory composition (Zhang et al. 2016, Nguyen et al. 2016).

Study Area

The present study area is Mokokchung district, located in Nagaland. The GPS coordinates of Mokokchung district are 26.3220º N and 94.5153º E, annual rainfall ranges about 1600mm – 2500mm with a minimum temperature of 10º-15°C in winter and 25º-30°C in summer. The climatic condition of the region is suitable for the growth of mushrooms and thus serves as a reservoir of huge macrofungal forest bioresource.

Material

The mushroom material was collected from a wild habitat, grown naturally on the log of dead wood as shown in Fig 1. The GPS coordinates of the collection area are 26.317792º N and 94.521585º E. The mushroom fruiting bodies or the sporocarps were carefully detached from their substratum and kept in a box made of cardboard paper and brought to the laboratory. Taxonomic studies of the mushroom sample were done on the basis of morphological characteristics (fig.4 &5), whereas the edibility and safety of the mushroom sample for consumption were confirmed by local people who are involved in regular mushroom foraging. The in vitro culture was conducted in the Mushroom Spawn Lab in the Department of Botany, Fazl Ali College, Mokokchung in Nagaland.

The mushroom sample was identified as *Pleurotus pulmonarius* (Fr.) Quél, commonly known as the Indian oyster or lung oyster belongs to the family Pleurotaceae. The pileus is 3-10 cm across, convex, flat or depressed, the stipe is 1-4 cm long, the gills are close, the spore print is whitish, spore 7-11x2-3 µm, hyaline, centric, and ellipsoid.

Methodology

Isolation of germplasm and generation of spawn

The pure culture germplasm was isolated from a young fresh sporocarp by the tissue culture method following the protocol given by Hsu et al. (2018) with some modifications in the formulation of Potato Dextrose Agar culture (PDA) medium. The PDA culture medium was supplemented with antibiotics, adding 30mg of Streptomycin per 1000ml PDA medium. The addition of antibiotics helped in the prevention of bacterial contamination in the isolation of germplasm. In this method, the inner tissue of the sporocarp was excised and inoculated in the sterilised Potato Dextrose Agar (PDA) media in slant tubes to get the pure culture of the sample. The subculture was prepared by inoculating actively growing mycelia from the pure culture in PDA media in Petri plates (fig. 6) and incubated at 25± 2°C until a fully grown culture was obtained. Some of the pure culture in slant tubes was stored at minus 80°C in a deep freezer for future use.

Spawn Generation

Paddy grains were used as substrates for the generation of the spawns. The spawn generation was done according to the protocol described by Bora et al. (2020) with some modifications done in the process of making planting spawns. The planting spawns were directly produced from the mycelial subculture by skipping the Mother / Master spawn stage since it is required mainly for the production of large-scale spawns for commercial purposes. Following the method given by Bora et al. 2020, the paddy grains were washed and soaked in water for 6 hours and then boiled for 20 minutes. The excess water of the boiled grains was drained off in a mesh sieve and kept for about 6 hours to cool and evaporate up to 60 % moisture content. The boiled grains were supplemented with 0.5% calcium carbonate and 2 % calcium sulphate on a dry weight basis of grain to avoid clumping of grains during incubation. The supplemented paddy grains of 300 gm each were filled in polypropylene bags and sterilised in an autoclave machine at 121 ℃ for 90 minutes at 15 psi and allowed to cool at room temperature. The sterilised paddy grains were shifted to a laminar airflow chamber and inoculated with a bit of actively growing mycelia from the mycelial subculture in Petri plates. The inoculated bags were incubated at a temperature of 25± 2℃ in the BOD incubator until full colonisation of the mycelium. The bags were shaken at 5-6 days intervals to allow the mycelia to break and grow through the grains for uniform growth of mycelium in the spawn (fig.7).

Substrate preparation for cultivation

The domestication was done on paddy straw substrate. Paddy straw is available locally in the study area. The paddy straw is a suitable substrate for oyster mushroom cultivation. Pasteurization of the substrate was done by hot water treatment for 20 to 30 minutes. The paddy straws were packed in perforated sacks to allow water to drain. The moisture content of the substrate was tested by the palm press method and ensured 60-70 % moisture content. Inoculation and spawning were done as per the method given by Mshandete (2011), where the plastic bags containing 1 kg of substrates were inoculated by the layering method with 10 % spawn per dry weight of the substrate.

Experimental design for cultivation

The experiment was carried out using a group design method with two groups/sets (fig.3). The SET 1 group consisted of 6 replicates of inoculated substrate bags that were incubated in the incubation chamber at a controlled temperature of 25°C. The SET 2 group consisted of 6 replicates of inoculated substrate bags that were incubated in a dark room under natural environmental conditions without monitoring the temperature. The natural environmental temperature during the incubation period ranged between 20 to 27 ℃. The experiment was designed to study the influence of temperature during its mycelial growth period. The incubation chambers were disinfected with ethyl alcohol before keeping the bags and uniform darkness condition was maintained throughout the incubation period. During the incubation period, the mycelia growth initiated from the spawn grains and colonised the substrate materials, therefore this period is also known as the spawn running period. The initiation of the mycelia growth depends on various optimal factors like humidity, temperature, moisture content of the substrate, etc. The completion of the incubation period is indicated by the appearance of a white mycelial mat covering the entire straw in the bag. The bags that have developed tiny pinheads or primordia were shifted to the growing room. The relative

humidity between 70-90 % was maintained in the growing room, which was monitored by using a hygrometer. The light intensity in the growing room was adjusted by using a digital lux meter. The environmental condition required for growing *Pleurotus pulmonarius* is 21- 29°C temperature, relative humidity of 90-95%, and light of 500-1000 lux (Stamets, 1993).

Data collection and evaluation

The data collection was done on the growth performance and mushroom productivity. The overall evaluations were taken from the following parameters: spawn running period, induction of primordia, fresh weight of the mushroom yield, and biological efficiency. The Mean± Standard Deviation value was calculated from the data collected from the replicates.

The first phase of data collection was done on the spawn running period which was based on the number of days taken to complete the mycelial growth or mycelial colonisation. The second phase of data recording was done for the induction of primordia or the pinheads formation. The 3rd phase of data collection was the number of days taken for mushroom fruiting (Table 1).

Table 1. Evaluation of spawn running period, induction of primordia, and fruiting period

Replicates 6 nos.	Spawn running period Mean±S.D (days)	Induction of primordia Mean ±S.D (days)	Fruiting period Mean±S.D (days)		
			1st flush	2nd Flush	3rd Flush
SET 1	19.83±0.4	23.5±0.54	28.16±0.75	40.66±1.03	60.5±0.83
SET2	24.33±0.81	26.66±0.51	33.16±0.75	43.66±0.81	71.83±0.75

*SET 1 (incubated under control temperature at 25°C)

*SET 2 (incubated under natural environment)

The yield of mushrooms was recorded by taking the fresh weight of mushrooms harvested in the 3 successive flushes or fruiting periods and the harvesting period was continued till the 3rd flush (Table 2). The fresh weight of the mushroom was recorded from the first flush to the third flush during the experiment.

The time intervals between the two flush cycles were about 7-8 days. The harvested mushroom samples were dried in the hot air oven and recorded the dry weight. The dried samples were then stored at 4°C for analysis of their nutritional content. The fresh mushroom sporocarp normally contains about 90 % water. The biological efficiency (B.E.) percentage was evaluated as per the formula given by Chang et al. (1981).

$$B.E = \frac{\textit{Yield of the mushroom}}{\textit{Total weight of the substrate}} X\ 100$$

Table 2. Mushroom yield and Biological Efficiency (B.E)

Replicates 6 nos.	Mushroom yield (kg)			Total weight of mushroom (kg)	Biological Efficiency (B.E)
	1st Flush	2nd Flush	3rd Flush		
SET 1	2.31	1.35	0.6	4.26	71 %
SET 2	2.10	1.15	0.55	3.80	63.41%

*SET 1 (incubated under control temperature at 25°C)

*SET 2 (incubated under natural environment)

* Total substrate weight in 6 replicates SET is 6 kg

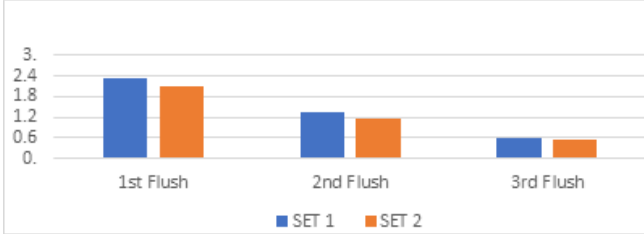
The evaluation of the percentage of biological efficiency (B.E.) of the mushroom cultivated under different environmental conditions and different substrates is important for mushroom economics.

Result and Discussion

From the data evaluation, it has been observed that the overall growth period of cultivation was completed in 60 to 70 days. Table 1 shows the average values for the spawn running periods obtained from SET 1 and SET 2 replicates, which were 19.83 and 24.33 days, respectively. The SET 1 replicates stored at an even temperature took less time to spawn than the SET 2 replicates kept in a natural environment. During the incubation phase, the average environmental temperature ranged from 20 to 27 °C. The cultivation took place between the months of August and October. The spawning phase for oyster mushrooms typically lasts 14 to 28 days, depending on the substrate and temperature (Chinda & Chinda, 2007).

After the completion of the spawn running phase, the mycelia intertwined into the mycelial cord to develop primordia within 3-5 days. The primordia are a group of mushroom young buds, commonly called pinheads, a number of primordia were developed near the area of the perforated holes on the surface of substrate bags. About 4 - 6 groups of primordia developed in each bag of replicates. Meanwhile, the induction of primordia is another major insight to determine the productivity of mushroom cultivation, the result is shown in Table 1. As soon as the primordia developed, the bags were shifted to the growing room and opened the bags to facilitate the free flow of air and also to allow the primordia to sprout into mushrooms. During the fruiting period, the growing room was maintained at 80-90% relative humidity and monitored regularly with the help of hygrometer readings. The moisture content in the substrate bag was also maintained at 60 to 70% water content. Regular watering was done during the fruiting period (fig.2).

Chart 1. Yield of mushroom in 3 successive flushes (weight in Kg)



The yield of the mushroom is quantified and is represented in Chart 1, showing the total weight (kg) of mushrooms obtained in 3 successive flushes of SET 1 and SET 2 replicates. The results have shown that both the replicates produced more or less equal amounts of mushrooms. However, the amount of yield decreased in the last flush.

This gradual decrease in mushroom production was due to a decrease in the amount of nutrients in the substrates. The substrate bag content also decreases in its weight. The total fresh weight of the fruiting body was converted into biological efficiency (B.E.) by calculating the ratio of the weight of the fresh mushroom to the dry weight of the substrate. The biological efficiency (B.E.) in SET 1 and SET 2 is 71% and 63.41 % respectively (Table 2). The biological efficiency of SET 1 is 71% which means a total of 710 gm of fresh mushrooms harvested in 1000gm of dry weight substrate in SET 1. Similarly, in SET 2 the B.E is 63.41 % which means 634.10gm of fresh mushrooms can be harvested in 1000 gm of dry weight substrate. The result obtained in both experiments is a positive indication for the domestication of this wild mushroom for economic uses.

Photo Section

Fig.1.Mushroom in wild

Fig.2.Domesticated mushroom

Fig.3. Incubated substrate bags

Fig.4. A sporocarp (dorsal view)

Fig.5. A sporocarp (ventral view)

Fig.6. Pure culture

Fig.7. Spawn bags

Fig.1 -7, Photographic representation of *Pleurotus pulmonarius* (Sources from present work)

Sustainable Livelihood Prospect

The economic aspect of cultivating wild oyster mushrooms for small-scale farming has been studied, which would be useful for revenue creation for local farmers. The assessment was based on the

current work's findings, as well as several references cited by Rajesha et al. 2018.

Table 3. Economics of Low-Cost Cultivation of oyster mushroom (* approx. cost price)

(A)	Non-recurring materials	Cost price	Remarks
	Construction of growing room (20X10 ft)	20,000	Capacity of 300 beds
	Chaff cutter	2,500	Manual operation
	Large cauldron/ pots	1,000	For substrate pasteurization
	Buckets and baskets	1,000	
	Water sprayer	200	Manual operation
	Sub Total (A)	**24,700**	
(B)	***Recurring materials***		**For one cropping (300 bags)**
	Paddy Straw (400 kgs)	1,000	From local Paddy field
	100 packets for 300 beds	3,000	300gm per packet
	Poly bags (30/40cm)-2kg	400	400 pcs
	Firewood	1,000	Locally available
	Sanitizers and disinfectant	300	
	Labor charges /Misc.	7,000	
	Sub Total (B)	**12,700**	
	Depreciation (Non-recurring expenditure) @ 10%	**2,470**	
	(C) Total Expenditure for one cropping (Rs.12,700+2,470)	**15,170**	
(D)	**Income**		
	Gross income from one cropping (B.E= 71%)	42,600	213 kgs from 300 bags @ Rs.200/kg
	Net income from one cropping	**27,430**	

Table 3 provides an economic estimate based on the current study and local context. The net income from single cropping with 71% biological efficiency is Rs. 27,430 (approx.), the amount that might be made in a single cropping cycle. Furthermore, because most raw materials, including paddy straw, firewood, and construction materials, are abundant in rural locations, farmers can further minimise their spending by obtaining the raw materials for free. In such a case, the net income or profit will grow.

Conclusion

Mushroom cultivation can be started and sustained with minimal infrastructure and financial expenditure. This study proved a straightforward method of cultivating a wild strain of oyster mushroom, as well as the economic component for income production. The current climatic conditions in the research area are also conducive to the growth of oyster mushrooms. Thus, based on the findings of this study, it is suggested that the domestically grown wild strain of oyster mushroom (*Pleurotus pulmonarius*) be considered a suitable crop for income production and adequate opportunity for sustainable life in the region.

