

Gamosa, the traditional handloom artefact of Assam: A case study

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Gamosa handloom textile is the Traditional Cultural Expression of Assam. It usually has a white background with red stripes on its three sides and floral motifs on the fourth side towards its warp. It possesses sacred value and is offered as a sign of gratitude, affection, and respect. *Gamosa* is also available in yellow, green, brick red colour and, as per the community variations in the region of Assam. It is a widely consumed product for its varied utility and local community's identity. Increasing demand of the product resulted in its rapid commercialisation through power loom replica, affecting the social and economic output of indigenous weavers. This led to the present-day infringement, community trademark violation of *Gamosa* and revenue leakage to its value chain in Assam. This paper addresses the perilous condition due to industrial powerloom disruption and the societal importance of traditional knowledge of *Gamosa* handloom artefact through quasi-legal tools as well as IPR instruments. The methodology used in the study is ethnographical study of the stakeholders/weavers and select interviews with the subject matter experts. This research discusses the gap acting as a catalyst for the value leakage in the *Gamosa* supply chain. The diminishing authenticity of the product is due to the gap between the consumer demand and what the stakeholders/weavers producing as per the common market demand. The limitation of the present study is detailed ethnographic study of custodians of *Gamosa* and *Xipinie* institution, which varies from district to district in the state.

Keywords: Artefact, Authenticity, *Gamosa*, Infringement, Traditional cultural expression

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Gamosa is a Sui-Generis content of India. A major Mongolian influence observed in the greater Assamese culture such as *Gamosa* in *Rabhageet* and its motifs in *Dimasa* architecture. Basketry-initiated designs like parallelograms are known as *Parosokua* and sunflower (*suryamukhi*) and are common designs of *Gamosa*. Assam region has an exhaustive repository of folklore namely the *Biyanaam*, *Bihunaam*, *Husori Geet*, *Bongeet*, *Lokageet*, etc. with instances of the word “*Gamosa*” or “*Gamsa*” in the journal *Gurucharita* by Vaishnavite scholar Ramcharan Thakur and its approximate retail cost in eighteenth century Assam was of 6 paise¹. The chronicles of Assam in *Buranji* dated 1228-1696 and *Buranji* documenting historical events between 1228-1826 authored by Harakanta Sadar Amin mentions about *pakhrou* (a *Gamosa* with red-coloured stripes on its both ends)², *aarowan's* (a large umbrella used by Ahom kings, ministers, and officials) handle, *fachou* as headgear³ respectively. *Tungkhungia*

*Buranji*⁴ and *Satsari Assam Buranji*⁵ insights the royal practice of Ahom of gifting *phulam* (Fig. 1) *Gamosa*. Gogoi (1994) remarked that *Gamosa* was prevalent since the reign of Ahoms⁶. The interpretation of *Gamosa* consists of two words, where *ga* implies ‘body’ and *mosa* implies ‘wiping’ is a corrupt representation of *Āgama* & *Nigama* belief system. Another interpretation is from *Kamrupi* dialect *gaamasa* the textile to cover the holy altar (*monikut*) and holy scriptures *Kirton Ghoxa* and *Naam Ghoxa*⁷. The utilitarian value of *Gamosa* varies from region to region. As in: *Uka Gamosa* (red striped in its borders



Fig. 1 — *Phulam Gamosa* with floral motifs

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and used as a utility towel in religious ceremonies), *Tiyoni* or *Pani Gamosa* (utility towel for household works), *Hasoti* (handkerchief), *Dora-baran* (gift to groom from bride's family), *Xoru-phulor Gamosa* (small floral motif), *Bor-phulor Gamosa* (large floral motif), *Goxain kapur* (used to cover the main altar of *Namghar*), *Thapona kapur* (used to wrap Holy Scriptures such as *Bhagawad Gita*), *Telos Gamosa* (used in the groom's bathing ritual), etc. In addition to this, *Gamosa* is also used in apologizing, seeking blessings, participating in religious ceremonies, farming or domestic festivals, marriages, etc. In many places, according to the yarn thread count in weaving, names of *Gamosa* are different, like that of *aaxi xuta r Gamosa* (eighty thread count *Gamosa*), *xathi xuta r Gamosa* (sixty thread count *Gamosa*), etc. Each indigenous community has their own distinct *Gamosa* which signifies their identity and ethnicity as discussed in Table 1. The colours and designs used in each of these *Gamosa* are different.

Methodology

This is a descriptive study on the declining mindshare and marketshare of the *Gamosa* handloom textile. Empirical dataset of the society & custodians, the *Xipinie* weaver's institution & *Gamosa* supply chain intermediaries, and the government policy makers in the regional innovation system framework is considered for primary data source. The periodicity of data collection from the primary sources was from October 2020 to the month of September 2023. Semi-

structured interviews and schedules were administered in the field visits to the eight zones of Assam as mentioned in Table 2.

