# Industry Activities, Quality of Inaul Weaving and its Sustainability in the Barmm

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**Faculty in Partial Fulfillment of the Requirements for the Degree Doctor in Business Administration, Philippines**

**DOI: https://doi.org/10.47772/IJRISS.2026.100300601**

**Received: 03 April 2026; Accepted: 09 April 2026; Published: 21 April 2026**

## ABSTRACT

This study explored the relationship between Industrial Activities, the Quality of Inaul weaving, and the Sustainability of the Inaul industry in Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) using an explanatory sequential design. Sustainability, measured as the dependent variable, was examined across three dimensions: socio-cultural, economic, and environmental. The independent variables comprised Industrial Activities, covering raw materials, production, and marketing, and the Quality of Inaul weaving, assessed through stakeholder collaboration, respect for cultural traditions and natural resources, commitment to continuous process improvement, reputation, adherence to standards and procedures, and support for education and skills development. Quantitative data were first collected from weavers, retailers, and designers to determine the level of industrial activities, the perceived quality of inaul weaving and the extent of sustainability of the inaul industry. These findings were then supported and clarified through interviews that explored the lived experiences of participants. Results revealed that the *Inaul* weaving industry continues to operate through strong cultural persistence and community participation despite challenges on financial resources, traditional handlooms, marketing, and intermediaries. The weavers remain resilient, acknowledging these obstacles as key factors for sustainability. The quality of *Inaul* is sustained through skilled craftsmanship, adherence to cultural motifs, and the collective support of stakeholders. Sustainability is further reinforced by its socio-cultural significance as a source of livelihood, women empowerment, and cultural identity preservation. The qualitative results confirmed that collaboration, training, and institutional support are essential to ensure continuity of the craft. The study concludes that strengthening financial assistance, initiating formal organization or association, providing capacity-building programs, and modern marketing strategies can enhance industry activities, quality and long-term sustainability of *Inaul* industry in BARMM.

**Keywords:** Inaul weaving, industry activities, product quality, sustainability, cultural heritage, traditional weaving industry, inaul industry, BARMM

## INTRODUCTION

The province's distinctive traditional woven fabric, inaul, not only offers employment opportunities but also conveys a tale of empowerment, innovation, and legacy. It has long been a part of the rich Maguindanaon culture (Dumaraos, 2023). Unlike other regions, Inaul serves as a bountiful resource for the Maguindanao people (Macabalang, 2023). The culture of which they are immensely proud, is embodied in renowed fabric. Inaul is traditionally made in Bangsamoro Autonomous Region (Toks, 2019).

Inaul is woven fabric specific for Maguindanao. It is now considered as one of the province's distinctive goods, reflecting the rich cultural legacy of Maguindanao people. The stunning Maguindanao woven fabric is used to create a variety of contemporary clothing items, including dresses, men's long and short sleeve shirts, pants, and accessories. The Weaving industry has positively impacted the lives of Maguindanao women weavers for decades. It has become source of livelihood passed down from generation to generation (Dumaraos, 2023).

Weaving Industry face challenges due to a lack of financial capital, resources, and skilled personnel (Bajenting, 2018). According to Srivastava and Saxena (2022) the causes of failure when developing an

industry are due to a lack of experience, low communication skills, non-strategic location and high competitiveness. This is caused by several things, ranging from different industrial activities such as the supply of raw materials, production and marketing. In general, the shortcoming of the weaving industry is the low level of productivity, financial resources and marketing.

Based on the study of Masyarakat et.al (2018), the constraints in the weaving industry are divided into three based on the industrial activities. Most of the constraints on the raw material supply activities are to do with taking raw materials through distributors, increasing the raw material prices, the limited availability of raw materials, and low financial resources. In addition, the constraints on production activities are the low productivity due to the low number of years of success, the elderly workforce, the use of traditional looms and low level of innovation. The constraints on the marketing activities are the low level of marketing prospects, low level of technology use, and most of the industries market their resulting products through distributors and retailers. Strategic formulation is based on the constraints in every industrial activity.

There is decline in the number of artisans willing to continue the craft as due to its long working hours and low economic outcome. Lack of earning from the craft also resulted in declining interest of the younger generation of weaver's community to continue the legacy of this craft (Srivastava and Saxena, 2022).

The low level of productivity is caused by the elderly workers and the old traditional weaving looms that are still used. In addition, the productivity of the elderly workers is declining simultaneously due to the number of workers. Another problem is the absence of labor regeneration, where the majority of young workers prefer to work in factories rather than in the weaving industry. Therefore, the number of skilled workers in the weaving industry is decreasing, which will have a negative impact on the sustainability of the industry (Srivastava and Saxena, 2022). Hence, the study explored the sustainability of inaul industry and investigate the future of Inaul weaving in the context of changing consumer preferences and production of Inaul in BARMM Region.

## REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents different literature on Industrial activities (raw materials, production, and marketing), quality, sustainability, relationship of Industrial activities, quality and sustainability, sustainability issues and international studies on Inaul weaving.

### Industrial Activities (Raw materials, Production and Marketing)

### Raw materials

The constraints in the weaving industry are divided into three based on the industrial activities. Most of the constraints on the raw material supply activities are to do with taking raw materials through distributors, increasing the raw material prices, the limited availability of raw materials, and low financial management. The strategy for raw material supply activities is focused on cutting the value chain by taking the raw materials from the first producer and financial planning (Masyarakat et.al, 2018).

In the case of the Inaul weaving industry, reliance on distributors for raw materials plays a significant role in shaping its operations. Alauya (2020) notes that traditional craft industries, such as weaving, often depend on external suppliers, making them vulnerable to fluctuations in supply and quality. This dependence restricts artisans' control over the procurement process, resulting in inconsistent material availability and quality. Moreover, the involvement of intermediaries reduces profit margins and limits artisans' capacity to innovate and respond effectively to market needs.

The issue of rising prices and limited availability of raw materials is a pressing concern for the Inaul weaving industry. Banerjee and Chakrabarti note that fluctuations in raw material costs can significantly impact the economic viability of traditional weaving practices (Banerjee & Chakrabarti, 2022). This is particularly relevant in BARMM, where economic instability can exacerbate the challenges faced by local weavers. The increasing prices of essential materials, coupled with their limited availability, can lead to reduced production capacity and lower quality outputs. Chernet and O emphasize the need for stakeholders to address these

challenges through sustainable practices and resource management to ensure the longevity of the weaving sector (Chernet & O, 2020). The rising costs not only strain the financial resources of weavers but also threaten the cultural heritage associated with traditional weaving practices.

Raw materials serve as a crucial component in ensuring the success of the production process. Their availability marks the initial stage that enables producers to increase output. However, Setiaji and Umi (2019) highlight that obtaining the necessary materials for troso weaving cloth remains challenging. Due to this scarcity, entrepreneurs are often compelled to import the required raw materials to sustain production.