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.93-103

Fermented Soybean and Resilient Food Systems: A Pathway to Community Growth in Nagaland.

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Abstract

Today, we are faced with challenges as we strive to achieve livelihoods. One particular resource that stands out in Northeast India is fermented soybeans, which holds potential. In the region of Nagaland, fermented soybeans can contribute significantly to both development and ecological balance. The significance of fermented soybeans stems from the region's agrobiodiversity and indigenous knowledge. The traditional practice of fermenting food not only enhances the value of soybeans but also extends their shelf life, thereby ensuring food security. This community-based approach highlights the growing focus on sustainability by minimising impacts while enhancing livelihoods. The cultural heritage of Nagaland is deeply intertwined with its cuisine, presenting an opportunity to preserve traditions while fostering community growth. Fermented soybeans create income-generating opportunities for communities. By combining insights with wisdom, targeted policies that empower stakeholders and facilitate knowledge exchange are vital for research on processing methods and market expansion. This research holds promise for value-added products and increased opportunities. Fermented soybeans have a role in people's lives in Nagaland, Northeast India. They offer benefits regarding nutrition, culture and the environment, making them an excellent choice for improving community nutrition resilience. Foods, especially fermented soybeans, can potentially contribute to socioeconomic development.

Keywords : Sustainable livelihoods, Fermented soybean, Northeast India, Community development, Traditional Food, Indigenous knowledge systems.

Introduction

In the picturesque region of Nagaland, in the northeastern corner of India, the timeless practice of fermenting soybeans transcends the boundaries of tradition. Beyond being a culinary delight, fermented soybeans embody a remarkable convergence of indigenous knowledge, sustainable livelihoods, and community development (Ajungla et al. 2020a). Against this backdrop, this study delves into the intricate web of relationships that arise from the cultivation and consumption of fermented soybeans, with a specific focus on their environmental implications. We aim to assess the ecological impact of Nagaland's expanding fermented soybean production, scrutinising the intricate dance between agrobiodiversity, land use, and ecological balance. Through a comprehensive analysis, we aim to quantify changes and propose sustainable cultivation practices that guide Nagaland towards a more resilient and harmonious food system.

The cultivation and utilisation of fermented soybeans have gained significant attention in recent years, particularly in Nagaland. This

burgeoning interest stems from recognising the potential contributions of fermented soybeans to various facets of the local landscape, ranging from socioeconomic development to cultural preservation (do Prado et al. 2022). One prominent dimension of this phenomenon that has captured the spotlight is the environmental sustainability of fermented soybean production in Nagaland.

This research paper aims to systematically examine the environmental sustainability of fermented soybean production in Nagaland, specifically emphasising its impact on agrobiodiversity and ecological balance. This study sheds light on the complex interplay between agricultural practices, the environment, and the broader implications for local communities and the ecosystem.

Fermented soybean products have long been a cornerstone of dietary traditions in various parts of the world, especially in regions like Nagaland. With its high protein content, versatility, and numerous health benefits, fermented soybean has become a nutritional staple and a symbol of cultural identity (Ajungla et al. 2020b). As global awareness regarding sustainable and resilient food systems increases, there is growing interest in the potential of fermented foods, like soybeans, to address both food security and environmental sustainability concerns. However, with any agricultural or food production system scaling up, inevitable ecological considerations must be evaluated. To appreciate the significance of this study, it is essential to recognise the multifaceted nature of fermented soybean production in Nagaland. The region's rich agrobiodiversity, deeply rooted indigenous knowledge, and traditional food fermentation practices have contributed to the emergence of fermented soybeans as a pivotal resource. Fermented soybeans are not merely a source of sustenance; they also play a crucial role in the cultural heritage of Nagaland, providing a unique opportunity to preserve traditions while fostering community growth (Singhal et al. 2021).

However, as the popularity and scale of fermented soybean production continue to rise, there is a growing need to assess its environmental implications critically. This study considers the intricate relationship between land use, biodiversity, and overall ecosystem health after increased soybean cultivation. By doing so, it aims to address a significant gap in current knowledge regarding the sustainability of this practice.

Soybeans, a major global crop, have been increasingly recognised for their nutritional value and potential in sustainable agricultural practices. Fermentation of soybeans enhances their nutritional profile, making them a desired food source in many cultures (Anderson et al. 2019). Nagaland, a northeastern state in India, has seen a surge in fermented soybean production due to its cultural significance and increasing market demand. As with many agricultural practices, the intensification and scaling up of production can have profound environmental impacts. Agrobiodiversity, which refers to the variety and variability of plants, animals, and microorganisms used in agriculture, is pivotal in ensuring ecosystem resilience and adaptability (Borsari, 2022). Understanding how scaling up fermented soybean production might affect the intricate balance of Nagaland's unique ecosystem is crucial. While fermented soybean production offers economic and nutritional benefits to the region of Nagaland, there are growing concerns about its environmental sustainability, especially its potential impact on local agrobiodiversity and the broader ecological balance.

Problem Statement: While the advantages of fermented soybean are evident in nutrition and cultural significance, the environmental implications of scaling up its production remain

relatively unexplored. Specifically, how might an increase in soybean fermentation production impact the agrobiodiversity of Nagaland? What potential long-term effects could this practice have on the local ecosystem, especially when considering land use, water resources, and waste management? The challenge lies in balancing the socio-economic benefits of increased production with the preservation and health of the environment.

While much is said about the potential of fermented soybeans in Northeast India, particularly in Nagaland, for their contribution to development, ecological balance, food security, and cultural practice preservation, there appears to be a lack of specific research addressing the sustainability and environmental impact of scaling up fermented soybean production and its integration into local livelihoods. The importance of sustainability is discussed but does not delve into the ecological implications of increased soybean fermentation and its potential long- term effects on agrobiodiversity and the ecosystem. Exploring this aspect and the socioeconomic benefits would be crucial to developing comprehensive strategies for maximising the positive impact of fermented soybeans in the region while minimising potential negative consequences. Therefore, a research gap exists in understanding the broader environmental sustainability considerations and the ecological implications of promoting fermented soybean production and consumption in Northeast India.

Significance: Addressing these concerns is paramount for several reasons. Firstly, understanding the environmental ramifications ensures that Nagaland's rich agrobiodiversity, integral to the region's ecological balance, is not inadvertently compromised. Secondly, for local communities that rely heavily on the land and its resources (Yadav & Sharma, 2019), balancing economic growth and environmental stewardship is essential to ensuring a sustainable and prosperous future. By proactively assessing and addressing the ecological implications of fermented soybean production, we can pave the way for more informed and sustainable practices that benefit both people and the planet. Besides, global attention is shifting towards sustainable agriculture and conservation (Schattman et al. 2023). So, this kind of study can provide valuable insights and lessons for other regions facing similar challenges.

Research Objectives :

1. To review and synthesise existing literature, theories, and conceptual frameworks related to the following aspects of Nagaland:
   i. Assessment of land use dynamics for Soybean Cultivation.
   ii. The impact of increased soybean cultivation on local agrobiodiversity and overall ecosystem health.
2. To propose sustainable cultivation practices that mitigate potential negative environmental consequences while supporting the continued growth of fermented soybean production livelihoods.

The following specific objectives underpin the study:

1 a) Assessment of Land Use Dynamics for Soybean Cultivation

Nagaland, a mosaic of pristine forests and intricate agricultural lands, has undergone transformative land use dynamics over the past few decades, predominantly influenced by shifting cultivation, agricultural intensification, and urban sprawl (Hiese et al. 2020a). These shifts, marked by a move from traditional jhum cultivation systems to more settled farming practices and increasing

urbanisation, are having profound impacts on the state's ecological balance and cultural heritage (Das, 2022, 2022; Debojyoti Das, n.d.; Hiese et al. 2020b; Kumar et al. 2016; M. Longchar, 2013). The land is the essential and inseparable domain of the Naga tribe (Ringkahao Horam, 2018).

The traditional jhum, slash-and-burn agriculture, has been integral to Nagaland's agrarian identity for generations. However, the increasing pressure to meet food and economic demands has prompted many to abandon this cyclic and sustainable practice in favour of permanent cultivation, often leading to deforestation and loss of biodiversity (A. Singh, 2019; Karim & Mansor, 2011; Longshibeni N Kithan, 2015).

Simultaneously, Nagaland's urban areas, with Kohima and Dimapur at the forefront, are expanding at an unprecedented rate. This urbanisation has led to land being repurposed for infrastructural developments, often at the expense of vital green spaces and indigenous habitats (Jamir, 2021).

The resultant changes in the land-use mosaic are not just environmental. The societal implications, particularly for indigenous communities whose lives and livelihoods are deeply intertwined with the land, are profound. The challenge for Nagaland now lies in harmonising its developmental aspirations with the pressing need for environmental stewardship and cultural preservation (Hiese et al. 2020c; Lawrence et al. 2019).

1 b) Assessment of The Impact of Increased Soybean Cultivation on Local Agrobiodiversity and Overall Ecosystem Health in Nagaland.

Nagaland, an ecologically rich state in Northeast India, is currently facing ecological and agricultural shifts due to the increased cultivation of soybeans. While soybeans serve as a pivotal crop for economic and nutritional purposes in the region, their burgeoning cultivation is raising significant concerns regarding the preservation of local agrobiodiversity and the health of the broader ecosystem (Hiese et al. 2020d; Rodrigues & Miranda, 2021a; Solo & Kikhi, 2021).

Nagaland's inherent agrobiodiversity, characterised by its diverse indigenous crops, is a testament to its rich ecological tapestry. However, the emphasis on soybean monoculture threatens this rich diversity. With more land dedicated to soybean cultivation, there is a palpable reduction in the variety of indigenous crops, which can threaten plant diversity and the myriad of organisms dependent on these native plant species. In the long run, this shift can affect pollinators, certain insect species, and specific bird populations integral to the local ecological chain (Jones et al. 2021). As mentioned above, this paper highlights the potential threat to Nagaland's agrobiodiversity due to the emphasis on soybean monoculture.

The monoculture practice used in cultivating genetically modified crops can increase the risk of herbicide tolerance and insecticide resistance, potentially impacting the food web and biodiversity (Chaurasia et al. 2020). The underutilisation of agrobiodiversity in national food systems is emphasised, indicating a need to prioritise diverse crop cultivation (Jones et al. 2021). These findings suggest that the shift towards soybean monoculture in Nagaland may threaten the region's rich agrobiodiversity and the organisms dependent on native plant species.

The study shows that increased soybean cultivation contributes to deforestation and habitat fragmentation, leading to ecological consequences. A great example is the soybean expansion in South

America, particularly in the Brazilian Amazon and Cerrado, which has resulted in significant forest loss (Song et al. 2021). It focuses on the example of the municipality of Sorriso in Brazil and finds a strong inverse relationship between soybean cultivation and forest cover (Rodrigues & Miranda, 2021b). These findings highlight the detrimental impact of soybean cultivation on forests and emphasise the need for sustainable land use practices to mitigate deforestation and its ecological consequences.

So, we can understand from these data that deforestation and habitat fragmentation are additional ecological consequences of increased soybean cultivation. We see regularly large swathes of forests in Nagaland are cleared to meet the growing demand for agricultural land. These forest clearances not only disrupt the habitats of myriad species but also affect watershed areas, leading to water scarcity and reduced quality of freshwater sources (Sarma & Kalita, 2021).

Soil health, another critical aspect of the ecosystem, is adversely affected by intensive soybean cultivation. Continuous cultivation can result in the depletion of vital soil nutrients and erosion, threatening crop yield and the land's future agricultural potential. Furthermore, the excessive use of fertilisers daily in soybean farming can lead to soil acidification and affect local water bodies, causing disturbances in aquatic ecosystems (M. Tahat et al. 2020). The study highlights the ecological challenges associated with pesticide use in soybean cultivation. It emphasises the critical role of pesticides in increasing crop yields. It discusses their adverse effects on the natural environment, including harm to non-target organisms and contamination of air, water, soil, and crops (Tudi et al. 2021).

In sum, while the burgeoning soybean cultivation in Nagaland offers economic opportunities and addresses nutritional demands, it does not come without ecological consequences. The challenge for Nagaland and similar regions globally is to strike a balance - ensuring that the economic benefits of soybean cultivation do not come at the expense of the region's rich agrobiodiversity and overall ecosystem health.

2. Proposal for Sustainable Cultivation Practices in Nagaland's Fermented Soybean Sector.

Cultivating fermented soybean, a linchpin of Nagaland's agricultural and cultural landscape stands at an environmental crossroads due to intensified farming practices (Chishi & Jahanara, 2022). To ensure that this crucial livelihood continues to thrive without detriment to the region's rich biodiversity and ecological health, there is an imperative need for sustainable cultivation practices that coalesce modern agricultural techniques with indigenous knowledge. (Arora et al. 2022; Chhabra & Sinha, 2020; Mylliemngap, 2021; Sharma et al. 2020, 2020; Smriti Singh et al. 2019).

The critical components of this proposal include:

1. **Agroforestry Integration:** The social, economic, and environmental contributions of traditional agroforestry systems, including increased soil fertility and the provision of various resources, are critical components (Wondimenh, 2023) which can be quickly adopted in Nagaland. The role of agroforestry in climate change adaptation and mitigation and its potential for enhancing livelihoods and food security is also needed (Taye Gifawesen et al. 2020).
2. **Crop Rotation and Polyculture:** Varietal mixtures, a form of polyculture, can support insect pest control and increase crop

productivity (Snyder et al. 2020). The long-term benefits of legume-based cropping systems on soil health and productivity are also emphasised (Ananda et al. 2022). Moreover, the importance of legume-rhizobia and legume-arbuscular mycorrhizal fungi symbioses in nutrient acquisition and sustainable agriculture has been clearly shown (Liu et al. 2020).