Government Handloom Officials, Academicians, Museum officials, Entrepreneurs, Authors, *Satradhikars*, *Namghar* Committee members, custodians, and experienced weavers were consulted in collecting information on the concept of *Gamosa*, utility of the different versions of *Gamosa*, usage of indigenous motifs, types of yarns (past and present) and differences in looms for hand-made and machine-made products as well as to narrate indigenous motifs, designs, dyeing science, and weaving techniques⁹ and this is documented as traditional knowledge system of *Gamosa*.

For secondary sources, we referred vernacular magazine articles, government reports, journal articles, doctoral theses, and monologue.

Operating environment

Gamosa is an integral element of the pan-Assamese community and identity. The identity marker *Gamosa* of Assam can be linked to the Assam Movement that took place to deport foreign nationals between 1979-1985¹⁰. During this mass movement, the unique design of brick-red coloured lines and motif on white background of *Bihuwan Gamosa* emerged as a pro-regional cultural identity marker symbolising hegemony and mortal sacrifice of the activists. Subsequently, the political and student organisations emanating from the Assam Movement used *Bihuwan Gamosa* as a metaphor of regional identity, leading to

Table 1 — Heritage artefacts (*Gamosa* contemporary textiles) of some of the tribes of Assam

<i>Gamosa</i> variants ⁸ .	Indigenous community	Geographical area, Districts, State & Assam	Schedule VI distribution
Pajar	Rabha	Goalpara, Kamrup, Baksa, Bongaigaon, Kokrajhar, Dhubri, Udalguri, Chirang, Sonitpur, Golaghat, Tinsukia, and Dhemaji in Assam; West Garo Hills, East Garo Hills, and Ribhoi in Meghalaya; Alipurduar, Cooch Behar and Uttar Dinajpur in West Bengal	Rabha Hasong Autonomous Council
Aronai/Fali	Boro	Kokrajhar, Chirang, Baksa, Udalguri, Tamulpur, Gossaigaon, Bhergaon, Barpeta, Nalbari, Kamrup, Darrang, Sonitpur, Biswanath and Lakhimpur in Assam; Bordering region with Meghalaya, West Bengal and Arunachal Pradesh.	Bodoland Territorial Council
Risa	Dimasa	Dima Hasao District, Karbi Anglong, Nagaon, Hojai, Cachar, Hailakandi, Karimganj in Assam; Dimapur in Nagaland; Jiribam in Manipur.	Dima Hasao Autonomous Council
Dumour	Mising	Dhemaji, Lakhimpur, Sonitpur, Golaghat, Majuli, Jorhat, Sibsagar, Dibrugarh, and Tinsukia in Assam.	Mising Autonomous Council
Fa-Fek-Mai/ Fa-Ho-Ho	Tai-Phake	Dibrugarh & Tinsukia in Assam; Lohit and Changlang in Arunachal Pradesh.	Tai Community
Aosai	Koch-Rajbongshi	Lower Assam, North Bengal, Eastern Bihar, Terai region of eastern Nepal; Rangpur division of North Bangladesh; Border region in Bhutan.	Kamatapur Autonomous Council

Table 2 — Dataset aligned with components of Quadruple Helix Innovation System framework

Regional Innovation Component (RIS)	Geographical Area (District)	RIS Role	Respondent(s)	Organisation
Society	Majuli, Jamugurihat (Sonitpur), Nagaon, Barpeta, Chabua (Dibrugarh), Guwahati (Kamrup Metro)	Custodian, preservation & conservation	Customary law institution heads (<i>Satradhikars</i>), Committee members of <i>Namghars</i> , experienced weavers and officials from museum, Authors	Uttar Kamalabari Satra, Kamalabari Grihasthi Satra, Karatipar Satra, Sessa Satra, Bordowa Than, Batadrava Than Bharali Namghar, Sundaridiya Satra, Patbausi Satra, Barpeta Kirtanghar, Dinjoy Satra, Assam State Museum (Ministry of Indigenous and Tribal Faith and Culture, Government of Assam), Srimanta Sankardev Kalakshetra (Ministry of Cultural Affairs, Government of Assam)
Industry (<i>Gamosa</i> supply chain)	Guwahati, Bar-Bhagia (Morigaon), Chariduar (Sonitpur), Sualkuchi & Bijoyagar (Kamrup- Rural)	Stakeholders, Information Symmetry, Quality and Authenticity	Handloom entrepreneurs, Handloom distributors, Handloom retailers, Weavers' cooperative societies	Indian Weavers' Alliance Inc, His 'N' Hers "Assam Silk Emporium", M/s Das Handloom and Handicraft, Pub-Bar Bhagia Buwa Kota Cooperative Society, Moidhali Bua Kota Samiti, Mausam Bua Kota Cooperative Society, Mori Eragaon Bua Kota Cooperative Society, Chariduar Handloom Cluster, Sualkuchi Handloom Cluster, Bijoyagar Handloom Cluster
Government & Policy maker	Guwahati	Stimulating statutory framework and rule of law	Managing Director, Deputy Director, Senior Branch Manager	Assam Government Marketing Corporation Ltd., Directorate of Handloom & Textiles (Government of Assam), Handloom Research and Designing Centre, Assam Apex Weavers & Artisans Co-operative Federation Ltd.
Education & Research	Guwahati, Jorhat, Tezpur	Facilitating research and Knowledge transfer for sustainable livelihood	Principal, Retired Professor, Professor, Assistant Curator	Assam Textile Institute, Department of Anthropology (Gauhati University), Department of Home Science & Department of Textiles and Designing (Assam Agricultural University), Chandraprabha Saikiani Centre for Women Studies & Department of Cultural Studies (Tezpur University)