Weak or Low financial management practices in the Inaul weaving industry further intensify challenges related to raw material procurement. According to Fitri (2023), limited financial literacy and management skills among weavers impede their ability to respond effectively to market conditions, often resulting in poor investment choices and unsustainable operations. This deficiency may also prevent weavers from taking advantage of opportunities to secure better prices or acquire materials more efficiently. Moreover, Liton (2016) emphasizes that government support is essential in helping weavers strengthen their financial management skills, which is vital for ensuring the long-term sustainability of the handloom sector. Without adequate financial oversight, weavers face increasing difficulty in coping with rising raw material costs and the growing pressures of market competition.

With expanding supply chains, sustainable supply chain management (SSCM) has become a key focus for researchers and practitioners. Growing corporate emphasis on sustainability at all supply chain levels is driven by regulations, NGOs, consumers, and competitors. Companies aim to lead in innovation, sustainability, and fashion, but managing complex supply chains and ensuring consistent quality is increasingly challenging, particularly in the fast fashion sector, where raw, semi-processed, and finished materials are sourced externally (Turker & Altuntas, 2020).

**Production**

According to Masyarakat et al. (2018), production activities face several challenges, including low productivity resulting from limited years of experience, an aging workforce, reliance on traditional looms, and minimal innovation. To address these issues, the recommended strategies focus on effective human resource management, strengthening linkages between consumers and related institutions, and diversifying weaving product offerings. Similarly, Rini and Budiani (2018) identify the same constraints—low output caused by an older labor force, insufficient operational experience, the continued use of outdated looms, and limited innovation. They emphasize that improving human resource management, enhancing relationships with customers and partner institutions, and broadening the assortment of woven products are key strategies for advancing production activities.

Alauya (2020) emphasizes the importance of understanding the historical context of weaving techniques, which often involves traditional methods that may not be optimized for high productivity. The productivity of the weaving industry is often hindered by the demographic characteristics of the workforce and the technologies employed. Studies indicate that an aging workforce contributes to lower productivity levels, as older workers may not be as physically capable of operating traditional looms efficiently. The reliance on traditional looms, while culturally significant, limits the speed and efficiency of production compared to modern weaving technologies. Banerjee and Chakrabarti (2022) further illustrate how the sociotechnical systems surrounding weaving are influenced by cultural factors, which can impede the adoption of more efficient practices and technologies.

Furthermore, limited production output is frequently associated with insufficient investment in modern machinery and in training programs for younger individuals. Fitri (2023) highlights that the traditional weaving sector faces difficulty in drawing interest from the youth, resulting in a labor force composed mainly of older workers who are less responsive to updates in production techniques. This aging workforce not only reduces productivity but also poses a risk to the long-term preservation of the weaving tradition.

Innovation is crucial for enhancing productivity in the weaving industry; however, it remains low in many traditional contexts. Luo et al. (2020) highlight that the integration of new materials and techniques, such as the use of bamboo for weaving, can enhance both the ecological and economic viability of the industry. However, the inertia within traditional practices often results in resistance to adopting innovative methods. The lack of innovation can be attributed to several factors, including insufficient financial resources, limited access to training, and a lack of awareness about modern weaving technologies. Additionally, the traditional focus on preserving cultural heritage can sometimes overshadow the need for innovation. While maintaining traditional techniques is essential for cultural identity, it is equally important to balance this with the need for modernization to improve efficiency and productivity (Yang et al., 2018). The absence of innovative practices can lead to stagnation in the industry, making it difficult for weavers to compete in a rapidly changing market.

**Marketing**

Marketing activities face several limitations, including weak market prospects, minimal use of technology, and a reliance on distributors and retailers to sell products. Strategy development is guided by the specific challenges encountered in each aspect of the industry. For marketing, a product-focused strategy is recommended. This includes designing product logos, expanding the variety of woven items, adopting pricing approaches based on market trends, and enhancing promotional efforts through the use of the internet. Additionally, distribution strategies may involve selling directly to consumers and establishing tourism-oriented villages to support market expansion (Masyarakat et al., 2018).

Collaboration among value chain actors creates mutually beneficial outcomes, particularly in securing raw materials and supporting marketing activities. Such partnerships enable industry players to improve their profitability. Establishing these collaborations forms part of the strategic decisions made by industries in selecting effective marketing and distribution channels for their products. To ensure goods and services move efficiently from producers to consumers, industries must carefully choose the appropriate distribution channel. Poor decisions in this area can hinder or disrupt the overall distribution process (Lubis, 2004).

Traditional weaving industries often struggle to reach broader markets due to limited marketing, weak branding, and lack of awareness of market opportunities (Alauya, 2020). Many artisans also lack the skills to implement effective marketing strategies, hindering growth and expansion (Fitri, 2023). Additionally, the cultural significance of traditional weaving does not always appeal to modern consumers, reducing commercial viability, as unique craft narratives may not align with contemporary preferences (Banerjee & Chakrabarti, 2022).

Research by Luo et al. (2020) highlights the importance of integrating digital marketing strategies, such as social media and e-commerce platforms, to broaden market reach and engage with consumers. However, the low technology usage in the weaving industry is often attributed to a lack of access to resources, training, and awareness of the benefits of modern marketing tools. Moreover, the reluctance to embrace technology can stem from a deep-rooted commitment to traditional practices, which may limit the willingness of artisans to adapt to changing market dynamics. This resistance to change can further exacerbate the challenges faced by the weaving industry in establishing a competitive presence in the market. The adoption of technology in marketing practices is crucial for enhancing visibility and competitiveness in the weaving industry. However, many traditional weavers continue to rely on outdated marketing methods, which can hinder their ability to reach potential customers effectively.

Alauya (2020) mentioned that the weaving industry, particularly among small-scale artisans, it is common to rely on distributors and retailers to sell finished products. However, this approach can present several challenges, such as lower profit margins and reduced control over pricing and marketing strategies. Many weavers use intermediaries to reach the market, which can weaken their ability to build direct relationships with consumers and cultivate brand loyalty. Furthermore, depending on distributors may reduce transparency in pricing and product quality, as intermediaries often prioritize their own profits over the interests of the artisans. This reliance can also hinder weavers' capacity to innovate and respond to market demands, as they may miss out on direct feedback from consumers about their products.

Direct marketing to consumers offers higher benefits for both producers and buyers, as it allows for direct negotiation, resulting in greater mutual gains. In this approach, products are made according to consumer requests, including specifications such as quantity, design, and price. The value chain in the weaving industry begins with raw material producers, followed by weaving artisans, distributors, retailers, and finally, consumers. Each actor plays a distinct role in the flow of activities from raw material production to the end consumer. Raw materials are sourced from multiple external production areas and delivered directly to the initial producers. Several industry members within an association manage the collection of these raw materials from the primary producers. The association supports industry players by facilitating access to services, skills, and information, enhancing collaboration among companies, expanding market access, and reducing market-related risks (Masyarakat et al., 2018).