3. **Organic Farming Techniques:** Organic farming focuses on preventive pest and disease management measures, promoting ecosystem health and plant resistance (Saha & Bauddh, 2020). Additionally, organic agriculture significantly reduces pesticide use compared to conventional farming, lowering dietary risks and promoting public health (Benbrook et al. 2021).

4. **Water Management:** It has been found that indigenous rainwater harvesting techniques can significantly increase runoff retention, double infiltration, and mitigate soil water stress, leading to extended growing seasons and enhanced crop yields (Tamagnone et al. 2020). Implementing sustainable irrigation practices, such as pressurised and deficit irrigation systems, is essential in water-scarce regions (Nikolaou et al. 2020).

5. **Community Engagement and Education:** Appropriate agricultural practices in implementing sustainable agriculture and identifying factors influencing farmers' adoption of these practices are essential (Tiefigue Coulibaly et al. 2021).

6. **Market Incentives for Sustainable Products:** This study provides insights into market incentives for promoting sustainable agricultural practices. The importance of sustainable agriculture in mitigating adverse environmental impacts caused by conventional farming practices is highly emphasised (Coulibaly et al. 2021).

If implemented in collaboration with local communities, agricultural experts, and policymakers, this proposal can usher in an era of sustainable soybean cultivation in Nagaland that honours its rich traditions while looking ahead to a sustainable future.

Results and Discussion

The study unveiled multifaceted changes in the land-use patterns of Nagaland, driven primarily by increasing soybean cultivation and developmental pressures. Notably, these changes are not merely ecological but have profound socio-cultural implications. The indigenous communities, which have an ancestral bond with the land, face challenges as their traditional landscapes transform. Soybean cultivation, while bringing economic gains and meeting nutritional needs, is altering the ecological fabric of the region. There is an evident tension between the developmental trajectory and the region's environmental and cultural integrity.

Our investigation into the impact of increasing soybean cultivation on Nagaland's land-use patterns and its socio-cultural implications revealed a complex interplay between economic development and preserving environmental and cultural integrity.

i. Relevance Emphasized

In considering the multifaceted changes observed, it is imperative to underscore the relevance of the findings. The transformation in land-use patterns, driven by the surge in soybean cultivation, extends beyond ecological shifts; it directly impacts the socio-cultural fabric of Nagaland. The implications of these changes are deeply rooted in the ancestral

connection indigenous communities have with the land.

ii. Socio-Cultural Challenges Highlighted

The challenges these communities face in transforming landscapes is not merely practical; they extend to the core of their cultural identity. As soybean cultivation brings economic gains and nutritional benefits, it concurrently poses challenges to the traditional landscapes, creating a tension that demands careful consideration.

iii. Balancing Economic Gains and Environmental/Cultural Integrity:

The tension identified between the developmental trajectory and the environmental and cultural integrity of the region calls for a nuanced discussion. It is evident that while soybean cultivation contributes to economic growth and nutritional security, it also raises concerns about its ecological impact. This necessitates carefully examining the trade-offs in achieving economic aspirations without compromising the region's vibrant agrobiodiversity and the holistic well- being of its ecosystems.

iv. Impact of Fermented Soybean Products

Beyond the cultivation aspect, our study delves deeper into the impact of fermented soybean products on the communities of Nagaland. Fermentation not only enhances the economic value of soybeans but also plays a crucial role in meeting nutritional needs. The extended shelf life resulting from fermentation contributes significantly to food security, a vital aspect of the resilience of communities, particularly in challenging ecological and economic contexts.

v. Cultural and Nutritional Significance

Fermented soybean products, deeply ingrained in the cultural heritage of Nagaland, offer more than just economic gains. They become a means of preserving traditions while fostering community growth. The study highlights how these products, rich in nutrition, become a cornerstone for improving community nutrition resilience. The cultural heritage of Nagaland, closely tied to its cuisine, provides a unique opportunity to leverage fermented soybeans for economic and nutritional well-being.

vi. Integrating Traditional Wisdom for Sustainable Progress:

Our findings underscore the need for a balanced approach to address this tension. Sustainable progress in Nagaland requires the integration of modern agricultural practices with traditional wisdom. Collaborative efforts are essential to formulate strategies that preserve the region's environmental ethos and cultural heritage. Such an approach ensures that economic growth does not overshadow the intrinsic values that define the resilience and uniqueness of the communities of Nagaland.

Conclusion

Like several biodiverse-rich regions globally, Nagaland is at an inflexion point where economic aspirations intersect with environmental and cultural considerations. The surge in soybean cultivation, though economically promising and nutritionally fulfilling, raises ecological concerns. For Nagaland to progress sustainably, a balanced approach is vital—one that embraces economic growth without undermining the region's vibrant agrobiodiversity and the holistic well-being of its ecosystems. This necessitates a joint effort, integrating modern agricultural practices with traditional wisdom, ensuring that development

does not overshadow the region's environmental ethos and cultural heritage.

In conclusion, our study emphasises that the path to community growth through fermented soybeans and resilient food systems in Nagaland demands a holistic understanding. By embracing the challenges and complexities highlighted in this research, stakeholders can work collaboratively to forge a sustainable future that harmonises economic development with the preservation of the region's cultural and environmental heritage, with a particular focus on the impactful role of fermented soybean products in shaping this narrative.

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Akumjungla Jamir, FAC Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.104-110

Environmental Aesthetics: The Significance of 'Aesthetics' for Environmental Appreciation and Preservation.

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Abstract

Philosophical discussions for environmental protection have often been conceived as a moral or ethical responsibility; however, viewing it as an aesthetic liability is vital in issues pertaining to nature's conservation, preservation, and restoration. This paper is an overview of 'Environmental Aesthetics,' a recent subfield within 'Aesthetics,' which, for the most part, has been understood as the philosophy of art. Unlike a work of art, which is "framed," the environment provides no frames and offers no formally complete objects intended for appreciation. This paper aims to unravel the importance of aesthetic appreciation of nature and reflect upon the complex function that aesthetics can play in environment conservation and the challenges of conserving animals that are often judged to be aesthetically unappealing. Environmental aesthetics plays a vital role in ecoethics by fostering a deeper understanding of the environment and emphasizing a stronger sense of responsibility for its protection. The importance of emotional and aesthetic connections to nature can inspire ethical actions, such as sustainable living practices and conservation efforts. Ultimately, the paper demonstrates the importance of aesthetics: how people understand, relate to, experience, and value environments and nature, unraveling how aesthetic appreciation is central to protecting nature.

Keywords : aesthetics, environment, experience, art, nature.

With the pressing environmental challenges we face today, attention to the subject of environment demands a broad field of earnest study encompassing a plethora of subjects such as geography, anthropology, law, sociology, architecture, political science, and environmental design, among many others. Studies are being conducted on many levels; the goal is typically oriented on the severe importance of environmental issues and matters pertaining to their protection and instilling value awareness in people's attitudes. While questions on the environment are informed by science, data, and empirical studies, many require conceptual inquiry. This would bring us to look into the environment through the lens of philosophy by asking questions of various claims that help induce critical thinking and reflect upon perceived knowledge. Understanding nature and human relationships rooted in philosophy may contribute to deepening our connection with the environment, which would allow us to build moral attitudes in dealing with the serious environmental concerns that we are currently experiencing. Much of the ecological problems we face today stem from

the loss of traditional knowledge, ethical human behavior, and social values. This paper, therefore, seeks to understand nature and its value from an aesthetic point of view to reflect on environmental challenges.

So, what role could 'aesthetics' play in environmental protection and preservation? The word aesthetics (αισθητική) is derived from the Greek word aisthētikos, from aisthēta, meaning things perceptible by the senses. Aesthetics comes under the branch of Philosophy, and the entire field of study is huge; however, it can be narrowly defined as the study of beauty and taste.

It was in the eighteenth century that a significant contemplation of the concept of 'beauty' and inquiry on what is beautiful first occurred as a philosophical inquiry. As a consequence, the idea of the picturesque or picture-like experience achieved the most considerable prominence in the study of aesthetics, where the natural world was experienced as art scenes. Nature was hence appreciated and valued with an interest when it resembled works of art only, especially landscape paintings. Since then, philosophers have had an increasing tendency to explain the aesthetic in terms of art only, making aesthetics solely associated with the philosophy of art. Many thinkers and artists alike attached aesthetics exclusively to art, as British art critic Clive Bell alleged that we see nature with the 'eye of an artist.' This domination of the arts in aesthetic appreciation and the lack and neglect of actual ‹nature appreciation› in aesthetics led to a revival to revamp the aesthetic appreciation of nature, which gave birth to the emergence of a new sub-field within aesthetics, which is known today by the term Environmental aesthetics.

Environmental aesthetics, hence, is a branch of philosophy (within Aesthetics) that explores the profound connection between aesthetics—the study of beauty and appreciation—and the environment. It focuses on appreciating natural environments in its own right without laying it only as a model for art. Our aesthetic responses include reactions both of the ugly and the beautiful, and by delving into how our aesthetic perceptions and judgments shape our appreciation of the natural world, this paper will attempt to elucidate the significance of aesthetics in influencing human attitude toward the environment.

As recognizable in its name, environmental aesthetics examines how we perceive, evaluate, judge, and derive meaning from human-constructed and natural environments. Our conscious aesthetic choices and attitude could be a necessary tool for environmental change, for it challenges us to consider how the world is shaped by our aesthetic judgments and how our sense of beauty and meaning influences our perceptions of nature. It forces us to consider the ethical implications of our aesthetic attitudes, raising the debate about how humans are more likely to protect and preserve nature if it is found to be beautiful.

When environment aesthetics emerged as a new subfield in the 1960s, philosophers were zealous to show what was distinctive about environmental, aesthetic appreciation contrary to humanly modified environments. Works of R.G Collingwood, George Santayana, and John Dewey have significantly influenced this subject matter. Significant interest and change in perspective also occurred after Ronald Hepburn's canonical essay "Contemporary Aesthetics and the Neglect of Natural Beauty," which renewed the interest in the aesthetics of nature. He made a distinction between the aesthetic appreciation of nature and the appreciation of works of art; this concept was further developed by Allen Carlson, who introduced the idea of Environmental Aesthetics. (Carlson, Appreciation and the Natural Environment, 1979) Aldo Leopold, the leading environmentalist also incorporated aesthetics into

his holistic ecological approach in promoting his Land Ethic. Yuriko Saito proposed a similar case in her book *Everyday Aesthetics*, where she highlights the social ramifications of aesthetic judgments, which she claims exert astounding 'power'. In her book, Saito notes, "Whether we are aware or not, there are many aesthetic issues involved in our dealings with everyday things, some of which have serious ramifications: moral, social, political, or environmental." (Saito, 2007, p. 2) Saito's position has a significant influence from the twentieth-century pragmatic philosopher John Dewey, who contended that aesthetic experiences arise from an active engagement between the self and the environment, including both practical and intellectual pursuits. (Dewey, 2005)

When we encounter a breathtaking sunset, a serene forest, or the rhythmic crashing of ocean waves, we often experience awe, wonder, and a sense of transcendence. These moments of aesthetic engagement with the environment have the potential to deepen our connection with nature, fostering a sense of belonging and interconnectedness. The sublime, as experienced in nature, often involves feelings of astonishment and even fear in response to the vastness, grandeur, or power of natural phenomena. Don't these aesthetic experiences prompt us to acknowledge the limits of human understanding and control? Does recognizing beauty in nature encourage us to appreciate and cherish the natural world, cultivating humility and respect for nature? If an environment, ecosystem, landscape, or part of nature is beautiful, will it lead one to care for and protect it? (Brady & Jonathan, Environmental aesthetics: A synthetic review, 2020) There seems to be an underlying attitude or judgment of aesthetics that becomes inevitable while confronting the world; hence, there have been fruitful approaches to the aesthetic appreciation of nature backed up by the fact that we are generally visual creatures. This evident attitude suggests that aesthetic experience is influential and pervasive, something not to be trivialized. Aesthetic appreciation of our environment is not merely an abstract intellectual exercise; it has practical implications for our relationship with the natural world. As the aesthetic dimensions of nature are being explored, we gain a deeper appreciation of the environment's intrinsic value and the need for its preservation.

Beauty has always been valued across many cultures, and it is general agreement that beauty is used to justify the protection of architecture, artworks, and natural environments. As Roger Scruton put it, "The judgment of beauty is not merely a statement of preference; it demands an act of attention." (Scruton, 2011, p. 13) While 'beauty' is an essential aspect of aesthetics, it is also considered superficial and frequently argued to be a setback because it can also be a criterion or a decisive factor for ecological harm. For instance, the degradation of forests and landfills for creating attractive parks and the biased attitude towards the perceived ugliness of certain animal species which despite their crucial roles in ecosystems, leads to their neglect of conservation. It is noteworthy to mention that the domain of aesthetic experience encompasses a broader range of considerations related to sensory experiences, perceptions, and judgments, including not just beauty but ugliness as well. This illustrates the tension within aesthetics, demonstrating the power of the aesthetic and how people's aesthetic reaction to something important affects their attitude and action toward it. If the reaction is positive, there is an effort toward protection, preservation, and promotion; if negative, the movement is toward indifference, neglect, change, abandonment, or rejection. (Saito, 2007, p. 246)

Sheila Lintott asserts that animals that are 'aesthetically unappealing or aesthetically unimpressive, such as bats and snakes, do not garner the same level of public interest or support compared to more charismatic species regarding

conservation efforts on their behalf. (Lintott, 2008) It describes the vulnerability of species that overtly display characteristics human beings find unpleasant. These human concepts of beauty are shaping conservation efforts, protecting good-looking animals and plants over ugly or conventionally considered unattractive ones. Thus, by selectively protecting species according to the human notion of what is pretty, aesthetic standards have become one of the primary determinants of which species are deemed worthy of conservation. These experiences in nature serve as a gateway for a deeper ethical concern and consideration of our aesthetic judgments and actions.