its ubiquitous Greater Assamese identity¹¹. Since this neo-community branding¹² of *Bihuwan Gamosa* in the early eighties, this handloom artefact evolved from household textile and token of love to quintessential quasi-official ritual of felicitation of official guests, speakers, awardees, and political meetings. The other traditional knowledge system of Assam discussed in this article is the weaver institution *Xipinie*. *Xipinie* is a weaving profession predominantly women from different economic/societal classes, having proficiency in weaving¹³, organic dyeing, reeling, yarn & silk rearing, operating under customary practice. The weavers of Assam had a year-long demand for *Gamosa*¹⁴ contributing to the handloom innovation system of Assam. This identity marker *Gamosa* suffered infringement in the late 80's and the passing years due to, emergence of acrylic yarn suppliers, economies of scale of powerloom

sector, and use-*and-throw* disposable felicitation item mindset. Even though the Handloom (Reservation of Articles of Production) Act 1985 prohibits powerloom production of *Gamosa* for the domestic market, creative destruction and commodification of *Gamosa* heritage led the domestic market of the 90's to be saturated with powerloom product of other states and blatantly infringing the *Gamosa* produced with cheap acrylic yarn stoles. The compelling factors for the *Xipinie* to accept the diminishing authenticity of *Gamosa* are volume competition from the powerloom and discriminatory input price of cotton yarn. Due to location disadvantages, domestic weavers do not get the legitimate price of the finesse of *Gamosa* leading to distressed selling. Ironically, majority of the commercial weavers have adapted to low quality acrylic yarn¹⁵ (polyester yarn *Padmini*) supplied through yarn-bank schemes in the last two decades.

This adoption of low-quality yarn may be due to the depleting production of cotton in the region and sourcing of genetically modified cotton from other regions. The situation of cotton self-sufficiency worsened as government policy supported food/horticulture crops rather than cash crops. For the retailers, the acrylic textile is convenient due to longer shelf period and warehouse storage in humid climate. Bhattacharjee (2020)¹⁶ mentions the weaving determinants predominant in the local market are the quality of the raw yarn such as synthetic yarn, art silk, organic/vegetable dyeing components, and the weaving patterns. The synthetic yarn is available with primary colours and its colour retention is much longer due to polyester properties. Whereas the cotton/linen yarn needs a few more production processes for the weavers such as bleaching, organic/vegetable dyeing¹⁷, drying, and preparation of hanks. Moreover, the colour fastness of synthetic yarn can be easily dyed to appear like the endemic *Eri*, *Tassar*, *Muga*¹⁸, or mulberry *Paat* silk yarn with lower input cost and can endure harsh detergent treatment. In the last decade, the pattern of *Gamosa* textile got worsened with powerloom produced large motif with little heritage interpretation. The traditional designs were inspired by spiritual, cultural, ecology ethos of communities, and, tragically, these motifs got almost replaced with the migrated designs/pattern with little relevance to the *Āgama* and *Nigama* belief system. The present market demand is synced with the customer's buying behaviour. This is destroying the prospects of handloom¹⁹ *Gamosa* into the verge of declining market of handloom²⁰ *Gamosa*. Through strategic niche management, regional innovation system²¹ can rejuvenate sustenance and distinctive competency of *Gamosa*, handloom sector, and endemic yarn potential of the region.

Process of *Gamosa* weaving

Handloom weaving is one of the ancient and significant household enterprises with women empowerment and a proficiency for a young Assamese woman to be qualified for marriage. Possibly, this customary wisdom became the traditional knowledge system of region²². Deka (2013) mentions a clear evidence of handloom weaving²³ in traditional rural households' family income with significant participation of women as this customary wisdom used to motivate granddaughters into weaving. "Weaving is the most important aspect of a girl's education, and its absence discredits her,"

she stated, quoting Hem Barua. Weaving was valued as a social and economic expertise²⁴ and a critical skill for young Assamese women to assist their families even after their matrimony²⁵.