When tourist visits declined significantly, weavers continued to engage in experimentation, product innovation, and creative marketing of their woven goods. Experimentation and innovation allow weavers to produce fabrics that meet consumer preferences. Innovation occurs when woven products are used for purposes beyond traditional ceremonies or rituals. In particular, color innovations reflect efforts to appeal to a wider range of consumers, with market segmentation often based on social class. The main challenges in marketing activities include limited technology use, low marketing potential, and the reliance of many sectors on wholesalers and merchants for selling final products. These constraints form the basis for developing strategic solutions. One key strategy for marketing is product strategy, which involves creating product logos, expanding the variety of woven products offered, designing pricing strategies based on market analysis, implementing promotion strategies through digital platforms, and establishing distribution strategies that include direct sales to consumers and the development of tourism villages (Rini and Budiani, 2018).

The new emerging cleaner technologies are in a key position when striving towards zero emissions in textile processing. It is also important to identify the most polluting stages of textile processing, with the help of life cycle assessment methodology, in order to focus the development of new technologies correctly (Nieminen et al. 2020).

**Quality**

From the user's point of view, a product's quality is determined by its viability and the favorable image it leaves on the user (Van Kemenade, et al, 2019). Al (2022) believed that the traditional concept of quality in the description comes from the attributes of the product, including dependability or simplicity of use. According to a strategic perspective, quality is defined as either meeting customer needs or providing them with additional value in exchange for using goods or services. Quality can also relate to every facet of client happiness. In major organizations, quality is a comprehensive management process in which every member of the organization plays an active role. Even though quality management is a shared duty across all business management levels, the study suggests that senior management bears primary responsibility for it.

Van Kemenade and Vlegel-Brouwer (2019) expands on the definition of quality. Initially, quality was determined solely based on the final product. When the production process is carried out on a large scale, the final product quality becomes irrelevant, resulting in high production costs. As a result, it developed the concept of quality as a conformity to requirements, usefulness, subjectiveness, and inter-subjectiveness.

According to Semuel et. al (2022) quality has six meanings in the weaver’s perspective: (1) quality is stakeholder synergy, (2) quality is respect for traditional culture and nature, (3) quality is a commitment to continuous process improvement, (4) quality is reputation, (5) quality is conformity with Standard Operating Procedure, and (6) quality is empowering education and training.

**Quality is the synergy of stakeholders**

As medium- and micro-scale companies, weaving SMEs need support from various stakeholders to maintain their sustainability. The quality of weaving requires cooperation from various elements or agencies that are relevant to the sustainability of the weaving SME business. If the government pays more attention, the craftsmen will definitely improve their quality. The government should intervene because each district has its

own weaving craftsmen. Marketing assistance through domestic and foreign events and exhibitions, for example, big events whose markets reach overseas. Likewise, government synergy in the form of the legal protection of the work of weavers will greatly determine the quality of woven fabric production. Legal protection for the work produced will motivate weavers to produce weaving works of higher quality because it will give rise to economic rights to commercialize the weaving motifs made. On the other hand, government regulations are the best way to maintain the quality and sustainability of the weaver business. Many women have started to like weaving. It's helpful when the local government establishes woven cloth as an official uniform that must be worn every certain day regularly. Woven clothing is also the formal uniform of government officials in attending formal events, thus showing the identity of the NTT region. This will be the easiest marketing tool (Sridharan, V.G. ,2021).

Traditional weaving has unique cultural and magical qualities, such as Bali's Taksu, which enhance the value and attractiveness of woven cloths. These unique motifs serve as competitive advantages but make traditional weavers less flexible. Traditional woven cloths can sell for USD 500–3,000, compared to printed imitations sold for around USD 100, highlighting their high value but also making it difficult for weavers to compete (Ferasso, 2018). Government support, particularly through Bank Indonesia, helps traditional weavers access wider markets and financing by organizing exhibitions domestically and internationally and facilitating working capital from banks (Azrani & Maulana, 2021).

Innovations made by weavers through the diversification of woven products also require government capital support through bank credit facilities. Everyone wants to produce woven products at affordable price without compromising traditional values. However, it will damage the marketing of an already expensive product. In addition, increasing customer segmentation also requires greater capital. Weavers need support so that these affordable woven products can sell quickly. Therefore, government support is needed to accommodate this segmentation, including the provision of low-cost financing facilities and guarantees of intellectual rights for traditional weaving motifs (Ferasso, 2018).

Furthermore, most of the results of literature studies imply that the synergy of institutions, government agencies, and other stakeholders is very important. The four agreed-upon elements of quality that comprise the concept of quality as a synergy are supported by: (1) economic capital support, (2) cooperation with stakeholders, (3) strong ties between weavers, and (4) legal protection of weaving works, such as IPRs. Synergy from various stakeholders is the key to ensuring the sustainability of the weaving business. Capital assistance is as important as marketing support and intellectual property protection. Weaving products are goods with premium prices, so their capital turnover is also slower than that of other products produced by SMEs. Quality in cultural value is a strong bond between weavers. This strong bond becomes their social foundation, which help them to continue to preserve the weaving culture (Sridharan, V.G. 2021).

Li, et.al (2020) asserts that the creative industries are of particular interest to business and management scholars because of their inclusiveness and post-industrial characteristics, such as their flexible organization, extensive use of technologies, and the employment of creative and technical talents. Furthermore, the creative industries cover a full range of organizational characteristics and activities, from large multinationals to micro-businesses and cultural entrepreneurs (Lampel and Germain, 2016).

According to Bazalgette (2017), cultural entrepreneurship allows stakeholders in the creative sectors to profit from cultural endeavors (Enhuber, 2014). It is impossible to overestimate the importance of important stakeholders in the growth and development of the creative industries. They help the community, set the sector's policies and plans, and regulate the caliber of products and services (Quero and Ventura, 2018). Workers in the creative industries can improve collaboration amongst their sub-sectors with the support of strong stakeholder networks.

Weaving artisans received trainings from the government on how to create designs and dye synthetic colors. Consequently, around 1990, new themes started to emerge. Customers were particularly interested in the tumpal flower and tumpal palekat designs during this time. The Credit Agency was the government's conduit for assistance in 1970. This support allowed artisans to borrow money to buy Non-Machine Weaving

Equipment (ATBM). Ikat motifs became competitive with machine weaving with the usage of ATMB (Kurniawan, 2018).