Several environmental philosophers suggest that aesthetics could be a sufficient foundation for environmental ethics; Ned Hettinger suggests such an observation in his paper *Defending Aesthetic Protectionism*. Hettinger argues that *valuing* natural *beauty* can be essential for protecting the environment claiming that nature is worth preserving and protecting from harm on an aesthetic level rather than on moral grounds. (Hettinger, Defending Aesthetic Protectionism, 2017) For him, the importance of aesthetics for environmental protection is underscored by the fact that aesthetics is often a more powerful motivator than moral obligation. In his words, "In the conservation and resource management arena, natural aesthetics has been much more important historically than environmental ethics. Many conservation and management decisions have been motivated by aesthetic rather than ethical values, by beauty instead of duty." (Hettinger, Allen Carlson's Environmental Aesthetics and the Protection of the Environment, 2005) He sums up his investigation by maintaining that environmental ethics would benefit from taking environmental aesthetics more seriously. Based on this proposition, it is worth emphasizing the inquiry of whether an individual's capacity to appreciate beauty, harmony, and proportion in nature can enhance their ability to recognize *moral* values and make *ethical* judgments: a) Will some environment or landscape which is found to be beautiful prompt humans to care for and protect it? b) Will humans be inclined to act ethically because of aesthetic appreciation and value nature in which we meaningfully interact with the environment, leading to environmental action and responsibility? c) Does our *valuing* of the environment aesthetically support an ethical attitude toward the environment?

Western Philosophy has a history of firmly separating ethics and the aesthetic. This constraint relationship goes back to Plato, who recognized that some objects of aesthetic appreciation, most notably works of art, have moral implications; he implied that art is mimetic by nature and, therefore, must be banned. Plato's challenge has led to the Western philosophical and literary debate on whether ethics and aesthetics are distinct or if there is a connection between aesthetic experiences and moral sensibility. This foregoing line of thought could be seen concerning the possible link between environmental aesthetics and ethics. However, in most cases, it is frequently advised to take precedence of ethical considerations over aesthetics when making a decision. This predicament occurs because aesthetic responses seem to conflict with rather than support environmental ethics. In an article called *The Noah's Ark: Beautiful and Useful Species Only*, Ernie Small argues that the world's biodiversity is being beautified by selective conservation. He emphasizes the contested view that our aesthetic responses to the ugly have an impact on conservation plans. As judged by the human eyes, our aesthetic responses to ugly animals are far more likely to be left aside when drawing up conservation plans. Most amphibians and reptiles are not considered conventionally attractive animals; thus, besides being the world's most endangered groups of animals, they garner limited attention when it comes to preservation and protection policies. (Small, 2012)

Hence, in making ethical decisions, the role of aesthetics is not always positive, and this stands as a problem for establishing a link between aesthetics and ethics. This point is emphasized by Allen Carlson, who posits that no connection between environmental aesthetics and ethics can be established. (Carlson, Environmental Aesthetics, Ethics, and Ecoethics, 2018) To her, "moral obligation does not follow from the aesthetic appreciation or the aesthetic value of nature" (Carlson., 2018,p.403). The question remains whether our aesthetic responses conflict rather than support environmental ethics. *Ethics* means a moral obligation to justify moral responsibilities, and to claim that the environment and its various chains of constituents have moral value would mean that nature has an intrinsic value. However, valuing and appreciating nature for its *beauty* alone would be an impoverished and narrow way to understand the environment. The environment must be valued in general, and humans should refrain from cherry-picking only particular kinds of features of the environment for protection. However, it appears that the foundation for environmental protection depends on valuing nature with a division. Hence, it involves *the disvalue* of the ugly, disgusting, threatening, and frightening and valuing what is considered beautiful.

In the mid-nineteenth century, the principle of *art for art's sake* from the French *l'art pour l'art* had largely been supplanted in aesthetics. Art for art's sake as a movement proclaimed that individual works of art should be valued for their own sake regardless of whether they appealed to the masses. The argument was that if a work of art is valued *for its own sake*, it must be valued for its intrinsic properties. Should the same line of thought be applied to the environment by appreciating nature *for its own sake*? This intrinsic value would assert that nature has inherent worth or value independent of its usefulness or utility to humans. Immanuel Kant presented a seminal perspective; for him, aesthetic judgments involve a 'disinterested' contemplation of beauty, freeing the mind from narrow interests. (Kant, 2008) According to Kant, adopting a disinterested stance allows us to grasp the "free play" of our mental faculties, where we distance ourselves from any pragmatic concerns and allow the perceived object to be contemplated for its own sake, leading to a purer aesthetic experience.

Moral values burden our actual aesthetic reactions and the amalgamation of ethics and the aesthetic as suggested by Chinese aesthetician Cheng Xiangzhan should be taken with a revised ecological awareness. Xiangzhan observes, "With basic knowledge of ecology and ecological awareness, and with an aesthetic perspective toward the world and a certain kind of concentration, we can experience anything both ecologically and aesthetically." (Xiangzhan, 2010) With this line of thought, supplementing an ecological, aesthetic awareness could help us to overcome our biases. Friedrich Schiller, the German Philosopher, noted in his treatise on the 'Aesthetic Education of Man' that aesthetic experiences awaken the free play of our faculties, fostering a harmonious integration of the sensual and rational aspects of human nature. He argued that human nature is divided into two fundamental faculties: sensibility and reason, and aesthetic education harmonize these two faculties, creating a balanced individual. (Schiller, 2016) Our aesthetic appreciation can be shaped and changed through aesthetic education; in consequence, it is crucial to understand that aesthetic education is not a career that belongs solely to philosophers and aestheticians but to society and people. It is more than the mere appreciation of beauty; it is a profound journey of the human spirit, transcending the boundaries of conventional knowledge.

In the history of aesthetics, beauty and ugliness are juxtaposed where they are treated as complete opposite worth; philosophers discuss beauty surrounding it with the qualities of order,

harmony, balance, and symmetry, which are satisfying and pleasurable, contrary to ugliness, which is distinguished by disorder, decay, beastliness, and evil. In the natural world, such a rigid dichotomy can nestle a range of responses in us, making it difficult not to separate them. This would bring us back to the earlier argument on how our perception of things generates a response in us to either value or disvalue the thing that is experienced. Aesthetic situations reveal that aesthetic valuing incorporates a variety of prior knowledge, values, personal experiences, and biases. According to Emily Brady, "Because aesthetic judgments are anchored in perception, we may find it difficult to accept the ugliness or perhaps terrible beauty (Brady, Conversations with landscape The sublime, ugliness and "terrible beauty" in Icelandic landscapes., 2011) By divorcing ourselves from personal desires and preferences and not overtly humanizing how we view the environment, we attain a state of objectivity and open ourselves to a deeper appreciation of nature. There is no doubt that the natural world is beautiful, but nature can also be horrifying, ugly, and scary. Aesthetic education reminds us that beauty exists not only in the pretty and visually pleasing but also in the frightening insects, the swampy forests, the toads, the mudflats, and the grating sights and sounds of the charred forests. Hence, a heightened sensitivity to the aesthetic experience of nature cultivates emotional responses, serving as a foundation for developing ethical considerations by encouraging individuals to appreciate nature for its own sake, leading to a sense of moral duty to protect it.

Appreciation of nature theoretically is often sidelined because values underpinned by scientific or quantitative support are often taken more seriously. (Brady & Jonathan, Environmental aesthetics: A synthetic review, 2020) Nonetheless, studies have shown that countries we consider and appreciate as beautiful "make a huge difference when deciding which places to save, which to restore or enhance, and which to allocate to other uses." (Sandra Shapshay, 2018) Appreciating the qualities of nature with an active consciousness cultivates emotional intelligence, empathy, and moral sensibilities. The anthropocentric thought that nature exists exclusively for us and our pleasures dominate our aesthetic response that perverts our aesthetic experiences; however, decentralizing the human may help us to draw a step back from hubris, which can ultimately have a colossal impact on making us better humans.

In an age marked by utilitarian pressures, aesthetic education provides sanctuary for open-minded exploration and reflection. It encourages individuals to seek meaning beyond the superficial. It is important to note that understanding the environment differs from appreciating it; understanding requires knowledge, and appreciation focuses on attention. By expanding our capacity to appreciate and respect the world's inherent value, environmental aesthetics challenges us to find meaning in our surroundings. In doing so, it offers us a power that can determine the quality of life. Everyday aesthetics is instrumental in navigating more profound and holistic ways to appreciate, protect, and preserve the environment. Ultimately, it calls upon us to appreciate nature for its aesthetic value and actively engage in its preservation and conservation.

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.111-116

A Philosophical Approach towards Conserving and Preserving Nature: A Comparative Study of the different concepts in Religion

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Abstract

Nature, has always been considered objective to man, detached from immediate existence and it is only a means towards his end rather an end in itself. Nature more like a physical object is comparable to a machine and it is different from the conscious being man. Moreover, Nature is seen more as a *provider* than a *sustainer*; Nature as a provider, is merely understood only in terms of how it gives, provides and supply rather than seeing it as a sustainer, it is a sanctuary of life. The genesis of destruction is to revive back an understanding of the environment as something which is sacred and nature of possessing a spiritual essence worthy of reverence. Eco-spirituality, as an area of study, focuses on spirituality of man towards nature as the latter being a manifestation of the spiritual connection between human being and the environment; the truth that man and nature shares an intimate and mutual relationship with one another. This study seeks to highlight the primary role of nature; the study of Natural Theology has focus on how nature manifest the divine existence. 'Eco-philosophy', on the other, concentrates on nature as a sanctuary, conserving nature comes with the feeling of fear of losing something, and Eco-anxiety highlights the concern that man has towards nature and this reverence also cause the fear of perceiving nature at its worst. The environmental concern from a philosophical standpoint not just seek a solution but rather to set in to motion a thought that man shares a symbiotic relationship with nature one which is not subordinate to the other.

Keywords: Provider, Sustainer, Natural theology, Eco-spirituality, Eco-philosophy, Eco-Anxiety

Introduction

Man have dwelled in the midst of nature and nature nurtures and pervades his existence. For years this symbiotic relationship between man and nature has been identified and perceived unilaterally only in terms of nature being 'serviceable' for one end or another. Identification and understanding of importance of the environment and safeguarding it, has usually been relegated under the purview of Science, Ecology and Environmental study but with the growing needs nature has become an epicenter of focus in many other fields as well. Nature and environment have for years been overlooked where it is seen only as a means to an end for humans,

rather than understanding reciprocity of relation. However, with growing crisis in the world towards nature many philosophers, theologians alike have concentrated on the significance of nature and its relationship with humans and all other beings. Nature, as viewed by many theistic religions of the world, is seen as the unique creation of the Divine or nature being the manifestation of the divine. Many charges have been levelled at Christianity as a religion that holds an anthropocentric and subjective worldview when it comes to nature or inanimate objects where man is looked at as the master who occupies the center over all the other creation. With these criticisms that Christianity have been facing, many theologians and philosophers have taken it into concern to show that nature and all other creatures that pervades creation are of equal importance and that man is not alien to nature but rather a custodian of nature and nature encapsulates within it, all the other creation. However, this particular view should not be taken inherently as a relationship of the parts and the whole. The relationship of man and nature *partakes* in the divine order of the world and not one being subordinate to the other. Recent studies have also highlighted on the importance of nature when it comes to Christianity and other theistic religion. This in no way undermines that nature is not a locus, it however reestablishes the notion that nature is indeed a core and a divine emphasis for revelation.

Natural Theology and Nature

Any religious experience is a matter of Divine Revelation, which can also be said, to make any other religious experience possible. The disclosure that has taken place unveils the Divine and this is the concern of religion, that is, unfolding the divine to the receiver. Hence, revelation is understood to be at the center of religious experience. Natural theology, as a doctrine of revelation, explains the existence of a deity based on reason and ordinary experience of nature.[1] Rodney D .Holder in his article on *"Natural Theology"*, opines, *'natural theology is concerned with what we can know about God purely by being human and thinking about the world*,' apart from any special revelation, and science has often been a resource for this discipline. Other than the concept itself we can even look at the Design Argument put forth by William Paley where he argues that the natural world is as complex a mechanism, and as manifestly designed as any watch. Simply for Paley by looking at the world (creation) we can ultimately know about the existence of God (designer) thereby the world is a matter of divine arrangement. In the sense of Natural Theology, nature although manifesting God's divine existence through it, its importance cannot be withdrawn because in nature there is a divine manifestation which is a key aspect of that revealing and disclosing focus only on the divine manifestation of God to humans. Even though the emphasis of Natural Theology is on the use of reason and reasoning, but the use of reason is understood in a sense of appreciating the aesthetic beauty of the world or the sublime nature and ultimately acknowledging the existence of God who has made divine arrangements of everything. Nature, therefore, becomes a ground of revelation itself. Natural Theology as a doctrine also involves 'nature' in the act of revealing and the act of revelation is possible not only through a mutual disclosure between man and god. That is why, Nature cannot be disregarded when it comes to the question of divine occurrence and manifestation.