After the bobbins' preparation, a number of red and white bobbins are installed in *xaja*. The threads are dispersed throughout the *xaja*, primarily white with sporadic periods of red. This procedure is also called "*Bati-Karha*." A metallic frame with tiny holes separates each of the previously dispersed threads separately. In this technique, the two spinning wheels that were used for preparing the bobbins are utilized to set up separate little rolls of threads known as '*Muhuras*' around a metallic needle-like device. The '*Maku*,' which are designed to move between the *xaja* for weaving, are fitted with these *muhuras*. The *maku* is made to move horizontally across the split threads, which are detached by the metal frame after the *xaja* spreads them out. Rhythmical movement of the weavers' hands and legs is essential during this procedure. To detach the *xaja*'s threads, both legs must coordinate the two/four '*zakis*' one after the other. The *maku* is then moved between the partitioned threads using the delicate swing of a hand. The motifs were preserved in fine strands of bamboo craft and areca nut leaf bark (*taamulor dhokua*) for design catalogues colloquially called *ghai* or *kathi saneki*.

Discussion

Over time, the preferences of weavers and consumers of *Gamosa* have changed. The wide floral designed eighty thread count (*Aaxi xuta*) *Gamosa* woven by indigenous weavers remains neglected. Handloom is the second largest employment generator after agriculture²⁶, and here, weaving is considered as an option even after Assam has the highest number of weavers²⁷ in India. They weave during their free time as the women weavers are in majority. Yet they are skeptical about taking up weaving as their primary source of income.

As explained by the renowned academician, Late Prof. Birinchi Kumar Medhi (Department of Anthropology, Gauhati University), *Gamosa* carries within itself a huge cultural, aesthetic, and social value. It also possesses both functional and ornamental/decorative usage. A necessary part of *Gamosa* that cannot be broadened and repeated several times is the *Kaxori*. With these beautiful designs woven on the cloth, we can see the fascinating weaving²⁸ skills of women of Assam region. *Paat* (*Bombyx mori*)-*Muga* (*Antheraea assamensis*)

Gamosa are mostly for ornamental purpose though traditionally it was cotton known as '*kopaahi*' *Gamosa*. *Thupuri* is a slang term used for a woman who do not know weaving. *Gamosa* can be re-standardized, if certain changes can be brought into the value system and tradition²⁹ of our society. But *Thapona kapur* and *Goxain kapur* cannot be altered. *Gamosa* with two-sided floral designs is a creative destruction because it was always one-sided, and the other end was designed with plain stripes called "*pari*". Associated with sacredness and status, many outside influences led to the evolution of our *Gamosa*. For instance, in the evolution of Bihu folksongs such as *xaagoror xipaaror firingi aahile; mod khai pelale sisa; ujaai aahile company'r jahaaj; kanchan gosor gojaali, medium size'or suwali, disco longpant nohole fusulaabo nuwari*; we get to see many non-local elements like foreigner (*firingi*), glass bottle (*sisa*) and company's ship (*company'r jahaaj*), disco pants etc. Likewise, before the British brought grapes (*aangur*) in Assam, there was no *aangurlota* design in these *Gamosa*, as the indigenous weavers of Assam would never know about grapes. Earlier intricate geometric designs were prevalent in *Gamosa*, which evolved from the art of basketry. The evolution of geometrical designs³⁰ were prevalent in *Gamosa* though asymmetrical designs such as *Kolka* and peacock in *Dora-baran* (Fig. 2) evolved by Mughal heritage. *Gamosa* is a creative quotient of Assamese women³¹ and the different dimensions and design may change with her equation with the user and its utility. For instance, the *xipinie* weaves a floral *Gamosa* for her son during *Rongali Bihu season*, whereas she might weave a plain *Gamosa* for him during *kharif* farm season.

Gamosa needs to be studied even in relation to the environment. As it is observed that motifs³² like butterfly (*pokhila*), crane (*bogoli*), common myna (*xalika*), peacock (*moura soraai*), duck (*hanh*), kingfisher (*maasruka*), elephant (*haathi*), tiger (*bagh*), deer (*horina*), fish (*maas*), etc, are used in designing motifs of the *Gamosa*. Earlier the Assamese *jaapi* and rhinoceros as motifs were not used, whereas today, the weavers use these in *Gamosa* as well as in *Mekhela-Chadars*. Five types of designs can be observed in *Gamosa*, namely, Naturalistic, Stylized, Geometric, Abstract, and Structural.

In the UGC STRIDE project, five *Gamosa* variants were selected for revival implementation with multiple approaches in-housing cultural, business, supply chain, and intellectual property rights.