The government supported traditional weaving in Kediri by building a wastewater treatment plant, promoting conservation among the younger generation, and funding trademark registration for craftsmen (Wiratama, 2014). Entrepreneurs expanded market reach through participation in exhibitions, collaborations with fashion designers, partnerships with shops locally and abroad, and the use of digital platforms such as blogs, WhatsApp, and websites (Haryati). The COVID-19 pandemic disrupted traditional networking, prompting creative industries to adopt new business models and invest in social capital to maintain collaboration and resilience during and after the pandemic (Dahles & Susilowati, 2015; Torres et al., 2019).

The lack of regular income made the younger generation hesitant to help preserve ikat weaving in Bandar Kidul Village (Hakim, 2012). The enactment of Law No. 20 of 2008 on MSMEs encouraged government support, leading to the establishment of an MSME advocacy group and recognition of UD Medali Mas with the Upakarti Pro-Poor Award in 2012 (Pratama, 2016). By 2014, three generations of ikat craftsmen had emerged, with 13 business units employing 10–30 locals each, often weaving from home. These units produce ikat fabrics with diverse motifs and contemporary fashion designs using manual looms. To sustain the craft amid declining weaving skills, training and coaching programs are necessary to pass knowledge to the younger generation.

**Quality is respect for traditional culture and nature**

According to Semuel et.al (2022) Weavers recognize the strong influence of culture in designing woven fabrics. The motifs of endek and songket fabrics produced by Buleleng craftsmen still use traditional patterns. But to anticipate market needs, the weavers began to weave various endek motifs while still adhering to cultural rules in order to maintain the sacredness of endek fabrics. In Toraja, the quality perceived by the weaving craftsmen is when the weaving SMEs can collaborate on the motifs of various cultures from each tribe in Toraja. Local culture is an identity that is considered a strong character of a society. The production process and innovation of weaving designs as cultural products still preserve cultural motifs that are passed down from generation to generation and use traditional looms. For weavers, honesty in designing is also a quality-forming factor. Quality can basically be seen from the design, because each design is unique, has a specific history and materials.

Weavers recognize that the economic sustainability of SMEs depends on preserving local cultural traditions, linking cultural preservation with economic capacity. They emphasize the need for government protection of intellectual property rights (IPRs) to safeguard the uniqueness of weaving motifs. Quality in weaving is defined as integrating culture and economy, achieved through sustainable production using natural materials like plant dyes. Woven designs reflect cultural identity, local wisdom, and heritage, serving as a form of communication between weavers and customers and providing a unique strength to their products (Chayyi et al., 2019)

Weavers strive for quality by upholding sacred values, traditional values in the production process, coloring techniques, raw materials, production time, tool use, and investment value. Quality is a cultural identity as well as an economic component of a trademark that directs weavers to a specific market segment. Quality is the weaver’s way of communicating the vision, mission, and values of the woven fabric cloth to both fellow weavers and customers (Semuel et.al 2022).

**Quality is commitment**

Efforts to increase the segmentation of weaving users are reflected in the color innovation of weavers. Social class is the basis for segmentation in this instance. Once limited to the nobles and their families, weaving is now a common fabric that represents the identity of a local community. The weavers are trying to use color, much like the seeming bravery and inventiveness. For instance, the predominance of black, red, and white no longer limits Toraja's weavers. In order to make the woven fabric usable by non-aristocrats, weavers in NTT

also employ natural or other abstract images of a broader character. Creating woven motifs that will be applied to woven fabrics is another way that the continuous improvement process is carried out (Chayyi et.al, 2019).

Woven fabrics are increasingly accessible across social strata, though weavers still create distinctive motifs for nobility and commoners (Semeul et al., 2022). In Toraja, specific motifs are designated for each group, while in Buleleng-Bali, SMEs innovate by combining songket and batik fabrics to modernize traditional cloth. Quality reflects the weavers' time, effort, and passion, with innovations enabling cultural acculturation and making woven products usable by all socioeconomic groups. Evolved motifs also demonstrate cross-cultural influences, blending tradition with modernity.

Quality is associated with a product's feasibility and the positive impression that arises after using the product. It is a commitment reflected in the time, effort, and passion of the weavers in experimenting with colors and motifs. Weavers are passionate about innovation, sacrificing time and energy to create woven products that can be used by people from all socioeconomic backgrounds in the area. Weaving, as a cultural product, has been internalized in the weavers' spirit to break exclusivity and allow for cultural acculturation through both traditional and modern motifs. In fact, the weaving motifs that have evolved are also cross-cultural (Solin and Curry, 2022).

**Quality is reputation**

As mentioned by Naini et.al (2020) Reputation is associated with high selling points, image, international recognition, and recognition of works. The four elements emphasize that quality measurement can be viewed from an economic, external, identity, and institutional perspective. High prices represent an economic perspective, global recognition is based on an external perspective, image is associated with an identity perspective, and work recognition represents an institutional perspective.

According to Semuel et.al (2022) weavers understand that woven fabrics are a unique cultural product. And in addition to clothing needs, woven fabrics also meet the needs of the community in carrying out cultural rituals so that they have sacred values. Even for certain people, woven fabrics have high economic and artistic value, so they are worth keeping as an investment. Woven fabrics can be classified as goods with special characteristics so that consumers who buy woven fabrics are willing to make special efforts to obtain them. However, the characteristics of woven fabrics as specialty goods result in limited market segmentation. Consumers who like this unique product are generally those who come from the international market and local markets who are from an upper-class economy. Producing superior, unique, and historically valuable products cannot be mass-produced because premium buyers highly value limited-produced products. Making an effort to maintain the mission of culture as an ancestral heritage is the main vision of the weavers in running their businesses. Woven cloth contains religious and cultural values, so it is used in religious rituals, death, weddings, and thanksgiving. Woven fabrics are produced manually, and the demand is still quite high because woven fabrics are used during religious ceremonies, harvests, deaths, and weddings. Although there are other substitutes, such as silk, cotton, and mixed products, we still maintain woven fabrics, which are traditional products.

Another dimension of quality, according to the weavers, is when the government as one of the stakeholders is present through policies and regulations that protect weaving SMEs as preservers of cultural identity. Woven cloth would become a national dress if worn by state officials in various formal and informal events. Weavers understand that the survival of local cultural traditions is critical to the economy of weaving SMEs. As a result, cultural preservation must coexist with efforts to build economic capacity. This mindset is manifested in an effort to apply the concept of sustainability, with woven fabric production remaining oriented to the diversity of local cultures. To reconcile the cultural and economic visions, the weavers emphasized the government's commitment to provide intellectual property rights (IPRs) protection for SMEs' weaving motifs. The government should provide copyright so that it is not easily plagiarized because many superior products are plagiarized by other people, both local and foreign people (Semuel et.al, 2022).