All these definitions focuses on Nature as a medium through which the Divine could be comprehended and perceived. The existence of

the Divine is based on nature making it as the core for understanding the divine. It places the human faculty of reasoning at the core of revelation. Furthermore, the concept of Natural Theology explains the ways by which creation in the form of nature manifest or reveals the divine. Nature forms an integral part in the process of revelation which ultimately discredit the view of nature and non-human from an anthropocentric perspective. Nature, here, is not merely a means but an agency whereby revelation takes place and this view of the act of God's revealing and manifesting through nature emphasizes on how nature is of prime importance; man therefore is not a master but a custodian of nature and nature a sustainer. Man as master to nature is entirely different view from man as a custodian of nature as due emphasis is given more on the '*guardianship*' *of man*. The sense of reverence and awe towards nature comes with the latter perspective, that is, seeing nature as one with man rather a separate entity and it is upon man to look and care for nature. Therefore, Natural Theology is not limited only to man's appreciation of nature but concerns an awareness of taking care of nature because nature is a medium that makes man relationship with God possible. The divine realization is not possible only with man's ability to reason but also with man's nature participation. Divine-Nature-Man connectedness reflects the importance of nature and the aesthetic essence that nature has which causes both divine and man into a circle of relationship. Nature is to God and nature is to man that which is purely *holy* in its essence that it is not something to be mastered by man. Nature not just reflects god but it shows the presence of divinity in it and the beauty that is so unique to it alone that gives it a sense of divine reflection and knowledge. The sense of reverence and love towards nature could be best understood through Eco-Spirituality.

Man, God and Eco-Spirituality

Natural Theology, as a doctrine shows nature as a ground of revelation, a medium through which the divine communicates with the receiver and man's relationship with nature has been understood only subjectively, that is, nature serves a purpose and conserving and preserving it will benefit the future. This underscores a relationship that is more of needs and requirements rather than on emphasizing the affection and attachment that human shares with nature. However, more than the extrinsic relationship that man shares with nature that primarily focuses more on improving and changing the look of nature because it is perceived as merely serving a purpose, it is more about the affection which man has, and Eco-spirituality as an approach talks about the spirituality of man towards nature and seeks to bring religion and environmental activism. Eco- spirituality has been defined as a "manifestation of the spiritual connection between human being and the environment."[2] Reverence towards the object of faith has been seen in individual's life as it impacts his day-to-day living. Man is taught to show his obeisance and deep reverence towards the object of faith and this is what lead his life or we can even say that morality is taught to him from a religious perspective and how this governs his day-to-day living.

Spirituality, in our everyday usage, as we understand it is a way of living one's life where there is a search for that ultimate end in life, it can be the divine or any ultimate reality and this ultimate union of the divine/ultimate reality with man gives a sense of gratification and contentment stirring his passion and the commitment involve in it. Spirituality can either be religious or non-religious. Spinoza believed that God is "the sum of the natural and physical laws of the universe and certainly not

an individual entity or creator".[3] Spinoza brings a distinction between nature Naturans and Natura Naturata in his ethics" (By) Natura Naturans we must understand what is in itself and is conceived through itself , or such attributes of substance as express an eternal and infinite essence ,that is… God, insofar as he is considered a free cause. But by Natura Naturata, we understand whatever follows from the necessity of God's nature or from God's attribute, that is, all the modes of God's attributes insofar as they are considered as things which are in god, and can neither be, nor conceived without God." Considering that Nature is an indivisible, eternal or self-caused, substantial whole—in fact, it is the *only* substantial whole. Outside of Nature, there is nothing, and everything that exists is a part of Nature and is brought into being by Nature with a deterministic necessity. God is Nature and Nature is God. Here, the sense of spirituality can be drawn through the relationship that is shared by humans with God or Nature. We are all part of nature, occupied within nature. There is a shift here from God who is a perfect being devoid of all negativity to God as nature who embraces all beings. There is a kind of spirituality whereby man dwells in God (nature) and this view can be compared with Ramunaja's view of Prakriti where he believes that nature is the dwelling place of the soul and, through it, of God himself. Nature, is thus, alive with God. (Hiriyana, 1983)The spirituality that can be understood is one of reverence and the sense of belonging that connects human with nature and this reverence emerge as a deep understanding of nature . This connection leads to an understanding of the indwelling in nature reflecting on the profound interconnectedness between human being and nature. In essence, the idea of indwelling nature discern nature not as a separate entity but an integral part of one's existence.

Eco-Spirituality and Eco-Philosophy

Having discussed about Eco-Spirituality as that which brings in the sense of reverence towards nature, Spirituality being the desire of a person to attain the ultimate reality or to obtain an intimate relationship with God (nature) this lead one's spirit to get involve with the sublime in the form of God (nature). Understanding the relationship that man shares with nature can be understood in different ways other than understanding it as a doctrine and a will and spirit towards nature Eco-Philosophy viewed the world as a 'sanctuary'. (Skolimowski, 1993) The world perceived as a sanctuary, it is therefore the duty of a humans to be its guardian, a shepherd and a responsible priest who maintains the sanctuary. There is a compatibility here between Eco-Spirituality and Eco-Philosophy, whereby one leads to the other, however, the question arises does spirituality leads to eco-philosophy or eco-philosophy leads to spirituality? The concern of a 'sanctuary' and the spirit can be seen to be both an important instrument for realizing the value of nature. Humans as guardians and custodians of nature have this feeling of awe and reverence towards nature. The concern here is not because of the realization of the need to preserve the environment but it arises as a moral sense of duty towards the environment and this sense of duty originates from a sense of belonginess. Eco- Philosophy has played a major role in emphasizing the role of nature. This sense of reverence towards the environment, however, is accompanied by fear in the sense of losing nature, losing its sublimity. When nature and man shares a mutual relationship of reciprocity, there is a sense of gratification that emerges and in this way man fears to lose the benign nature. Eco-anxiety plays a major role in emphasizing the concern that man has towards nature and this reverence also cause

the fear of perceiving nature at its worst. Anxiety here brings nature to the forefront whereby man sees that nature is threatened. The awareness and concern for environmental issues reflects a growing recognition of the urgency and severity of ecological challenges. A sense of fear in the positive aspect channelled an environmental stewardship. This concept of Eco-Anxiety, Eco-Philosophy and Eco-Spirituality draws an analogy from the perspective of religion and psychology. Nature as a creation of God and nature as God's manifestation. Every religion emphasizes on the fact that man yearns for an infinite connection with the unseen. There is a sense of incompleteness within, a sense of fear and he seeks to complete it or to become one with the Divine. The object of religion gives a sense of fulfilment to an individual. Nature in another way gives a sense of fulfilment to an individual - from Natural Theology as a doctrine of revelation which unveils the existence of God through Nature using reason, to Eco-Philosophy which seeks to bring in harmony between an individual and nature to Eco-Spirituality which seeks to express a deep relationship shared between human being and nature. All these ways of perceiving the environment shows the emphasis on Nature. Nature as an integral part of the world is not overlooked but it is about understanding the intercourse that both of them shares.

Khasi and Nature

The Khasi of Meghalaya shares an intimate and a sacred relationship with nature. The relationship is symbiotic and nature is held close to one's being. In the words of H.O. Mawrie "*U Khasi u im bad ka mariang bad ka mariang ka im bad u,*" which literally translates "*A Khasi lives with nature and nature lives within him*", which reflects the way of life of a Khasi in one way or another. Nature is not apart of him but it is part of him. Nature plays a big role in the religious and cultural domain among them and the rituals and practices are held in nature's surrounding. The forest, rivers, mountains reflect the divine presence in it, hence there is a communion between man-nature-god. The Khasis also believe in an unconditional relationship with nature and often calls her "*ka mei-ramew*" or "*ka mei-mariang*" which means "*mother-earth*" or "*mother -nature*". As a mother she embraces human being and not only provide but also sustains their living on earth fostering a sense of belonginess, oneness and an emotional bond with them. The folklore and folktales of the Khasis also exhibit the closeness that man shares with nature. The origin myth of the Khasis is also related and traced to "*U Lum Sohpetbneng*" or the "*Navel of Heavens*" which is a bridge where humankind was connected with the divine and this place till date serves an important purpose of a divine ground during rituals, this shows a deep affinity of the Khasi with nature. The concept of sacred groves or "*law-kyntang*" shows that human being are bound by nature's majestic power to command reverence upon the individuals. Nature has a sacred and a deep meaning and it manifest its holiness, purity, spiritual content and yet there also exist an aura of mysticism in itself which is beyond human awareness and consciousness which aligns an individual in the larger processes of nature.

Conclusion

The realisation of God through nature is an important perspective that commands reverence from man. Man's relationship with nature as understood in the religious realm helps him to realize many other things, for instance from Buddha sitting under the Mahabodhi tree which led to enlightenment shows that man and nature shares not just a subjective and objective relationship but a mutual relationship of awe, wonder and

appreciation. St Francis of Assisi, believes that nature helps him hear God aspiring to seek peace within himself, for him creation is a divine Plan of God and that looking at the world he seeks that inspiration. The sages and yogis who seek for spiritual enlightenment separate themselves from the world of humans and they live by the river banks or the mountain side with the believe that realization of the divine is possible in the stillness of nature. This different perspective only but shows the importance of nature not just a provider but as well as a sustainer.

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Fazl Ali College Journal, ISSN: 2319-6769, Vol. 11 (2023) Pp.117-128

A Study on "Grey-water Management with special reference to Improved Waste Water Soak Pit Interventions in Meghalaya"

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Abstract

Article 47 and 48A highlights the duty of the State to improve the standard of living of the people and to protect and improve the environment. Sanitation has been a part of the national agenda since the First 5-year plan (1951-56). Under the aegis of Swachh Bharat Mission (Gramin), SBM(G) a number of interventions for solid and liquid waste management have been adopted and the assets (infrastructure) reported in Integrated Management Information Systems (IMIS). However, despite claims, the same is not reflected in usefulness and utility in all the Villages. Thus, while the intent of policy making for development programmes such as SBM (G) is to improve sanitation thereby improving the well being and quality of life of the people, it therefore begs an in-depth study on their implementation taking SBM (G) in Meghalaya as one case. The study can add towards improving the quality of functioning and implementation of State programmes so that the intent can be met and the targeted beneficiaries be reached out.

Keywords: Sanitation, SBM(G), Intervention, Development, Villages, Policy-making, Beneficiaries

Introduction

Safe sanitation means promotion of safe disposal of human waste avoiding open defecation as well as effective management of solid and liquid waste. Poor sanitation is one of the primary causes of many deadly diseases, deaths among children under age 5(five), contamination of ground water sources, loss of family income on account of increased health costs, and compromised human dignity. Waste, if not properly managed, generates foul smell, breed flies and insects, contaminates water, generates carbon dioxide while burning and wastes valuable land area for dumping. Management of solid and liquid waste as such becomes a crucial component in each society.[1]

Sanitation is the basic need of human beings. Safe sanitation is not a borrowed modern concept from the West rather there are historical evidences in India's ancient civilization regarding scientific methods used in toilet construction and waste management. But hundreds of years of servility took away the important value of Swachhata from India's social system. This had severely affected the health and dignity of people in rural areas, especially of women and children. For last many decades, India took steps to improve access to safe sanitation and cleanliness. But even after 32 years of independence, the sanitation coverage was merely 2% in 1982. In 1986, a rural sanitation programme named Central Rural Sanitation Programme

(CRSP) was started. However, it primarily focuses mainly on toilet construction and related funds allocation, and there was no stress on behavior change. As a result, the supply based approach did not achieve desired results. Since then, sanitation programmes were restructured time and again under different initiatives, namely Total Sanitation Campaign in 1999, Nirmal Bharat Abhiyan in 2012 and currently the Swachh Bharat Mission (Gramin) with effect from 2nd October 2014.[2]

The basic aim under the above rural Sanitation programmes is 'to improve the over-all quality of Life of the rural people through accessibility to safe sanitation'. To fulfill the desired objective, demand-driven and community led approaches are adopted under which the village community plays a proactive role in identifying and accessing critical issues and concerns regarding the sanitation status of the Village.

Environmental Sanitation

Development also comes with the issue of rapid waste generation; the quantity of both solid and liquid waste is increasing day by day and when such wastes are disposed off in an un-controlled manner it can lead to adverse impact on public health and environment. Hence, these wastes need to be managed efficiently so as to safeguard the sanitation aspect in households and communities and to sustain a healthy environment. To define, Solid and Liquid waste management is the collection, transportation, processing, recycling, treatment and disposal of waste materials.

In order to improve the quality of life in the rural areas, the importance of environmental sanitation needs to be stressed and improved. Both solid and liquid waste management (SLWM) comes under environmental sanitation. Solid and Liquid Waste Management is a key component of any sanitation initiative which in India is emphasized and focused in the flagship programme of SBM(G).

Swachh Bharat Mission (Gramin) in Meghalaya

The objective of 'safe sanitation for all' under the Swachh Bharat Mission (Gramin) is enforced with the mission-mode strategy of creation of Open Defecation Free (ODF) Villages. And through concerted efforts from all Stakeholders, Meghalaya has managed to attain ODF status by becoming the 11th ODF State in the Country w.e.f. 31st January, 2018 much ahead of the Nation's target which is 2nd October, 2019.

Table 1.0 Abstract of ODF Achievement in Meghalaya in Different Components in 2014

Sl No	Indicators	Target as per BLS 2012	Coverage	Achievement (in %)
	Nos of ODF Villages	6028	6028	100
	Construction of IHHLs	4,42,833	4,42,833	100
	Construction of CSCs	403	250	62.03
	Construction of School Toilets	8037	8037	100
	Construction of Anganwadi Toilets	646	646	100

Beyond ODF

With the attainment of ODF Status, Meghalaya had set a new target under SBMG 2.0 towards converting all ODF villages into ODF Plus Villages.

'An ODF Plus Village is a Village that sustains its ODF Status and has arrangements for the managing Solid and Liquid waste'.

Solid & Liquid Waste Management

Under the Solid and Liquid Waste management initiatives, while focusing on the construction of assets there is a healthy promotion and encouragement of positive and correct attitude among the general masses towards management of waste. A number of creative sustainable waste management models have been adopted by Villages for which awards and titles have been conferred.

The objective of rural solid waste management is to collect waste at source, recovery of recyclable materials for recycling, conversion of organic waste to compost and secure disposal of remaining waste.