Fig. 2 — *Dora Baran Gamosa* with peacock motifs



Fig. 3 — *Tiyoni Gamosa* yarn specification: Unbleached Linen (main body: warp & weft) and Eri Silk (vegetable dyed for motifs). Yarn sourced from Bijoyagar Handloom Cluster, Kamrup (Rural) district, Assam. Textile woven by weavers Ms. Makon Das & Ms. Nalini Medhi of Bijoyagar Handloom Cluster under the supervision of UGC STRIDE Master Weaver Ms. Maitrayee Adhyapak of Guwahati and vegetable dye expert Mr. Narmohan Das of Haropara, Bijoyagar. Weave pattern: Twill weave

Tiyoni

As described in (Fig. 3), this variant is used for bathing and towel utility. This *Gamosa* does not contain any floral motifs. It is also termed as *Aahroi Hotiya* (two and half-hand measurement). Beyond the general red and white pattern, it is also found in other colours such as green and yellow combination, green and white, and blue and white. The material used in



Fig. 4 — *Bihuwan* yarn specification: 2/60s mercerised white, red and green cotton for warp, weft, and motifs s. Yarn procured from Kumar Stores, Guwahati. Textile woven by weaver Ms. Rubi Bora under the supervision of UGC STRIDE Master Weaver Ms. Dipti Das Bhuyan in Nameri, Sonitpur district, Assam. Weave pattern: Plain weave



Fig. 5 — *Dora Baran Gamosa* yarn specification: Cream-white and Red Mulberry silk for warp & weft procured from Kumar Stores, Guwahati. Kalabattu yarn provided by Shri Shyam Sundar Jaiswal of Banaras, Uttar Pradesh. Textile woven by weaver Mr. Prahlad Das of Sualkuchi, Kamrup (Rural) district, Assam under the supervision of Master Weaver Ms. Labanya Sarmah of UGC STRIDE Project. Weave pattern: Plain weave

the *Tiyoni* is generally pure cotton (*Kesa* or *Korai* or *Mojoliya*) and mercerised cotton. The pattern is mostly plain weave of dark-coloured stripes on the lighter shade and project's frugal innovation of twill weave.

Bihuwan

This variant, also termed as *Dui Hotiya* (two hand measurement) is gifted by the *Xipinie* to her loved ones during *Bohag Bihu* (Assamese new year). As shown in (Fig. 4), the motifs, design, and size of *bihuwan* depends on her type of relation with the receiver of the artefact. For instance, for her partner, symbolizing her love and compassion towards him, she might weave his favorite design or anything that she considers to be best suited for that person, which is

likewise in terms of her son and other members. Yarn used are mercerised cotton, one ply, zero ply, and exception of polyester & wool.

Dora-baran (Groom-stole)

This variant, also known as *Bor-mata*, is gifted to the Groom (*dora*) during the *Juroon diya* (matrimonial engagement) ceremony for on the wedding day. In the present times, for ornamental purpose, the material used is *paat* (*Bombyx mori*)/*muga* (*Antheraea assamensis*) silk, cotton as shown in (Fig. 5). The unique selling proposition is its personal preference, intricate designs and uniquely designed piece. The infringed product is made of *Ludhiana paat*, *Bornali paat*, polyester, acrylic, and rolex yarn.

Goxain kapur

This variant in (Fig. 6) is used for covering the holy altar (seven/five/three stepped) *Sinhasana* or *Guru-asana*. Late Devananda Deva Goswami (*Satradhikar*, *Bordowa Than*) opined that the brick-red background body of the *Goxain Kapur* and the white/yellow motifs were inspired by Boro community primarily the *aronai* or *galaban* (stole). As Sankardeva led the religious movement of *Ek Sarana Naam Dharma*, the Boro community was also included in the process.

Thapona kapur

This variant in (Fig. 7) is the same as the above one, but comparatively smaller in size. This cloth is laid on the sacred sanctorum (*thapona*, থাপনা) below the *Bhagavad Puthi* or *Kirtan Puthi* (holy scripture). It is also used to cover the scriptures as a sign of respect and to save it from termites. Only motifs of *Āgama* religious importance such as lotus, *dhatura*, *parijata*, jasmine, *Tulsi* (Indian basil) leaves, elephant, swan, etc. were woven in these two variants. Author Juri Borah Borgohain (ex-editor, *Satsari*) explained about the various motifs such as *xoru buta* representing the stars, *Tulsi*, lion (*singha*), lotus (*padum*), *Xorai*, *Saaki*, *Dhuna Mola* in *Goxain Kapur* and *Thapona Kapur*. She also mentioned customary rituals in the weaving and usage of these two artefacts in customary religious institutions (*Satras* & *Namghars*) such as ceremonies inviting the *namgharia-s*, *bhakats* and *aayoti-s*³³.