There are two important things related to IPRs: (1) protection of the original woven motifs produced by SMEs so that they are not imitated and commercialized by irresponsible parties who use digital printing and sell the

woven fabrics at lower prices; (2) the protection of cultural motifs as an archipelagic heritage. Weaving produced by machines ignores the philosophy of cultural elements, which is only understood when the cloth is woven traditionally. Efforts to protect the economic and cultural environment are relevant to the concept of business sustainability. Getting the government's recommendation to have IPR certification is not as easy as promised. The process of obtaining IPR is very burdensome in terms of costs, bureaucracy, and documentation of product variations in each production process (Naini et.al, 2020).

**Quality is conformity with Standard Operating Procedure**

According to Samsir & Nurwati (2018) the quality concept of weaving SMEs cannot be compared with quality in modern approaches such as total quality management, which maximizes business competitiveness through continuous improvement of business production factors. For weavers, quality is when SMEs can implement motifs and interpret motifs closely related to the cultural symbols of the local community. Therefore, the measurement of the quality of weavers cannot be approached with the principles of effectiveness, efficiency, and productivity relevant to the production process that relies on machines. However, the quality for weavers is when the production process of woven fabrics runs according to operational standards, including using raw materials for yarn, dye, and weaving processes. Likewise, according to weavers, quality is when they can demonstrate premium product performance according to operating standards. Standard operating procedures (SOPs) contain a series of standard procedures within an organization to ensure all operational activities run effectively and efficiently. However, with simple governance, not many weaving SMEs have SOPs. There are many aspects that must be met in creating woven fabrics of guaranteed quality. We must maintain the quality of raw materials, auxiliary materials, and weaving processes that are acceptable to the community at the regional, national, and international levels.

Weaving SMEs are classified as small and medium industries with simple governance. Weaving owners are used to working without a documented SOP because the weaving process is based on skills passed down from generation to generation, which are inherited. SOPs are more widely used in selecting raw materials and marketing models. Efficiency and effectiveness in producing quality products are more focused on selecting raw materials and supporting materials (Ismanto et.al, 2018).

**Quality is empowering education and training**

Local governments, which have superior products produced by local communities, must have a set of regulations or guidelines for the development of regional superior products. These guidelines generally adapt these superior products or services to become the identity and economic potential of the local area. Weaving is a cultural product that requires certain skills and techniques. Weavers must be skilled, tenacious, and patient. The more complicated the motif and the better the quality of the yarn used, the longer the production time. The weavers generally highlighted the scarcity of young weavers (Chayyi et al. 2019).

In addition to the need for regeneration, the weavers explained that the quality of woven fabrics is reflected in the ability to innovate by exploring the collaboration of colors and motifs. However, these skills require professional assistance, Weavers must be able to understand the wishes of buyers and be able to describe them in modified motifs. So, to improve their skills, weavers need to receive training from the Cooperative Service. To maintain the quality of woven fabrics, buyers as users also need to know how to maintain woven products. It takes a lot of socialization from the weaving cooperative to the community as users (Ernawati, 2021).

There are slightly different findings from the SLR analysis. In the SLR, the quality of human resources involved the idea that workers, who in this case are weavers, should have high education. In the weaving industry, the priority for the weaving workers is the skills and understanding of the local culture. Another thing that is also related to human resources is buyers as users of woven fabrics. Weaving entrepreneurs must communicate with consumers regarding how to care for woven products so that the quality of weaving is maintained. Therefore, the two elements of the SLR analysis that were formed are related to the concept of human capital quality as education for weavers and consumers (Haddad et. Al, 2020).

**Sustainability**

Sustainable construction is achieving a balance of environmental conditions that are not damaged or reduced due to development or activities. The balance and interaction between three aspects, namely, social, economic, and environmental, are needed to be able to achieve the goal of fulfilling current construction needs while also considering the need to meet future needs (Yılmaz, M.; Bakis, A., 2015). Traditional knowledge is interwoven with the environmental, cultural, social, and economic four pillars of sustainability, those who are interested in fostering the development of sustainability.

**Socio-Cultural Factors**

Sustainable development (SD), defined as meeting present needs without compromising future generations, forms the basis of UN Agenda 21 and includes three dimensions: economic, environmental, and social (De Brito et al., 2018). These dimensions are particularly relevant to fashion retail supply chains, where economic delocalization, intensive chemical use, and social issues like sweatshop scandals pose challenges. Traditional financial and logistics metrics alone are insufficient to assess supply chain performance; broader factors such as product quality, human resource management, inter-organizational relationships, and stakeholder demands must also be considered to evaluate sustainability's role in improving performance under global competition.

Most weavers learned their craft by observing their mothers and grandmothers (Salang, 2019). They reported very low levels of connection with fellow weavers, buyers, and customers, moderate ties with traders, and weak linkages with national institutions, local government units, and credit organizations. This limited connectivity was attributed to inconsistent support from national agencies and minimal technical assistance. Beyond economic aspects, weaving plays an important socio-cultural role by fostering self-reliance, a sense of belonging, cultural values, and social networks. It strengthens household and community ties, encourages participation, preserves local culture and heritage, and enhances community identity. Community weaving builds social capital, enabling collaboration, information sharing, and coordinated problem-solving. It also promotes awareness, creativity, innovation, and cooperative practices within the community.

According to Tipps (2018), the traditional cultures' development is hampered by the rules, beliefs, and values that surround them. Developmental tradition assesses as changing processes. Native social and cultural aspects are a significant source of modernity. Considering the structural mechanisms underlying the interaction between societies is advised by Tipps. Additional key factors that explain the nature of their political and economic autonomy include the effects of colonial dominance, international political relations, trade, and cross-national flow. The culture of contemporary civilizations, which is characterized by the accumulation of capital and industrialization, which are compatible with development, must thus be imitated by traditional communities for them to advance (Inglehart, 2020).

The cultural industry, which is another economic area with growth potential, includes the intellectual property economy. Many people agree that the cultural industries and the arts sector serve as platforms for artistic expression and as indicators of regional and societal identity. The cultural industries, often known as mono-culture economies, enable a more competitive development platform. The intellectual and emotional components of society, such as values, traditions, and cultural standards, are what some academics refer to as the "culture dimension" of sustainable development (Shi et.al, 2019).

According to Nurse (2022) sustainable development is incomplete without culture. sustainability also denotes slow lifestyle, recycling, up-cycling, eco-friendly production, and consumption had been merely rooted in life then. Through indigenous, perceptive principles, and multiple cultural viewpoints, different cultures and their knowledge systems contribute to sustainability. Learning from indigenous ideas such as customs and ancient norms and values may aid modern cultures in making better decisions and policies.