For management of household biodegradable waste, a dual chamber heap composting tank may be used for production of organic compost. The method involves scientific process of aerobic decomposition. Segregated non-biodegradable solid waste on the other hand can be packed and stored for collection by waste collectors for recycling, shredding and otherwise.

Disposal of waste water is a major issue both in rural and urban areas. Stagnant waste water smell bad and also acts as breeding place for mosquitoes resulting in the spread of diseases like dengue, malaria, filarial, etc. Developing methods for re-using, re-cycling or proper disposal of waste water as such becomes highly important.

Grey Water Management

A study on Grey water claimed that about 70% of daily water used in our domestic homes is just being wasted. This domestic waste water is let off into open drains untreated and finally reaches water bodies contaminating them with high nutrient content.

Grey water is waste water from bathroom, washing clothes and kitchen. Depending on its use, the water may require less treatment and generally contains less pathogen. It is always benevolent to manage domestic grey water generated from each household in the area or land surrounding the house. There are a number of technological options suitable for the treatment of domestic grey water.

Dual Chamber Home Composting Unit

Pynursla C & RD Block, East Khasi Hills

a) Kitchen Garden with pipe root zone system

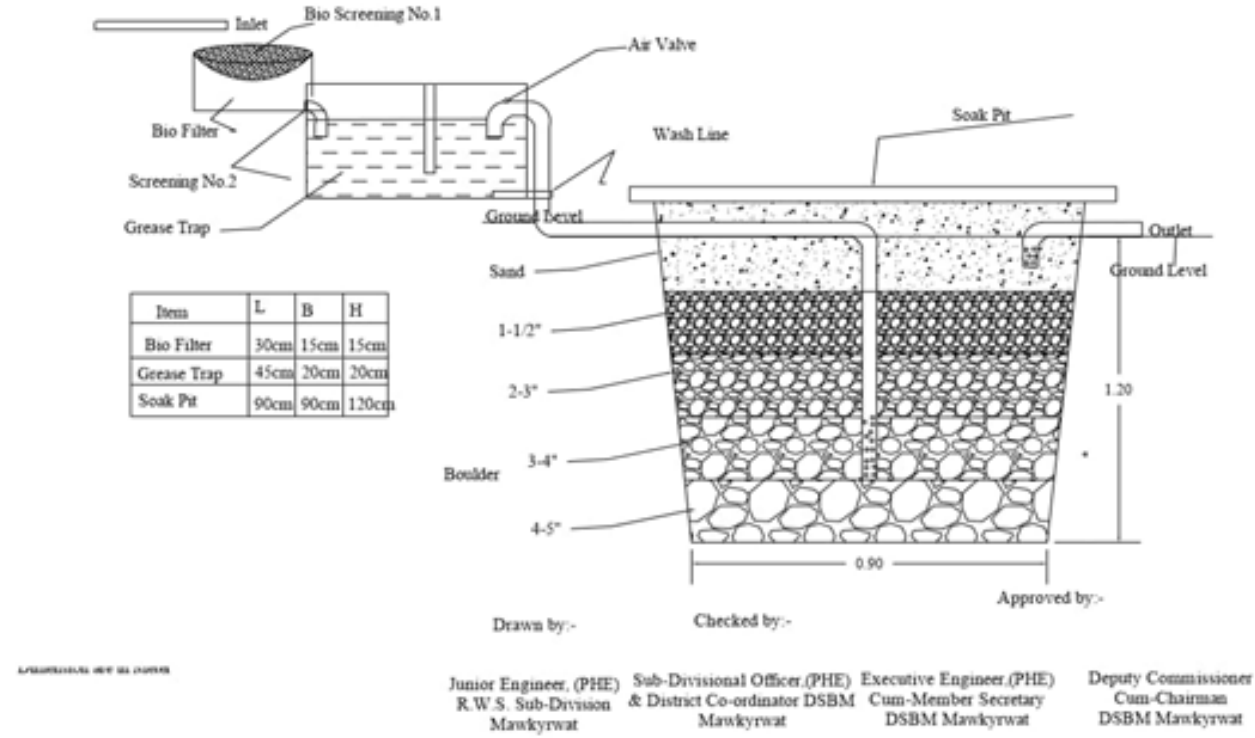
b) Kitchen garden without pipe root zone system

c) Leech pit

d) Soak pit

Improved Waste Water Soak pit

For safe disposal of grey water, the 'improved waste water soak pit' employs a scientific process utilizing the physical properties of floatation of oil and soil infiltration of water. It is a combination arrangement having a Bio-Filter, Oil Trap and the conventional Soak pit as its components. One such intervention was the use of a Domestic Soak pit for safe disposal of kitchen waste water. These components are arranged in such a way to optimize the performance of the Soak pit.



Item	L	B	H
Bio Filter	30cm	15cm	15cm
Grease Trap	45cm	20cm	20cm
Soak Pit	90cm	90cm	120cm

Kitchen Waste Water Soak Pit with Bio-Filter & Oil Trap **Dymmiew & Massar Village, Pynursla C&RD Block, EKH**

a) Bio-Filter

Headers	Particulars
Utility	*: A simplified arrangement for removing grit particles from Grey water.*
Application	*: Used as an additional screen for removing left over solid food particles present in grey water especially kitchen waste water.*
Features	*: The grit free can be further treated and the retained solids can be used back as manure by application to soils.*
Advantage	*: It is low cost, low maintenance, user-friendly and eco-friendly*
Materials Reqd	*: Square or Rectangular plastic net having small pores so as to be able to trap the solid impurities; Bio-mass wastes like bettle-nut husk, peelings or grass cuttings, etc.*

Description:

The waste water bio-filter is a screen used in addition to the normal sink washer usually present in the utensils washing platform or basin. It is usually placed outside the house near the waste water outlet. It is a simple perforated plastic basket that helps to trap solid particles that may escape from the washing platform allowing only the grit free waste water to flow into the Oil Trap.

To further improve the functioning of the Bio-filter, another filter media is incorporated usually of bio-mass materials which can be grass cuttings, leaves, bettle-nut husk or any other material of coarse nature. The filter media helps in better trapping the solid impurities besides reducing the fat and grease from sticking into the Filter. For maintenance purposes, the bio-filter can be easily cleaned on a regular basis by simply removing it and emptying the bio-mass filter at the roots of trees, vegetables, shrubs or at any point in the garden, following which fresh bio-mass is again fed into the Bio-Filter.

b) Oil Trap

Headers	Particulars
Application	*: Used by households for safe disposal of kitchen waste water*
Process	*: A simple process based on the floatation property of oils when mixed with water by which it does not get mixed with water and remains on top of the water level thereby enabling easy removal of it from kitchen wastewater.*
Utility	*:Oil Trap can be effectively applied in any kitchen waste water disposal system for removing the fat, oil and grease (FOG) content in the wastewater before its discharge in drains or prior to any further treatment of it for recycling and reuse.*

Description:

An Oil Trap is a single or dual chamber container usually fitted in the line of flow of the wastewater immediately after the discharge outlet from the house. It has an inlet for the influent wastewater at one end of the container and the outlet for the effluent at the other end. A dual chamber grease trap has a partition wall at the middle of the container that has an opening at the bottom of the wall which serves

as a connecting provision between the chambers. Besides, tee - connectors is fitted at both the inlet and outlet of the grease trap.

How it works:

The Oil Trap is the preliminary and vital component of any wastewater treatment or disposal system. It is designed to remove 100% fats, oil and grease content from the wastewater before discharging it in existing sewer or prior to any further treatment. When the wastewater mixed with oils, fats and grease from the kitchen enters the grease trap, the wastewater settles in the tank for some time during which the solid particles if any, settles down at the bottom of the container and the fats, oils and grease rise up through the water medium and floats as scum forming the top layer of the wastewater in the container. The grease trap is of the suitable size to allow the wastewater to settle in the tank for about 3 to 5 minutes after which it comes out of the container through the tee connector fitted at the outlet. The tee connector by virtue of its design retains the scum layer of fats, oils and grease in the container while allowing only the wastewater to flow out of it. In a dual chamber grease trap, the partition wall screens all the fats, oils and grease and retains them in the first chamber thereby reducing the accumulation of them in the second chamber. Whatever fats, oils and grease is floating in the second chamber are further screened by the tee connector at the outlet thereby increasing the efficiency of the Oil trap.

Design & Specification:

Construction of an Oil trap is very flexible provided it meets the requirements of accumulation of fats, oils and grease. Its size depends on the number of persons in the households or on the amount of water used by the household daily. In general, the following dimensions may be adopted for a family of 5 persons discharging approximately 100 litres of wastewater daily:

Dimensions of a Oil Trap	**Inner Dimensions**		**Size of connecting pipes**	
	Length	2 feet	Inlet	40 mm
	Width	1 foot	outlet	40mm
	Height	1.5 feet	Connecting Tees	40mm

Costing:

An Oil trap is a simple mechanism that can be constructed at a very minimum expense. The cost estimates for the above dimensions is given below:

Sl.Nos	**Items**	**Particulars** (*Approx Rate as of 2017-18 in Meghalaya*)	**Amount**
1	Red Bricks	70 nos @Rs. 10/-	Rs. 700/-
2	Coarse Sand	2 bags @ Rs. 50/-	Rs. 100/-
3	Fine Sand	1 bag @ Rs. 50/-	Rs. 100/-
4	Stone Chips	1 bag @ Rs. 100/-	Rs. 100/-

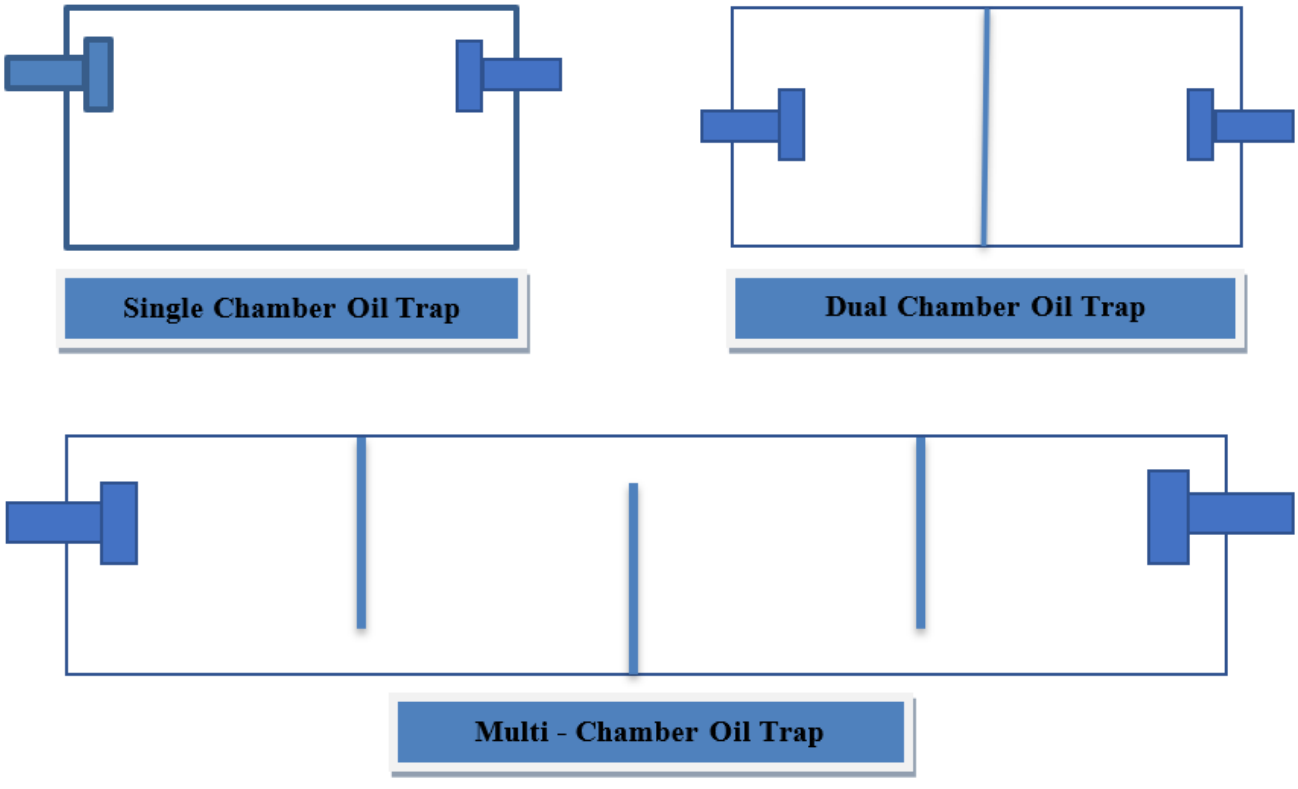
5	Cement	1 bag @Rs. 375/-	Rs. 400/-
6	PVC Tee	2 nos @Rs. 80/-	Rs. 160/-
7	PVC Pipe	1 no @ Rs. 240/-	Rs. 240/-
8	Labour	lumpsum	Rs. 1000/-
Total			**Rs. 2800/-**

Need of Oil Trap:

For any domestic cooking, the use of fats, oils and grease is unavoidable. These will be washed out along with wash water during cleaning of utensils which sometimes contains leftover eaten foods. They ultimately are carried along with the wastewater to the drains that finally reaches the water bodies affecting the water bodies by depleting the oxygen content of the water thereby rendering the value of water to the minimum and affects the aquatic life.

Multiple options of Oil Traps:

The following are the schematic drawings of multiple options for anOil trap that can be constructed by households based on their suitability considering the cost, space availability and nature of the wastewater.



c) Soak Pit

A Soak pit is a facility constructed in the drainage line of households for purpose of safe disposal of kitchen wastewater by utilizing the soil infiltration property of water.

