**Gekong-Galong–Traditional weaving technology of Adi tribes of Arunachal Pradesh**

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The women living in remote areas and dependent on traditional resources have developed appreciating knowledge and skill in weaving and making crafts for their subsistence livelihood in mountain ecosystems. In modernization and rapid acculturation process, this culturally important heritage of women is at risk and eroding. Varieties of culturally and traditionally important dresses are weaved by Adi women. Women are competent in selecting diverse plant biodiversity used in making entire set of gekong-galong (handloom), which requires years of experience. The culture, belief and spiritual aspects are intrinsically attached with weaving technology. Various sources are utilized in making and using thread for weaving like silkworm, indigenous cotton varieties and mechanically made thread available in market. In remote social system, women use local bioresources in preparing the dye and colours. Weaving is one of the major traditional sources of income and livelihood, but younger generation does not show considerable interest in learning and continuing such culturally important practices. A mission mode integrated effort would be required to conserve women wisdom of weaving and making this profession economically viable through value addition, entrepreneurship development, chaining market and economic empowerment. In the paper, traditional weaving and related knowledge systems of purposively selected villages of Padam, Pasighat and Minyong subtribes of Adi community Arunachal Pradesh are discussed.

**Keywords**: Adi tribes, Traditional weaving, Gekong-Galong, Traditional knowledge, Biodiversity, Cultural heritage

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Northeastern India including Arunachal Pradesh is famous about the traditional weaving technology and role of women in making this professional lively and viable. A detailed account of the weaving skills of the women of NEFA mentions that like many other traditional crafts, weaving also requires a wealth of ecological knowledge. The intricate motifs and designs, the combination of colours, all reflect the social status and ethnic origins of the people. Women are the custodians of the knowledge, and to the elaborate process of spinning, dying, and weaving¹. Varieties of culturally important traditional dresses are made by women using experiential wisdom. Weaving and related art are considered to be significant attribute for any tribal Adi women in Arunachal Pradesh². The loom that is traditionally used is the loin loom, and the colours used are organic colours, prepared largely from the plants that grow in the forests and the designs used in dresses are dependent on cultural variability of tribal community³. Today, however, fly shuttles have been introduced although the loin loom still continues to be popular. In recent years, the importance of weaving as a livelihood option is being recognized, given the demand for hand woven fabric in the domestic and the international market. There is significant scope for expanding weaving as a livelihood option for women in Arunachal Pradesh. In recent years, the importance of weaving as a livelihood option is being recognized, given the demand for hand woven fabric in the domestic and the international market. In the paper, the wisdom of Adi women in weaving and conservation of cultural diversity attached with traditional livelihood and handloom technology have been discussed.

Arunachal Pradesh covers a geographical area of 83,743 sq km, which accounts for about 2.55% of the total land area of the country. It lies between the 26°28’ N and 29°30’ N latitudes, and the 90°30’ E and 97°30’ E longitude¹, 4. It forms India’s
international frontier with Tibet along the extreme North, and extends from its meeting point with Bhutan to the western direction for approximately 1,030 km. In an easterly direction, and then taking a turn to the Southeast, it borders Myanmar for about 441 km following the crest of the patkoi ranges of mountains. The entire state is a region of high mountains with great variations of altitude ranging from 200-6,400 m. The state has a population of 1.1 million (2001 census) and is predominantly inhabited by the scheduled tribes, constituting 63.66% of the total population. The state is home to about 110 tribes and subtribes and there are said to be 28 major ethnic groups in the state. The tribes of Arunachal Pradesh have been described as Indo-Mongoloid, Proto-Mongoloid and Palco-Mongoloid. The main tribes are Adi, Nishi, Monpa, Tagin, Idu, Khampi, Tangsa, Nocte, Singpho, Mishmi, Miji, Wancho, Apatani, Aka, Sherduplen, Khava, Hill Miri, etc. Most of these tribes perform jhum cultivation and livelihood is governed by forest resources. Culture, traditions and beliefs are intrinsic values for these tribes and intermingled with biocultural resources. Living in remote and diverse ecosystems, these tribes have developed location specific knowledge and skills needed for subsistence survival and livelihood system.

Methodology

East Siang district of Arunachal Pradesh has been selected purposively on account of existence of traditional weaving technique of Adi women. The Padam, Pasi and Minyong subtribe of Adi community were chosen as a cluster of study to see the variability in designs and types of weaving. In the second step, from selected district, Pasighat circle was chosen again purposively. At the third stage, based on the culture and ethnicity of Adi women, a list of seven villages, Yagrung, Napit, Balek, Kelek Mirmir, Mirsam, Yabgo and Mission Colony were selected randomly from various locations of Pasighat. The fifteen traditionally professional women respondents from each village were sampled from the list provided by Gaon Burha. Total 105 Adi women from Padam, Pasi and Minyong subtribal groups of Adi community were selected randomly. The field studies were conducted with help of an assistant acquainted in local culture during 2006-2007. Semi-structured questionnaire containing open ended questions were used for conducting the interview with women. Participant observations were made with the expert women of weaving to understand the dynamics of culture, weaving and relationship with resources used in it. The interviews were conducted with some of women at district handicraft centre and cooperatives also to understand the economics, various projects run by state and Central Government and network of weaving technology. The Prior Informed Consent (PIC) was taken from every knowledge holder women to disclose her knowledge systems in public domain.