According to Fletcher (2020) Culture stands for the norms, values, and identity of a society. Culture stands for the best solutions and practices achieved through coping, adapting, and creating such processes. Therefore, it is observed that culture makes a pervasive influence in all societies. It is because culture itself is an indicator of development.

Sustainability has been a lifestyle in traditional society. Sustainability and culture are inextricably linked together. The evolution of traditional cultures is hampered by the norms, beliefs, and values that bind them. Therefore, traditional societies must imitate to advance. The achievement of sustainability goals depends on local economies, social and cultural values, and a change in attitude. Indigenous knowledge is based on caretaking which is crucial to indigenous relationships with the environment. According to academics, indigenous concepts including ancient norms, beliefs, and rituals may aid modern cultures in developing better policies and decisions. Textiles are the world's largest waste today (dyeing, finishing, decomposed material). Therefore, sustainability in clothing and textile has become a well-known area for seeking sustainable ways of production systems. Scholars focus on the concept of an ideology of use rather than materialistic answers. It implies that usage ideology determines the durability, which is helped by materials, design, and construction. Scholars are invited to find better solutions from traditional practices from inherited knowledge. Scholars try to identify the transcendent qualities of traditional practices (Fletcher, 2020).

**Economic Factors**

On the economic aspect, weaving enables the weavers to earn additional income, generate employment, serve as source of livelihood, and help in poverty reduction. The handicraft industry to the household has provided terms of providing livelihood to the community. It has provided additional income for women, thus creating additional business. It has enhanced skill, and has created new job for the community. Weaving has sustained the livelihood of the community and has provided additional income to the family. Because majority of weavers are women constituted, hence, there is a greater space for women empowerment. Weaving promotes self- help, belongingness, cultural values, and networking. Agencies were not consistent and institutions' technical assistance was very in terms of contribution to economic sustainability, the contribution of the handicraft industry to the household has provided terms of providing livelihood to the community. Dependency on weaving is the highest among the widows and poor households. Yakan weavers are facing greater difficulties particularly on financial aspect. The lack of managerial skills to run the cooperative, production and management of the resources were relatively poor. Linkages with government agencies and private entities turned out to be selective and non-participative. Some were not involved as members of the cooperative (Salang, 2019).

For fashion companies to operate sustainably, financial viability is essential. Even when prioritizing environmental and social concerns, profitability remains critical. To address this, an analytical model was developed to examine project duration incentives in fashion retail franchising, taking into account overconfidence and risk levels, and proposing a compensation mechanism to mitigate risk in case of franchise contract breaches. A study on green supply chain collaboration for fashionable consumer electronics used resource dependence theory to explore how political and social power influence channel power restructuring and collaboration. In a single manufacturer–two retailer supply chain, the research analyzed equilibrium prices and service levels, showing how production costs and product profitability affect decisions and economic sustainability. A case study of H&M revealed that its sustainable supply chain, including eco-material use and adherence to sustainability guidelines, may affect human well-being globally: the sourcing team tends to select suppliers in low human-well-being countries, while higher inventory levels are maintained in countries with higher human well-being. Traditionally, fashion purchasing decisions are influenced by budget, profit targets, and interest rates, but given high market volatility, incorporating risk into decision-making is crucial (Choi, 2019).

**Environmental Factors**

Salang (2019) identifies several factors negatively impacting environmental sustainability. Environmental protection and awareness of health and sanitation are essential for improving community life. Traditional practices and values should be evaluated to preserve those that support better environmental and living conditions while modifying those that are harmful. Community growth should primarily utilize local human and natural resources, applying a self-reliance approach that mobilizes endogenous resources and, when necessary, receives external support to produce goods and services that enhance quality of life and promote sustainable development. In Basilan, the Yakan community, which produces the majority of woven products, remains deeply rooted in traditional practices and resists change, as seen in village celebrations led by elders

and reluctance to join organizations. Given current challenges, the Yakan weaving industry cannot thrive independently, highlighting the need for organizations to protect the interests of small entrepreneurs.

The field of sustainable development has been acknowledged as one that protects the environment and uses fewer natural resources (Powter and Rose, 2022). According to Cohen and Winn (2020) , sustainable entrepreneurship remained the magnifier of broad welfares and moved ahead of the significance of how "future goods and services are discovered, created, and exploited, by whom, and with what economic, psychological, social, and environmental consequences". Sustainable entrepreneurship is an entrepreneurial action employed for improvement of the environment. Such progress brings social well-being and generates profits (Tur et.al, 2018). The protagonist goal of sustainable entrepreneurship is to initiate actions and developments that create profitable opportunities and contribute to sustainable development (Horisch, 2018).

The main factors - environmental integrity, social sustainability, and economic prosperity. Environmental integrity is about environmental safety, which is essential to protect the environment and essentials of future generations. Similarly, social sustainability covers the developments that safeguard social health and the well-being of the associates of an enterprise. Sustainable entrepreneurship is a multifaceted notion promoted through economic factors and environment and surroundings. These factors are accountable for the safety, well-being and prosperity of the people. Simultaneously, through its objectives of refining the environment and progressing social welfare, sustainable entrepreneurship can also impact socio-structural revolutions and enhance the sustainable technologies related to the sustainable creativities. Thus, it can deliver social and economic resolutions for transmuting and directing entrepreneurial inventiveness towards sustainability. Hence, it reveals sustainable entrepreneurship and the necessity to recognize factors that inspire sustainable entrepreneur. (Belz and Binder, 2019).

These factors are accountable for the safety, well-being and prosperity of the people. Simultaneously, through its objectives of refining the environment and progressing social welfare, sustainable entrepreneurship can also impact socio-structural revolutions and enhance the sustainable technologies related to the sustainable creativities (Belz and Binder, 2019). Thus, it can deliver social and economic resolutions for transmuting and directing entrepreneurial inventiveness towards sustainability. Hence, it reveals sustainable entrepreneurship and the necessity to recognize factors that inspire sustainable entrepreneurship. The elements, including compassion, empathy, altruism, ethics, and economic profits, are significant factors that form the base of sustainable entrepreneurship. The company's profitability may contribute to sustainability (Parrish, 2020).

There are many important activities in the fashion supply chain system, including fashion design and manufacturing, laundry, inventory control, and logistics, and propose some specific promotion measures for improving sustainability. The proper pricing and government subsidy are both critical factors to the success of remanufacturing in the closed-loop supply chain system. The optimal channel selection problem in a remanufacturing fashion supply chain. They consider the presence of a government subsidy. They find that the subsidy can provide strong support and the much-needed incentive to promote remanufacturing. At the same time, the market acceptance for the remanufactured product is high, the remanufacturer will compete with the manufacturer. The optimal choice by the remanufacturer may not be beneficial to social welfare and the environment. In the closed-loop supply chain, even though remanufacturing may create additional values and benefits, there is an unavoidable emission of carbon. In fact, the carbon emission and pollution related measures. The carbon taxation scheme may affect the optimal supplier selection for apparel companies (Choi and Li 2018).