Discharged kitchen waste water from households is made to pass through the Bio-filter and Oil Trap, following which it is allowed to flow in to the Soak pit which is a dug-out pit in the ground filled with layers of soling stones and gravel.

Waste water which has been discharged into the soak pit will percolate into the soil passing through the different layers of sand, stones and gravel which in turn act as filtering media for the waste water and rendering it clean by natural filtering. This mildly clean water will finally reach the aquifers, recharging them and ultimately may feed the otherwise dried-up springs and wells.

The Soak pit is also incorporated with an outlet which serves as an overflow valve in case of slow percolation of the soil. The overflow water would have been treated to the desired level to allow it to be discharged into the existing Sewer/ Drainage system.

How to construct the Soakpit :

1. Dig out a pit near the kitchen of 3ftx 3ftwidth x depth.
2. Fill the bottom of the pit upto a layer of 10 inches with stones of 4/5 inches size.
3. Insert a PVC pipe of 2 inches diameter upto the top of the first layer of stones filling.
4. On top of the above layer, fill another 10 inches layer with stones of 3/4 inches size.
5. Then repeat another 10 inches with stones of 2-3 inches size.
6. Lay about 10 inches of gravels on top of the last layer of stone filling.
7. Top the gravel layer with sand.
8. Finally cover the pit with gunny bags/sacks/ soil.
9. Apply stone leveling on the top of the filled pit if necessary.
10. Connect the drainage pipe from the house to the PVC pipe which is already inserted in the soak pit and allow the wastewater to flow freely in to the pit.

Summary

Therefore, the ‘improved waste water soak pit’ is an integrated system that incorporates the multiple functioning of the above three components viz Bio-filter, Oil Trap and Soak pit to dispose Grey water.

A Planted Filter may also be used to dispose-off safely the waste water using certain aquatic plants that absorbs the nutrients from the waste water thereby rendering it safe enough for discharge in open drains. (However, this option is still being done on a trail-basis in a few households for which desired results are awaiting)

The improved waste water soak pit is comparatively better in performance than the ordinary Soak pit in terms of the following:

a) It is economically friendly involving only low cost for construction

b) It is easy to built as it is technologically simple

c) It can be easily maintained by households

d) It provides for removal of grit and oil from waste water

e) It avoids contamination of Grey water

f) It avoids sealing of percolation of water in to the soil

g) It avoids water stagnation over-ground thereby eliminating foul odour and breeding of flies thereby helps curbing spread of diseases.

h) It improves aesthetics of the household making it drain-free.

i) It greatly enhances the performances of the soak pit and also increases its life.

j) It helps in ground water recharge.

The technology is simple, eco-friendly and cost-friendly; it can be easily constructed and maintained by households. However, an in-depth research can be done to improve its utility in diverse terrains.[3]

Field Study (Conducted on March 2022)

A. Pomlaheir Village, Mawryngkneng C&RD Block, East Khasi Hills District, Meghalaya

Located in Mawryngkneng C&RD Block at 35 Kms from the Capital City of Shillong lies Pomlaheir village. It comprises of 230 Households, 1(one) LP/UP School, 1(one) Secondary School and 1(one) Anganwadi Centre. The main livelihood of the people in the villages is farming and marketing.

It is a model village for sustainable waste management with special reference on community involvement. Under the abled and dedicated leadership of the Village headman and with the incentives provided under SBM(G), each household constructed the improved waste water soak pit.

B. Laitmynsaw Village, Mylliem C&RD Block, East Khasi Hills District, Meghalaya

Situated close to the District headquarters at about 12 Kms from Shillong, it is predominantly a farming community. While the SLWM sanction had been allocated only to a few households, the Village community realizing the efficiency and effectiveness of incorporating improved waste water soak pit, passed a GP resolution making it mandatory for each household to have waste water soak pit connection. Besides grey water management, the village also has effective solid waste management practices in each household and at community level.

The practices are coordinated in such a way that it complements the existing activities undertaken by the Village so that sustainability is taken care of. It has exhibited models of sustainability in exemplary ways which makes it an ideal role model for sustainable waste management which others can emulate. The Village became one of the focal point of visits from District, State and National level Officials and Tourists which saw visits by esteemed persons like the Chief Minister of the State, Shri Conrad Sangma, Addl. Secretary, Ministry of Jal Shakti, Shri Arun Baroka, Minister of State MoS, Ministry of Jal Shakti, Shri Prahlad Singh Patel and others.

Indicators based upon the Study:

The study was based upon general observation of the sanitation status in the Households, Schools, Public places & Institutions in the Villages. Discussions and informal interviews were also conducted with key sanitation leaders in the above villages namely the Headmen and the Village Water and Sanitation Committee Members.

The study sheds light on the community engagement towards improved waste management; and the benefits the villages reap by willingly accepting and participating with Swachh Bharat Mission Gramin in SLWM implementation, for which the following key indicators may be noted:

i. There is minimal stagnant of waste water.

ii. Spreading of flies is curtailed as possibilities of breeding of flies are prevented with the elimination of drains.

iii. Fresh air blows through the village as the usual foul smell due to drains is no longer present.

iv. The look of the household courtyard as well as the Village aesthetics are enhanced

v. Enhanced soil moisture and subsequent recharging of ground water due to soil infiltration of waste water through massive use of soak pits which resulted in reviving of a number of springs and streams.

Why an in-depth in the area is necessary?

With the intent of improving the standard of living of the people through development programmes and mission like SBM(G) in terms of sanitation attitudes and assets, the working and functioning of the improved waste water Soak pit based upon the study conducted in the aforementioned villages can be adopted. However, a more detailed study and research can be done so as to improve its applicability across diverse geographical terrains because the same technological intervention that is applicable in

certain geographical terrains is not applicable in other areas.

For example, Wahrew Village, Pynursla C&RD Block in East Khasi Hills as against Sarikhusi Village, Umling Block, Ri Bhoi District.

Conclusion

The improved waste water soak pit contributes as one method for sustainable grey water management. However, the mere creation of assets in households will not automatically translate in to the desired changes in our approach and our relationship with the environment. It can be attained only when such innovative activities were employed at multiple levels to foster an enabling environment for an effective and informed community engagement to achieve a clean and healthy environment.

Besides, the aforementioned interventions, the main thrust is on promotion, facilitation and inculcation of right attitude and practices towards health and hygiene through positive behavior change.[4]

After-all, Development requires the removal of major sources of un freedom: poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglect of public facilities as well as intolerance. If development is what development advances, then there is a major argument for concentrating on that overarching objective, rather than on some particular means, or some special chosen list of instruments. Viewing development in terms of expanding substantive freedoms directs attention to the ends that make development important, rather than merely to some of the means that, inter alia, play a prominent part in the process.

'Development and freedom can only come if there is a healthy balance between the environment and human activities.' [5]

All the above points to the fact that in order to have a healthy sustainable human-environment relation we must have favorable and flexible balance between policies targeting innovative interventions which is in need at the local level.

As Margaret Mead stated "We won't have a society if we destroy the environment"

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Locating Shared Affinities and Inclusive Existence, Dismantling Oppression: An Ecofeminist Study of Select Folktales and Myths in Ao Naga Narratives

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Abstract

Ecofeminism is a theory that has evolved from various fields of feminist enquiry and activism. Ecofeminism's basic premise is that, the ideology which sanctions any form of oppression such as race, class, gender, sexuality etc also authorizes the oppression of nature. The call of ecofeminism is to put an end to any form of oppression. It argues that any attempt to end women's oppression or an oppressed group would prove futile and unsuccessful if an equal attempt to liberate nature is not made. Ecofeminism describes that the framework which authorizes this form of oppression as patriarchy. The institution of patriarchy gives birth to a sense of 'self' and causes disruption which will lead to violence. Human society which is structured within the male domain functions on a system of hierarchy. In oral and written discourses, society is constructed on the basis which legitimizes the male centric social structure and renders the women 'other.' Folktales and mythical narratives are rich repositories of knowledge, of the custom and culture of the people and they abound with stories where women are subjected to hegemonic male centric ideas. Longkongla, a mythical character projects a paradoxical picture of women-initially as a victim but finally as a victor. The women figure in *How a woman became a kaku (cuckoo) bird* is silent and subordinate initially, but later attains articulation of her 'voice'. Yajangla is a woman who survives patriarchy, retains her autonomy and individuality. But because women are closer to Nature, through her capacity to give and nurture life, she possesses an affinity to Mother Earth who also procreates and nurtures life. All the female figures in the narrative under study possess this 'affinity' to Nature which enables them to take refuge in the bosom of Nature when spurned by male oriented ideology.

Keywords: ecofeminism, folktales, myths, nature, mother earth, patriarchal hegemony

Introduction:

A study about the early life of human beings will show that dating back to around 10,000 years ago man began tilling the land and set on the journey of 'civilization and progress'. A study of post-Industrial Revolution will further reveal an unpleasant picture of the manifold intensification of the negative human imprint on the earth. Man, the undisputed ruler of earth, with powers inherent in him, cultivates an association with the pastoral landscape, identifies the latter as 'out there, to be used or exploited' to satisfy the unquenching thirst of capitalist agenda.

As early as 1797, Goethe in his epic idyll, "Herman and Dorothea" had spoken about the swelling 'ecological imperialism', the threat and

consequences of modern capitalism. The crises faced by the world today are the result of our conduct and of our ethical system and not because of how the ecosystem functions. Man and nature are intricately dependent on each other. In the words of Cheryll Glotfelty and Harold Fromm in "The Ecofeminist Reader: Landmarks in Literary Ecology" they view that human culture is connected to the physical world, affecting it and affected by it. In this modern age of scientific development and technological sophistication, we are faced with distressing ecological circumstances. Such a situation obliges us to think in a bio-centric way as Jonathan Bate maintains in "Romantic Ecology: Wordsworth and the Environmental Tradition" that it is profoundly unhelpful to say that there is no nature at a time when we are faced with an urgent need to address and redress the damage done to nature due to modern man's relentless exploitation of earth. Man should make ceaseless effort to maintain an ecological balance when his home is under insurmountable threat.

Ecocriticism, as an interdisciplinary study of natural science and humanistic discipline is concerned with the relationship between literature and environment or how man's relationship with the environment is reflected in literature. As a corollary of ecocriticism, ecofeminism is a specific academic discipline, a branch of feminism which acknowledges the connection between the oppression of women and the domination of nature. Ecofeminism holds the view that patriarchy is responsible for the exploitation of women and the destruction of nature. Eco feminist, Karren J.Warren claims-"all connected"- it means exploitation of any component of the structure will make the whole system rupture. Greta Gaard too has also rightly opined that "ecofeminism's basic premise is that the ideology which authorizes oppressions such as those based on race, class, gender, sexuality, physical abilities, and species is the same ideology which sanctions the oppression of nature (Gaard 1993, 1). Ecofeminism is thus a value system, a social movement, and a practice, and it offers a political analysis that explores the links between androcentrism and environmental destruction. Again ecofeminism is an awareness, the beginning of a realization that the exploitation of nature is intimately linked to men's notion of superiority, the attitude that looks at women as the 'other'. Ariel Salleh views that there is a "parallel in men's thinking between their 'right' to exploit nature, on the one hand, and the use they make of women, on the other" (Salleh 1989, 27). All the above views suggest that it is pertinent to seriously study what C. Tan writes "Salvation from this order of oppression will and must come through the resistance of women. Women are the ones who must organize and engage in action so as to make a difference and gradually alter the ecosystem which has been imposed on people and often claimed to be pertaining to the natural order" (Tan 2020, 633).

Myths, folklores, folk belief as part of oral literature can play an important role in influencing the discerning faculty of man in the conservation of environment and a balanced ecosystem. More importantly, from an ecofeminist perspective, some female oriented folktales or mythical stories can act as agents of giving voice to the dehumanized and devalued condition of women and nature at the hands of dominant patriarchal setup. It is so because such stories show women as marginalized and discriminated. We are living in a technologically advanced world but for a tribal community like the Ao Naga people, their folklores and beliefs are still considered as storehouses of wisdom and knowledge and their folklores are always acknowledged with great reverence. This is so

because the stories mirror their cultural beliefs and how they look at life in conjunction with nature. In "The Meaning of Folklore: The Analytical Essays of Alan Dundes", *Simon J. Bronner* remarks that Dundes does not think 'tradition' to be artifacts 'of the past', but demonstrates that folklore is a constituent of the 'modern technological world' and 'something alive and dynamic' rather than 'dead and static'.

In accordance with the above views, it can be understood that folklore or the belief system of a community plays a significant part in the mental make-up of the people in the past and at the present too. Folklore and environment are closely related because the songs, tales, dances, legends, myths etc. of a community can significantly throw light on the relationship between man and nature. As Vellerman maintains, "A story does more than recount events; it recounts events in a way that renders them intelligible, thus conveying not just information but understanding" (Vellerman 2003, 1). The non-human world- "Singing pines. Undulating lands. Mighty Rivers" finds an animate and equal space in folktales across cultures (Fresh Fiction 2005, Preface). Acting as windows to one's heritage and other cultures, folktales and myths are carriers of values and traditions while preserving and propagating the awareness of ecological spiritualism. In an era of ecological and commercial changes, these narratives disseminate legends of women and their liaison with nature. Throughout the ages, nature and women have been revered as mothers. But human society which is structured within the male domain functions on a system of hierarchy. In oral and written discourses, society is constructed on the basis of patriarchal norms which legitimizes the male centric social structure and renders the women 'other'.This ecofeminist study will aim at identifying and locating patterns of amalgamation of the human with the non-human world and nature, power-based structures and relationships, and the ever-present life-affirming and sustaining source of nature to turn to at moments when overwhelmed by subversive ideology. Ao Naga folk narratives "move with grace and felicity from concerns that are larger than life, encompassing the nuanced relationships between stars and fishes, humans and land spaces, to those between parents and siblings, families and strangers" (Fresh Fiction 2005, Preface). Some selected folktales and myths are studied here according to the following themes.