Results

Arunachal Pradesh is a land of beautiful handicrafts and traditional plant technology comprising wide range in variety. The people have a tradition of artistic craftsmanship and a wide variety of crafts such as weaving, painting, pottery, smithy work, basketry, woodcarving, etc. The Adi women are recognized for their skill of weaving and making viable cloths through their traditional handloom called gekong-galong. This traditional profession is major occupation of Adi women and is historically important and believed to be lessened from the spider as narrated in folk story. As per Singpho folklore, the spider was the first weaver in the world. It was by watching the spider spin its web that the women became proficient in the art of weaving, and the men learned to span rivers with cane suspension bridges. In making the complete set of gekong-galong used in weaving, an experiential wisdom is required to select every component of handloom made of different plant sources. A complex process of weaving is observed in various steps and process in which women are very much competent (Figs 1-6). They are very particular about colours and have a beautiful sense of colour combination. The favourite colours are black, yellow, dark blue, green, scarlet and orange. Thus, the role of women in traditional weaving and sustaining culture of Adi tribes is not lesser than male folk. They are skillful in sowing the local varieties of cotton and prepare thread traditionally. But, with passage of time the conservation and traditional cultivation of local cotton has eroded especially in the transitional socio-ecological systems. Now, young women of such system purchase readymade made thread from market. These are used in making various types of cloths like badu (blanket), gale, galuk, etc. Originally, they used natural dye obtained from plant sources such as engot, which produces various colours (3 varieties red, black, and maroon), but now-a-days, they switch over to synthetic dyes available in the...
market. The integrity of culture and skill of weaving can be learned through the popular arts & culture which signify the historical background of weaving (Figs 7, 8). These Adi dresses and cloths are considered culturally prestigious and are attached with belief and spiritual aspects of Adi tribes too. For example, gadu (blanket) is believed to be very much essential after the death and used in funeral ceremony. About 7-8 days are required in making one gale or galuk. To increase the productivity of weaving, sometimes women weave in group also and called ega pailk bidung.

**Traditional colour and thread processing**

In a group, the old aged women go to the morang forest in hilly areas and harvest leaves of engot (a shrub found in swampy and clay soil near a water source). The harvesting of leaves of engot used for making colour is collected in full-moon period to avoid the insect attack in dresses during rainy season. After making small pieces, leaves are crushed with wooden hammer. After adding the water, it is boiled till leaves produce the desired level of colour. Now, after filtering the solution, it is kept in a flat container. In the second step, the thread made of local cotton crop is also dipped in starchy lukewarm solution made of local rice grains. Now, the thread after taking out from starchy water are left to dry and then are dipped again in the natural dye made from engot leaves. The thread needed for weaving are made basically from three sources, from market, from silkworm and from the traditional varieties of cotton conserved in jhum land. Shipyak tall and dwarf two traditional varieties of cotton are popular for cultivation and making thread but in hilly ecosystem, while in nearby town women purchase mechanically made thread. The thread used mostly in woolen cloth like gadu (Adi blanket), is developed from silkworm. Rearing of silkworm is a common practice among Adi women but is more popular in remote and hilly villages. The thread made of local cotton varieties are considered more comfortable in wearing and even traditionally important than any other mechanically made thread. The women are sound in knowing the diversities of plants species used in rearing the silkworm. They know when and how to feed the leaves of plant species like keshur, eragot (castor), singe engine (Tapioca species), tagat leaf, etc. for rearing the silkworms. The leaf of keshur is considered to be most reliable and less perishable for rearing of silkworms (Fig. 9). They are skilled in making thread from silkworm also.

The designs of weaving are basically geometrical type varying from a formal arrangement of lines and bands to elaborate patterns of diamonds and lozenges. These designs are sometimes enhanced by internal repetition and other decorations. In making gale, basically two major designs, called padam-perong and minyong-peron are followed. The Padam women like light colour in design on gale while Minyong subtribes like bright and dense colour on gale. A few of the woven products that deserve mention are shawls, skirts, jackets and bags. Although, fly shuttles are now being introduced, the traditional loom looms are still in use and the genuine textiles are products of these looms.