Corporations should strengthen their internal governance, while stakeholders collaborate externally to ensure sustainability across the entire fast fashion supply chain. About 45% of highly efficient supply chains not only adopt new technologies but also focus on sustainability improvement strategies. Amid economic globalization, environmental concerns, and social responsibility, fast fashion companies increasingly recognize the importance of sustainable development across economic, environmental, and social dimensions. Global brands like ZARA, H&M, GAP, and UNIQLO use green marketing to influence consumer choices and guide suppliers toward strategic alliances. Emerging Chinese brands such as Livex, Cocoon, and Semir implement return policies, allowing retailers to return unsold stock at season's end, which is then sold online. This approach helps reduce conflicts of interest, minimize pollution, and curb energy overconsumption.

Emphasizing social responsibility and sustainable awareness has become a key strategy for sustainable supply chain development (Li et al., 2020).

The fashion industry's environmental impact is very high, particularly in relation to its global volumes; it accounts for 9.3% of world's employees and 4% of worldwide exports (World Trade Organization, 2008). The production processes, and in particular the phases of dyeing, drying and finishing, make intensive use of chemical products and natural resources and generate a high environmental impact (De Brito et al., 2018). In addition, the use of fibers, such as cotton, wool and synthetics, has a significant environmental impact; cotton and wool production requires large quantities of water and pesticides, whereas synthetic fibers are extracted from non-renewable resources and require considerable energy to produce. Fashion companies increasingly rely on external partners to produce their products, using raw materials such as fibers and leather that are often sourced from distant locations and subcontracting different production activities such as milling, dyeing, weaving, finishing, cutting and sewing to different companies scattered across the world. In this context, supply chain management (SCM) serves two crucial purposes, helping companies be competitive and also allowing them to pursue environmental responsibility (Caniato et.al, 2019).

The main purpose of the eco-label is to stimulate consumers to buy environmentally-sound products and, in turn, to stimulate producers to produce in an environmentally friendly manner. Labels allow consumers to make comparisons among products. Consumers are also provided with the ability to reduce the environmental impacts of their daily activities by purchasing environmentally preferable and healthy products and by minimizing adverse consequences during use and disposal. Eco-labeling has emerged globally as a differentiating factor in retail markets for textile and apparel purchases. It is a primary tool for marketing to well-informed and ‘green’ customer; thus, eco-labeling has become very important to the development of a sustainable and credible textile industry (Choudhury, 2019).

The global scale of the fashion industry requires moving the products from low-labor-cost countries to consumers in Europe and the US, with the consequent environmental impacts of transportation. Fashion companies increasingly rely on external partners to produce their products using raw materials such as fibers and leather that are often sourced from distant locations and subcontracting different production activities such as milling, dyeing, weaving, finishing, cutting and sewing to different companies scattered across the world (Caniato et.al, 2019).

With rising environmental concerns from consumers and stakeholder groups, environmental management has become an important responsibility for today's fashion and textiles manufacturers. The production of fashion and textiles related products often requires high levels of energy and water consumption, and emits large quantities of pollutants to the environment. Therefore, the adoption of environmental management systems (EMSs) is important and could have a significant impact on these firms' operational performance. Some firms of the U.S. apparel industry (e.g., Levi-Strauss, Nike, Gap, and Eddie Bauer) even develop their own standards for environmental compliance and conduct their own audits to determine the level of compliance of their suppliers (Hamner, 2006). However, not every fashion buyer is able to develop their own environmental standards. Instead, most of them rely on internationally recognized EMSs and third-party verifications to assess their suppliers' environmental performance (Lo et.al, 2019).

There is no doubt that the textile industry–the production of clothing, fabrics, thread, fibre and related products–plays a significant part in the global economy. It also frequently operates with disregard to its environmental and social impacts. The textile industry uses large quantities of water and outputs large quantities of waste. As for social aspects, many unskilled jobs have disappeared in regions that rely heavily on these industries. Another serious and still unresolved problem is the flexibility textile industry companies claim to need. Faced with fierce international competition, they are increasingly unable to offer job security. This is without even considering the informal-sector work proliferating both in developing and developed countries. Child labor persists within this sector despite growing pressure to halt it. Fashion demands continuous consumption. This tendency towards disposability results in the increased use of resources and thus the accelerated accumulation of waste. It is obvious to many that current fashion industry practices are in direct competition with sustainability objectives; yet this is frequently overlooked as a pressing concern. It is, however, becoming apparent that there are social and ecological consequences to the current operation of the

fashion industry: sustainability in the sector has been gaining attention in recent years from those who believe that it should be held accountable for the pressure it places on the individual, as well as its contribution to increases in consumption and waste disposal (Gardetti and Torres, 2019).

According to Aguinaldo (2022) despite abundant water resources, many households in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) still lack sufficient access to safe drinking water. Communities are particularly vulnerable to water-borne diseases, with numerous low-income families depending on unprotected or contaminated water sources. According to the Philippine Statistics Authority (2016), only 53% of families in BARMM have access to potable water, significantly below the national average of 85%. In response, the International Labour Organization (ILO), in partnership with the Government of Japan through its Ministry of Foreign Affairs, has implemented initiatives to create employment and promote peace by improving water supply and sanitation services in post-conflict areas of the region. This project builds on ILO's prior work in the Philippines, which includes crisis recovery and prevention, skills development, employment creation for vulnerable groups, green jobs, just transition, and local economic development.

**The Relationship of Quality and Sustainability**

The concept of quality is essentially a relative assessment of the suitability of a product or service. Quality is an indicator of whether a product or service was manufactured in conformity with predetermined specifications and customer needs in terms of design, material, and manufacturing processes, as well as other management processes (Elassy, 2015).

Weavers strive for quality by upholding sacred values, traditional values in the production process, coloring techniques, raw materials, production time, tool use, and investment value. Quality is a cultural identity as well as an economic component of a trademark that directs weavers to a specific market segment. Quality is the weaver's way of communicating the vision, mission, and values of the woven fabric cloth to both fellow weavers and customers. Weavers understand that the survival of local cultural traditions is critical to the economy of weaving SMEs. As a result, cultural preservation must coexist with efforts to build economic capacity. This mindset is manifested in an effort to apply the concept of sustainability, with woven fabric production remaining oriented to the diversity of local cultures as the archipelago's heritage. To reconcile the cultural and economic visions, the weavers emphasized the government's commitment to provide intellectual property rights (IPRs) protection for SMEs' weaving motifs (Semuel et.al , 2022).