Women and Nature: Shared Affinities

There are mythical narratives which show that there is a relationship between nature and women in terms of their marginalized oppressive state at the hands of dominant 'self'- here the human beings in general and the men in particular. Ecofeminism among all ideas and principles contends that patriarchal domination of nature ensues from the belief that nature is divine and feminine. The nature-woman relationship which is the basic tenet of ecofeminism is reaffirmed through these narratives. Women have a tender care for the society at large and for her immediate family. Like nature, they sustain life; have a close proximity with the world of nature as it shares a caring attitude in them. But again, like nature, it is the women who are kept at the periphery and remain unheard by the patriarchal society.

In a society overpowered by male-centric ideas, the way women and nature have been conceptualized has resulted in devaluing whatever is associated with women such as emotion, nature and the body. On the otherhand, society elevates those values associated with men such as reason, humans, culture and the mind. It is very pertinent

to voice that the " one task of ecofeminists has been to expose these dualisms and the ways in which feminizing nature and naturalizing or animalizing women has served as justification for the domination of women, animals and the earth" (Gaard 1993, 5).

This dualistic approach is not confined only to elite intellectual space, but can be seen very clearly through different folktales and mythical stories across cultures. For the Ao Naga people, the story of Longkongla recounts how her maternal joys and fulfillments were nipped off in the bud through the intervention of hegemonic male centric ideas. This malevolent concept of the 'self' representing patriarchy could be seen operating on the basis of an ethical right or justice. This 'self' crushes the dreams of the 'interconnected self' of women and nature. It is evident that the interconnected self would rather make moral decisions on the basis of an ethic of responsibilities or care. Patriarchal setup will show that men tend to focus on rights, whereas women tend to focus on responsibilities. When the villagers saw that Longkongla and her son prospered, owning much paddy and domestic animals, they decided to put an end to her prosperity. In the absence of a male as the head of the family, Longkongla's rising social prominence in terms of wealth, which would also facilitate a rise in social eminence, the male folk in the village saw it as a disruptive force or an act against male dominated spheres. The villagers therefore decided to plot against the son during a fishing expedition. We can very safely conclude that it was the male 'force' alone that performed the heinous act "incited the whole village to plot their destruction" (Ao 2012, 91). The whole village implicitly or explicitly implies only the men folk of the village because by tradition, in an Ao village, decision making is strictly confined to the male domain and women are always deemed as silent spectators "but their roles are strictly defined by this tradition which says that it is only men who can be decision-makers in important matters both in private and public affairs" (Ao 2014, 46). We see here how a woman's 'private' or 'domestic' affair is forcibly intruded upon by the domineering patriarchal power. The son was drowned in the fishing expedition. In an Ao village, for community events such as fishing, women folk are never allowed any participation. Since the tragic event happened where women have no role to play, it shows how there exists a fractured relation in social order. This action of the villagers upon her son incited the elemental motherly wrath in Longkongla. She decided to gather all the young children of the village and put an end to their life by setting them on fire.

Now, what is "certain is that a failure to recognize connections can lead to violence and a disconnected sense of self is most assuredly at the root of the current ecological crises (not to mention being the root cause of all oppression) which is based on difference" (Gaard 1993, 2). The story shows that the son 'Songmaket' was a heavenly gift, turned into a human baby boy from the feather of a beautiful hornbill. That a feather of the bird should flutter down upon Longkongla's lap on her request is symbolic of the interconnection between animals in nature to an earthly woman. Ecofeminism believes that Women are related in a special and superior way to the earth and to divine power through their childbearing capacity. The story testifies the interconnected sense of the self as Nancy Chodorow's and Carol Gilligan's studies have repeatedly shown " a sense of self is more common in men, while an interconnected sense of self is more common in women" (Gaard 1993,2). In this story Longkongla met with a tragic end but the interconnection she had with nature

even in death is seen when a particular tree called Kabusing is cut open "incidentally, till today, this particular tree, when cut, oozes a reddish sap which the Aos say is Longkongla's blood" (Ao 2012, 92). This remnant shows how a particular tree holds a symbolic significance for the Ao people. In folktales and myths, flora is ideally perceived in two forms: physical and metaphysical. In physical form, trees provide men with their daily use, and in the metaphysical form trees attain a spiritual significance. We can perceive how the female protagonist, Longkongla, firstly, was aided by certain supernatural powers to escape from the persecution of the human world, especially the male world, secondly and most importantly, how she benefitted from being immortalized through the very tree with which she was pierced to death. Such tales validate the folk belief that death is simply a metamorphosis into an afterlife. An ecofeminist interpretation of such stories is that, persecuted women, in their afterlife, gets mutated into fruits, flowers, trees or 'a reddish sap' of a tree as in the case of Longkongla. This motif of metamorphosis into different elements of nature reflects a synchronized consciousness. In this story, the non-human world in the form of a tree allows the victimized woman to travel from a chaotic realm to a peaceful realm. The silent yet definitive power of nature, a tree in this case, gives the final refuge to the persecuted woman. Her predicament projects the picture of the two paradoxical sides of woman-both as a victim initially but finally as a victor. Such associations can be converted into a positive force by affirming the so called feminine values, such as caring, openness, and nurturing. We see that attempts are always in motion to distort any form of affirmation by forces which seem to fear that women will somehow take power and do what men have done.

Dismantling Oppression:

"History has rendered women and most non-European, non-privileged people as despicable, destroying identities and cultures. Invisibility and violence are strangely and intimately related; refusing to perceive or acknowledge another person is one end of a continuum whose other is murder and genocide" (Lahar1993,93). There are folktales which render women as 'despicable' and in the process of their subjugation their identities are destroyed. Such a predicament is found in a story where a woman turns into a cuckoo bird. It is essential to accept that everything in nature has an intrinsic value- be it human, animal or other creatures from other realms too. All life should be considered as essential who contribute for a congenial co-existence in nature. The story of *How a woman became the Kaku (cuckoo) bird* tells us about the injustice suffered by a woman in the hands of her husband by the name Tsunangpong and her father-in-law. The woman was from a 'foreign' village. Her parents were utterly unwilling to have the daughter's hand in marriage pointing out "that it was not advisable to enter into a lifelong relationship with such a person and hence he should forget all about her and marry someone from his own village" (Ao 2012, 111). But anyway the marriage took place; the woman gave birth to a healthy boy but gradually her beauty diminished. She became weak, pale, her beauty faded, which made her husband worried of her state. He decided to visit the girl's mother because only the mother knew the remedy for the daughter. The story has a supernatural element; we find that the woman is unable to sustain her health and former beauty from earthly food. By consenting to visit the wife's mother, the husband becomes a willing emissary between her and her mother. The objective was to bring her back to health and most probably her

'lost beauty'. But when reality dawned on him, he decided to forsake her, by way of giving his approval to his father. In this way, he becomes an agent of his wife's destruction; he betrays her trust in him in silent conspiracy. Herein, we see the dualistic psyche of male chauvinism, an eruption of the powerful psychological undercurrent created by thousands of years of patriarchy. The action of the husband sets himself apart from nature, his action disembody human experience and bring about a discord from an organic whole. In male construction, the categories 'woman' and 'animals' serve the same symbolic function as subservient or submissive. Women and animals are the used, an emblem to justify and preserve the superiority of men. This story evokes human empathy with the non-human world.

Again, ecofeminists believe that there are perceived similarities between woman and nature, such as passivity and life- giving nurturing qualities. It is this quality that makes women and nature equally vulnerable to male domination. This story clearly shows these qualities-the woman's life giving nurturing qualities by giving birth to a son, nurturing and loving him, her passivity by obeying her husband and father-in-law. She followed the father-in-law obediently, climbed the tallest part of the tree and remained a mute spectator. She is the symbol of a silent sufferer. In her grief she turns into a bird giving out a plaintive cry kaku-kaku. This folktale shows the fluid mobility of the female human self turning into a bird. Such dimensions in women-centered stories are marked by interchange of interior and exterior planes of existence. It is noteworthy that the female character never articulates her state of existence or speaks out until her human form ceases to exist and she transmutes into the form of a bird. The world of fauna may not have a code of language like the human world, but ironically once she is turned into a bird, she finds her voice, overcomes her silence, and started to chant loud "kaku, kaku". This ability to mutate into a non-human form is symbolic. Her transformation into a winged creature eventually enabled her to spread her wings and soar high into freedom from a life of confinement, and most essentially from male persecution. Such a phenomenon may seem unreal but it shows the "tangible relationship between himself of the real, natural world and the forces of the unseen supernatural world as symbolic by a member of the animal kingdom because he (the animal) at one time is believed to have belonged to man's world (Ao 2012, 78).

Devaluation of any feminist principles in a systematic manner has always been a fundamental basis of domination in patriarchy. 'Masculine' or 'masculinity' is a patriarchal cultural construct and this value has been internalized in our minds, embodied in our institutions. This overpowering effect of masculinity has taken control of every power-based social relation. The undercurrents of masculinity are a non-human centeredness which is behind numerous irrational ideas and behaviours. This story speaks of what Ynestra King says "Life on earth is an interconnected web, not a hierarchy. There is no natural hierarchy; human hierarchy is projected on to nature and then used to justify social domination. Therefore, ecofeminist theory seeks to show the connections between all forms of domination, including the domination of nonhuman nature, and ecofeminist practice is necessarily anti-hierarchical" (King 1989, 19).

Inclusive Existence: Surviving Patriarchy

The Ao Naga people believe that at one time in the beginning of the earth, there was no distinction between light and darkness. Men and animals co-existed in mutual harmony and

understanding. The world of folklore also speaks of a time and space where plants and trees, birds and fishes, ponds and rivers, animals and humans all live with cordial relations. We understand that Ynestra King was speaking of such a time when she says "A healthy, balanced ecosystem, including humans and nonhuman inhabitants, must maintain diversity" (King 1989, 20).

To explore this theme in the context of the Ao Naga society, the tale of Yajangla is examined. Yajangla is a woman who possessed the tiger-spirit. This belief of the tiger-spirit belong to the domain of the supernatural, but perhaps such belief are early man's attempts at establishing a direct,tangible relationship between himself of the real, natural world as symbolized by a member of the animal kingdom. Such an existence maybe what King means by 'diversity'. This story has a strong ecofeminist message because ecofeminism recognizes sympathy and compassion as a fundamental feature of an inclusive existence. The story narrates how by using her magical power, she conjured spirits with whose help she was able to clean all the weeds in the field in one single day. Her husband, surprised at her feat, wanted to know her power. Very reluctant initially, she consented to reveal her power due to her husband's relentless pestering.But her consent came with a warning and some vital instructions for his safety. These initial warnings maybe regarded as something exclusive or unique because the story reveals the absence of any deliberate malevolence in the use of supernatural powers relating to such a phenomenon. If in the process of transformation to an 'other self' deaths would occur, it is to be understood that whatever killing is done, it "takes place due to the animal-ness of the spirit rather than any deliberate direction from the person possessing such a power" (Ao 2012, 77-78). Yajangla pleaded her case by saying that when she assumed the form of the tigress through magic, she was no longer a human but a savage animal and behaved as one."Oh, the baby's father was at fault. It was he who forced me to reveal my secret magical powers in spite of my warnings. Because of my supernatural powers I became a tiger … And I still say it was wrong of him to force me to do it" (Ao 2012, 117). Yajangla tried to dissuade her husband but he would not cooperate. This non-cooperation is a marked manifestation of the desire to dominate the 'other'. The defining of the powerful 'self' led to a tragic end of the husband in the story. Here we understand that it is essential in nature to nurture an outlook of close connection with every entity in the course of experience. It is to be seen that veneration and allowing ample 'space' to the 'other' would recurrently lead to positive as well as harmonious consequences. On the contrary, fostering an attitude representing all other entities to be isolated from one another would usually result in anarchy and uncertainty or chaos. It is important to see the non human world in terms of its value or use for them. A non dominating partnership with each other, cutting across gender and other differences will surely inculcate greater harmony within human relationship and with non human entities too.

Such a tale as that of Yajangla shows that "the association of animals with human beings dates back into the hoary edges of history in Ao folklore. As a matter of fact the nature of the prevalent belief appears to have evolved out of such a past where it was believed that man could live with animals as equals so as to speak the same language, coexists in one environment and even intermarry" (Ao 2012, 77). In tandem with Ao Naga belief, Linda Vance too comments "to be an ecofeminist means to be constantly aware of relationships -- between

humans, between humans and non-humans-and to be keenly attuned to the patterns of domination that maybe at play" (Vance1993, 134).

Conclusion:

Folktales and myths from indigenous communities serve the function of tale telling. It is a most fruitful means to inculcate ecological values and ethics. It also creates a sense of care and concern for the non-human world living in their surrounding environment. Folk narratives also connect the thread of people's lives with the powerful and unchanging aspects of nature. The stories under study show woman-nature propinquity and locate and uphold women's voices in the domain of 'nature-culture'. The stories also culminate in the ecofeminist perception of challenging binaries like humans/animals, culture/nature, man/woman, self/other etc. while decreeing that human identity is neither fixed nor predefined, rather it is sculpted by the seamless associations or differences of human interface.

To conclude, geographical 'borders' and 'boundaries', gendered 'borders' and 'boundaries' which is a human construct, become powerless in the folklore and mythical world and fails to act as a barrier. The mythical heroine, Longkongla transmutes from her physical form into a natural element defying patriarchal barrier. Yajangla makes a conscious choice to retain her power and autonomy bestowed on her by nature. When she realized of her marginalized state, she decided to make an assertion for liberation from the shackles of bondage. As for the 'woman' when she is transmuted into a bird, she is liberated from her state of silent benevolent subordination into a state of 'articulation' and her 'voice' could now be heard clearly.

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