**Indigenous biodiversity and components of gekong-galong**

The gekong-galong is only a historical and reliable source for weaving various Adi dresses. Women are competent in choosing the indigenous plant biodiversity in making various parts of this handloom (Figs 10, 11). Gekong – square-shaped long wooden stick is chosen from eyum and hilika tree. The wood is reddish in colour and considered best for making gekong, whereas lurmeng (bamboo pipe used in handloom) is made of dibang species of bamboo. Similarly, the lubung (long bamboo pipe) is made from tabum bamboo (species has 1 m internodal size, found in morang dense forest is used to make rope for making house also), tanyeng (bamboo stick) is chosen from diband species of bamboo, sumpa (flat wooden piece) is made from eyum tree [(found in deep forest (morang) (which fruit is edible and toxic if consumed more)], eetaam (bamboo stick set in handloom) is chosen from a bamboo species, which is pointed at each end. Women chose dabang species of bamboo for tapping (bamboo stick, wrapping with thread) and gepang/gatak (waist belt used during gale making) is made of rope developed from marapat plant. The traditional handloom is attached with the spiritual aspects of Adi tribes too. For example, if some one is sick in family, then weaving is avoided. Similarly, if some one has died accidentally, then weaving is stopped and tamak- a wooden stick made of rambang (palm species) used in gekong-galong is used in touching the dead body and performing funeral. The woman, who is incompetent in choosing the plant biodiversity in making the set of handloom and poor
in weaving the *gale*, *galuk* and other *Adi* dresses are considered ill attributed and loose her honour in *Adi* social system.

**Weaving and livelihood of *Adi***

*Adi* bag, *Gale*, *galu*, shawl, *badu*, etc. made by female folk form a source of income to *Adi* (Figs 12-14). In every household of remote socio-ecological system, people possess skill to make these technologies and sell in nearby town. However, learning about weaving technology is being noticed less among young women particularly near town. With the help of various central and state Government sponsored training and entrepreneurships development schemes, these days an emphasis is given on weaving technologies for the capacity building and empowerment of *Adi* women. The impact and longevity of informal learning and acquiring the weaving knowledge is observed to be long lasting than the formally trained women with a short course and that too with little cultural background. There is informal network of *Adi* women and girls, who collect traditionally weaved dresses and sell in market. The *Adi* dresses are sold in varying price according to their types. The *gadu* is made by the cotton obtained from silkworm. Women try to create diversity in weaving products. For example, they weave three to four types of *gadu* with an intention to diversify the range of prices. The gendered aspect of traditional weaving technology play pivotal role in the variability of *Adi* women livelihood system. The opinion sought out through PIC indicates that women (62.0%) are interested to have the intervention of R&D institutions in value addition and refinement in their existing traditional weaving technology to compete with modern craft and loom industries. The women also wish (84.56%) to have the partnership research and rational benefit share approach in promoting and conserving historically important weaving technology. Majority (95.68%) of women wish to obtain most of the benefit at individual level rather than community level if benefit is arises after intervention of R&D and value addition. The reason they mentioned that, though the skill and art of weaving is community heritage, but is preserved and continued by women at individual level and there is no effort at community level in a group. Thus, while preparing the research and training programme on weaving and entrepreneurships development, such issues must be taken into account to make it more economically viable successful enterprise, conserve knowledge systems and heritage of weaving.

**Discussion and conclusion**

*Adi* women of Arunachal Pradesh has a distinct pattern or design and, it is often possible to tell a person's ethnicity by looking at the *gale* worn by the woman or by the jackets and shawls worn by a man. The weaving technology is location specific and gendered sensitive. The dynamics of culture, history, nature and livelihood are intermingled with weaving and wisdom of women. The designs used in dresses reflect the social and religious systems from which they emanate. Design and types of colour are drawn from everyday life, and from their ancestral history, from myths and legends. The entire traditional weaving technique of women is attached with ecosystem and many of the designs depicted in forms of flowers reveal the spiritual and religious beliefs of the people and reflect their belief towards nature in the cosmic order. It is evident that on the 46,000 looms in the state, the average production was only 1.26 m of cloth per loom, as against the national average of 5.12 m. A recent study of the micro enterprises in Arunachal identifies weaving as one of the areas where indigenous women have already made some progress. The significance of traditional weaving and craftsmen capability of Northeast India in general and Arunachal Pradesh in particular has been depicted for its potential of conservation and development.

The statement depicts the future scope and potential of weaving and handicraft technology in Northeastern regions. It also provides an opportunity to the formal institutions for intervention in weaving and handicrafts through refinement, value addition and commercialization. This is a complete entire chain and need integrated approach with multi-institutional collaborations to make weaving and handicraft technology economically viable and also to conserve the related knowledge systems. Notwithstanding the considerable skills that many women have in weaving, recent studies show that often women do not find time to weave their own *galles*, although they have looms in their houses, and they do have basic weaving skills. Specialist weavers are becoming hard to find and, even the older women in the villages are beginning to buy shawls from the market. Thus, if weaving is to be a livelihood option, it will require financial and marketing support, as well as training.
and design inputs. The traditional weaving wisdom of Adi women can be marketed through a partnership programme. Expediting and opening number of small scale industries for promoting such knowledge and technology and sustaining the livelihood and conservation of traditional knowledge and resources are the need of the day. The rich heritage of arts and weaving technological knowledge of Adi women is sure to add colour to the cultural heritage of the country, however, mass production and infusion of new elements in this field have not added much for the cause of revival of such traditional weaving. The revival of traditional weaving belongs to mostly women wisdom and their ethics attached with such traditional means of livelihood, hence they must be acknowledged, rewarded and promoted through various tangible and intangible incentives.

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