Natural dyes

Assamese weavers once also knew the art of extracting dyes³⁴ using natural ingredients for the threads. In the interviews with resource persons, they



Fig. 6 — *Goxain Kapur* yarn specification: 2/20s organic cotton for warp & weft and 2/20s vegetable dyed organic cotton for motifs. Yarn provided by Orient Processors Private Limited, Lohra, Guwahati. Textile woven by UGC STRIDE Master Weaver Ms. Runa Bora Baruah of Jamugurihat under the guidance of Shri Bhaba Goswami, Satradhikar of Sessa Satra in Sootea, Biswanath district, Assam. Weave pattern: Plain weave



Fig. 7 — *Thapona Kapur* yarn specification: 2/20s vegetable dyed cotton for warp & weft and 2/20s cotton for motifs. Yarn provided by Orient Processors Private Limited. Textile woven by UGC STRIDE Master Weaver Ms. Renumai Regon of Majuli district under the guidance of Shri Janardan DevaGoswami, Satradhikar of Uttar Kamalabari Satra, Majuli, Assam. Weave pattern: Plain weave

mentioned using of Hibiscus flower (*Hibiscus rosa-sinensis*), *Kehraaj* (False Daisy, *Eclipta alba*), *Hilikha* (Chebulic myrobalan, *Terminalia chebula*), *Bon Jolokiya*, *Kosu* (Yam, *Dioscorea alata*), Cow dung, Banana flower, *Jetuka* (*Lawsonia inermis*) etc. The vegetable dyeing involves treating cellulose yarn in boiling temperature of coloured solvent, use of salt and mustard oil as mordant, and treating the hanks with lime juice followed by drying in shades during the dry

season. The most common shades for dyeing are brick-red, *muga* (yellowish-brown), and black.

As Mazumdar (2013) in her study states, “details of dyestuffs and the process of dyeing are often guarded as secrets and are not disclosed to outsiders. This seems to be one of the factors for which the present generation is not aware of their indigenous/folk dyes³⁵ and the methods of dyeing.” She also mentioned about the few indigenous dyes of Assam are:

- Red dye - Achugach (*Morinda augustifolia*), Lac (*Coccus lacca*).
- Yellow dye - Jack-fruit tree (*Artocarpus heterophyllus*), Turmeric³⁶ (*Curcuma longa*).
- Indigo dye - Rum (*Strobilanthes flaccidifollus*).
- Green dye - Rum (*Strobilanthes flaccidifollus*) mixed with the leaves of *Bhoomrati* (*Symplocos spicata*) that acts as mordant.
- Purple dye - Rum (*Strobilanthes flaccidifollus*) mixed with Lac (*Coccus lacca*).
- Black dye - Bark of *silikha* (*Terminalia chebula*).
- Reddish-Orange dye - Maddar (*Rubia cordifolia*).
- Orange dye - Sewali phool (*Nyctanthes arbor-tristis*).
- Golden-Yellow dye – *Latkon-Jorat* or *Xendur goch* (*Bixa orellana*).

Interventions

The Ministry of Textiles of the Union Government has already enacted ‘The Handlooms (Reservation of Articles for Production) Act 1985’ restricting the production of eleven types of woven garments for handlooms. Among these eleven handloom textiles, *Gamosa* and *chadar-mekhela* are also included. Meanwhile, the handicrafts and textiles³⁷ department of the state government have formed squads in collaboration with the district administration and civil police to track down the sale and storage of infringed *Gamosa*³⁸ and powerloom *Tiyoni*.

If the common people could distinguish between handloom and machine-made *Gamosa*, then the malpractices of the unscrupulous traders could be hatched, and the benefits of the GI *Gamosa* of Assam and the Handlooms (Reservation of Articles for Production) Act 1985 law could be attained. The differences of the handloom and machine-made are stated below:

- Hand-woven clothes usually give a hairy-coarse feel as the per-inch thread count on the transverse weft part is unlikely to be ever symmetrical. Whereas the synthetic powerloom woven is smooth in touch with little hairiness feel.

- The border of the handloom *Gamosa* or *chadar* is not equal as the position of the *putol* (a device made of bamboo holding the two horizontal ends of the cloth while weaving that avoids shrinkage) keeps changing step by step at the weaver's hand movements. So, most times, the sides or borders of the clothes are found with small holes due to the tension given in woven part of the loom. In the machine looms as the *putol* is placed in the same position in all the steps, the border or side of the cloth comes out even and smooth. No signs of holes are found.
- The motifs in handloom *Gamosa* appear to be one upon the other going in a flow. Whereas the machine loom *Gamosa* appears to be abruptly discontinuous due to the contrasting-coloured acrylic yarn.
- The designs in handloom *Gamosa* start with by leaving some part in the border area. In machine loom, this is not possible, and the design needs to be started from the head of the border area.

Many traders use 2/80s mercerised cotton yarn in the warp side and 80s raw-bleached yarn in the weft side. In both ends of *Gamosa*; by using only about 2-inch of 2/80s mercerised yarn, the traders sell this as complete mercerised cotton *Gamosa* to the customers. Unscrupulous weavers use polyester yarn in the warp side and cotton yarn in the weft side. As polyester yarn is cheaper, retailers make skewed competition to the handloom natural yarn *Gamosa*.

The Ministry of Textiles of Government of India has also facilitated the use of "Handloom mark" like that of "Silkmark" used in *tassar* (*Antheraea pernyi*), *eri*, *muga* (*Antheraea assamensis*) and *paat* (*Bombyx mori*), on handloom clothes for identification and handloom authenticity. The indigenous weavers³⁹ and related cooperative societies⁴⁰ should avail this facility on one benchmark of handloom authenticity. The "Indian Handloom Brand" scheme introduced in 2015 by the government intends to enter global handloom market. *Gamosa* fairs have been organized at various places for the indigenous weavers to fetch reasonably fair prices.

Gamosa has the potential to be the Regional Innovation System of Assam. For RIS framework, it needs a statutory provision through an Act of Parliament to empower State to enact *Gamosa* heritage protection laws & rules as a top-down approach and create a conducive ecosystem to protect the economic interest of *Xipinie* & *Gamosa* heritage.

As explained by Cooke *et. al* (2006), innovation⁴¹ in the truest and most traditional perspective is perhaps recognised as the approach by which businesses learn and implement frugal techniques and product designs involving skilling, academia, research institutions, technology transfer agencies, consultancies, skills-development⁴² organisations, government & policy makers, and private participation, and small & medium enterprises.

Conclusion

The major gaps identified in this case study are:

- a) Economic loss to rural women weavers and revenue leakage of Assam's primary sector.
- b) Lack of finesse skills among generic weavers of Assam.
- c) Loss of traditional livelihood skills.
- d) Loss of source of disposable income for women operating from home with minimal mobility.
- e) Loss of *Gamosa* traditional knowledge and *Xipinie* institution.
- f) GI instrument to be effective with support by design rights, TCE protection through Sui-Generis, and legislative protection through the hierarchy of Statutory Authority (District authorities and Central authority).

Gamosa heritage is eroding because of the violation of community trademark in varied ways and exploitative business forces. The absence of awareness of the conservation of its weaving art, failure to realize its economic importance, and ignorance of cultural value have brought grave danger to the survival of *Gamosa* heritage in Assam. Addressing the problem areas and adopting suitable solutions may revive the product *Gamosa* from decline stage through a Regional Innovation System approach. Eventually, failure of the framework will either lead to an end-of-life stage or a turn-around towards the economic independence of the domestic weavers and heritage signature.

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Conflict of Interest

The authors declare no conflict of interest in publishing this research.

Author Contributions

AK: Data collection, interpretation, conceptualization and drafting; TB: Documentation and copyeditor, MD: Mentoring, analysis, and reviewing.

Data Availability

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References

- Gait E, A History of Assam, 2nd edition (Kolkata: Thacker, Spink & Co). Digitized by New York Public Library, 1926
- Bhuyan S K, Assam Buranji, (Department of Historical and Antiquarian Studies, Guwahati), 2010.
- Bhuyan S K, Assam Buranji, (Department of Historical and Antiquarian Studies, Guwahati), 1930.
- Bhuyan S K, Tungkhungia Buranji, (Department of Historical and Antiquarian Studies, Guwahati), 1990.
- Bhuyan S K, Satsari Assam Buranji, (Bani Mandir, Guwahati), 1960.
- Gogoi L, Tai Sanskritir Ruprekha, (Banalata, Dibrugarh), 1994.
- Dutta M & Bhattacharya S, Protecting traditional artefact for socio-economic sustenance: case study of *Gamosa*, a traditional handicraft of Assam, In: *Policy perspective on innovation and sustainable development*, edited by S Bhattacharya, Yogesh Suman, & Tabassum Jamaal, (CSIR NISTADS), (2017) p. 117-133.
- Mazumdar L, Textile tradition of Assam: an empirical study, (Bhabani Books and Fabric Plus Pvt Ltd, Guwahati), 2013.
- Panneerselvam RG, Petni, kondi and reku: Traditional techniques of weaving handloom silk sarees, *Indian J Tradit Know*, 13 (4) (2014) 778-787.
- Bora D, The Political role of 'Bihu' in Assam movement (1979), *Rup J Inter Stud Humanities*, 12 (1) (2020) 1-11.
- Hazarika P & Nath D P, Bishnuprasad Rabha as cultural icon of Assam: The process of meaning making, *Cosmop Civ Soc: an Interdisci J*, 9 (1) (2017) (60-76).
- Borsaikia T, Kalita A & Dutta M, Scope for branding *Dora Baran Gamosa* through intellectual property rights and technology, *J Heri Manage*, 8 (2) (2023) 195-209.
- Pandya A & Thoudam J, Handloom weaving, the traditional craft of Manipur, *Indian J Tradit Know*, 9 (4) (2010) 651-655.
- Chakravorty R, Dutta P & Ghose J, Sericulture and traditional craft of silk weaving in Assam, *Indian J Tradit Know*, 9 (2) (2010) 378-385.
- Baruah S, Assam Silk Market: Problems and probable solutions, *Int J Innov Res Sci, Engg Technol*, 5 (7) (2016) 12338-12342.
- Bhattacharjee G, Changing trends in Dimasa textiles of Cachar district of Assam, *IOSR J Humanit Soc Sci*, 25 (3) (2020) 55-61.
- Ganesh S, The role and development of vegetable dyes in Indian handlooms, *Indian J Tradit Know*, 7 (1) (2008) 125-129.
- Phukan R & Chowdhury S N, Traditional knowledge and practices involved in Muga culture of Assam, *Indian J Tradit Know*, 5 (4) (2006) 450-453.
- Guarrera P M, Handicrafts, handlooms and dye plants in the Italian folk traditions, *Indian J Tradit Know*, 7 (1) (2008) 67-69.
- Niranjana S, Appraising the Indian Handloom Industry, *Econ Polit Weekly*, 36 (45) (2001) 4248-4250.
- Cooke P, Regional Innovation Systems- an evolutionary approach, In: *Regional Innovation Systems: The Role of Governance in a Globalized World*, edited by P. Cooke, M. Heidenreich & H.-J. Braczyk (London New York: Routledge), (2004) p. 1-18.
- Boruah J & Chakrabarty N, *Gamosa*, an identity of the Assamese community: extent of legal recognition in India, *Traditional Knowledge and Traditional Cultural Expressions: National and Community Perspectives*, (2019), 71-80.
- Phukan R, Handloom weaving in Assam: Problems and prospects, *Global J Hum Soc Sci*, 12 (8) (2012) 17-22.
- Deka M, Women's agency and social change: Assam and beyond, Sage Publications India Pvt. Ltd., New Delhi, 2013.
- Bhuyan S K, Studies in the history of Assam, (Lakshewari Bhuyan, Guwahati), 1965.
- Anonymous, study report on problems and prospects of handloom sector in employment generation in the globally competitive environment, (Bankers Institute of Rural Development, Lucknow), 2016.
- Anand G, Livelihood sustainability of handloom weavers: A study in Sualkuchi, Assam, (Tata Institute of Social Sciences, Guwahati), 2017.
- Khaton R, Das A K, Dutta B K & Singh P K, Study of traditional handloom weaving by the Kom tribe of Manipur, *Indian J Tradit Know*, 13 (3) (2014) 596-599.
- Tepper L, Coast salish weaving-preserving traditional knowledge with new technology, *Indian J Tradit Know*, 7 (1) (2008) 188-196.

- 30 Sharma N, Kanwar P & Rekha A, Traditional handicrafts and handloom of Kullu district, Himachal Pradesh, *Indian J Tradit Know*, 7 (1) (2008) 56-61.
- 31 Singh A & Singh R K, Gekong-Galong- traditional weaving technology of Adi tribes of Arunachal Pradesh, *Indian J Tradit Know*, 7 (1) (2008) 87-92.
- 32 Teron R & Borthakur S K, Biological motifs and designs on traditional costumes among Karbis of Assam, *Indian J Tradit Know*, 11 (2) (2012) 305-308.
- 33 Borgohain J B & Borgohain L, *Gamosa-r saneki bisari, Satsari*, 6 (2020).
- 34 Kar A & Borthakur S K, Dye yielding plants of Assam for dyeing handloom textile products, *Indian J Tradit Know*, 7 (1) (2008) 166-171.
- 35 Srivastava S K, Tewari J P & Shukla D S, A folk dye from leaves and stem of *Jatropha curcas* L. used by Tharu tribes of Devipatan division, *Indian J Tradit Know*, 7 (1) (2008) 77-78.
- 36 Sachan K & Kapoor V P, Optimization of extraction and dyeing conditions for traditional turmeric dye, *Indian J Tradit Know*, 6 (2) (2007) 270-278.
- 37 Kurup K K N, Traditional handloom industry of Kerala, *Indian J Tradit Know*, 7 (1) (2008) 50-52.
- 38 Saikia R R, Bibortonor maajedi aamar *Gamosa khon, Prantik*, 36 (7) (2017) 28-29.
- 39 Dias R M, Modernisation and cultural identity: The case of Ri-Bhoi women handloom Weavers, (Colorado State University), 2019.
- 40 Shailaja D N, Jyoti V, Suvarnagouri Y & Sunita S, An insight into the traditional handloom of Kinnal, Karnataka, *Indian J Tradit Know*, 5 (2) (2006) 173-176.
- 41 Cooke P, Urange M G & Etxebarria G, Regional innovation systems: institutional and organizational dimension, *Research Policy*, 26 (2006) 427-461.
- 42 Devi C V, Handlooms for livelihood in North-Eastern region: Problems and prospects, *J Rural Dev*, 32 (4) (2016) 427- 438.