The quality concept of weaving SMEs cannot be compared with quality in modern approaches such as total quality management, which maximizes business competitiveness through continuous improvement of business production factors. For weavers, quality is when SMEs can implement motifs and interpret motifs closely related to the cultural symbols of the local community. Therefore, the measurement of the quality of weavers cannot be approached with the principles of effectiveness, efficiency, and productivity relevant to the production process that relies on machines. Government synergy in the form of the legal protection of the work of weavers will greatly determine the quality of woven fabric production. Legal protection for the work produced will motivate weavers to produce weaving works of higher quality because it will give rise to economic rights to commercialize the weaving motifs made the four agreed-upon elements of quality that comprise the concept of quality as a synergy are supported by: (1) economic capital support, (2) cooperation with stakeholders, (3) strong ties between weavers, and (4) legal protection of weaving works, such as IPRs (Semuel et.al, 2022).

According to earlier research, higher-quality materials can extend the life of buildings and services while also improving sustainability (Raffat, 2018). According to Ferng (2018), enhanced quality will also lead to increased customer satisfaction, safety, and sustainability. Construction's financial viability can also be used to assess sustainability through the application of Life Cycle Assessment (LCA) (Zuo et al., 2019). Increasing the use of sustainable construction can also be accomplished through adding value to the building process. By lowering the infrastructure's negative effects on the environment and society, project value management can create value by raising the infrastructure's primary value (Pitt et al., 2019).

Previous research indicates that the efficiency, financial viability, quality, and value of construction may all be used to assess the balance of sustainable construction requirements. This study developed a sustainable lean performance indicator that is categorized into several criteria, including quality, health, safety, and the environment; sustainable design; end-user needs; land management; energy and water efficiency and conservation; performance and material resource efficiency; environmentally friendly materials usage; and sustainable management. These sustainable aspects were linked to the Regulation of the Minister of Public Housing of the Republic of Indonesia, Number 9 of 2021, which contains guidelines for the implementation of sustainable construction (Bascoro and Muslim, 2023).

Previous studies indicate that sustainability in construction can be enhanced through improved material quality, extended building and service life, user satisfaction, safety, and financial feasibility, including the use of LCA. Project value management helps reduce environmental and social impacts while adding value. Sustainable construction can be assessed through efficiency, financial feasibility, quality, and construction value. By linking these aspects to the Indonesian Minister of Public Housing Regulation No. 9 of 2021, this study developed sustainable lean performance indicators categorized into quality, health, safety, and environment; sustainable design; end-user needs; land management; energy and water efficiency; performance and material resource efficiency; environmentally friendly materials; and sustainable management (Zuo et al., 2019).

**Relationship of Industrial Activities and Sustainability**

Weavers can still demonstrate the sustainability of their weaving business despite the limitations and challenges associated with the changing business environment and the advancement in information technology. Weavers' products are still in high demand, implying that they have knowledge base experience related to the organizational culture implemented in the production process. Despite the fact that some significant processes are not documented in standard operational procedures, they are manifested through products, such as efforts to maintain artistic quality. Nowadays, business trends are highly competitive, so sustaining the traditional Ikat weaving SME organizations requires a quality-based organizational culture that is sustainable. Furthermore, SMEs' organizational culture is no different from other business organizations in general (Schneider et.al, 2017).

Adoption of sustainable ways of manufacturing practices becomes a necessity to conserve the natural resources on earth for current and future generations. Using the age-old eco-friendly techniques and natural materials wherever possible could become a solution to the issues emerging due to unsustainable materials, process and techniques. Using handloom-based products such as Pattu weaving may contribute efficiently in tackling the situation. The craft is struggling to survive because of several issues such as consumer unawareness towards the craft, lack of design solutions according to the current trends, low monetary gain to the weavers and lack of infrastructure facilities. With the initiatives driven by the government, interest taken by the designers and fashion institutes and the advent of social media, the craft may revive itself to continue its inheritance to conserve both the craft and environment (Srivastava and Saxena, 2022).

The lean production management used to maximize the value of the product that will be given to end-users and minimize waste at production stages to increase productivity. Lean principles can also mean producing products by carrying out the production process at the right place, location, time, and quantity (Al-Rahmi et.al, 2020). According to Almulla and Rahmi (2023) sustainable lean performance indicator is categorized into (1) Quality, health, safety, and environment; (2) Sustainable design; (3) End-user needs; (4) Land management; (5) Energy and water efficiency and conservation; (6) Performance and material resource efficiency; (7) Environmentally friendly materials usage; and (8) Sustainable management.

**Sustainability Issues**

The fashion and apparel industry was selected for analysis due to its high public scrutiny over environmental and social issues linked to suppliers. Companies like Nike, Levi Strauss, Benetton, Adidas, and C&A have faced criticism for outsourcing production, making the industry pivotal in applying environmental and social criteria in supplier evaluation. Fast fashion spans both developing and developed countries, where economic,

social, and environmental challenges are prevalent. Consequently, these companies increasingly emphasize sustainability, standardizing working and production conditions across supply chains. They focus on supplier compliance with codes of conduct, using monitoring and auditing to prevent problems, improve performance, and enforce sustainability criteria (Winter and Lasch, 2020).

Fast fashion continuously introduces new merchandise, reflecting current trends and increasing media and consumer pressure regarding sustainability. Many companies adopt sustainable supply chain strategies to balance economic, environmental, and social performance, but challenges persist, such as suppliers ignoring environmental policies and unfair labor practices. Decision-makers recognize that beyond profit, minimizing emissions and considering social responsibility are essential, drawing attention to sustainable development in fast fashion supply chains (Li et al., 2020). The weaving industry faces declining productivity due to limited innovation, technological lag, and subsectors shifting to other industries. Manufacturers also face higher raw material and labor costs, a predominantly older workforce, and reduced marketing and expertise. These challenges highlight the need for a comprehensive analysis of the weaving industry's value chain operations (Rini and Budian, 2018).

Old traditional weaving looms that are still in use and their aging workforce are the main causes of the poor level of production, according to Rini and Budian (2018) (Non-Machine Weaving Tools). While the mechanized machinery weaving business can manufacture 10 pieces of stagens per day, each worker can only produce 3–4 stagens per day. In addition, as a result of the increased workforce, the productivity of senior employees is also decreasing. When it comes to drawing travelers to tourist towns and encouraging them to purchase Gamplong woven goods, the Non-Machinery Weaving Tool has been beneficial. Additionally, using non-machinery weaving tools helps to preserve the indigenous culture, even though they have existed since the 1950s.

The lack of labor regeneration is another issue, since most young people would rather work in factories than in the weaving sector. As a result, the weaving sector is losing skilled people, which will be detrimental to the business's capacity to survive. The expansion of the weaving business requires both increasing production and providing training to young workers. Another issue facing the weaving sector is capital. The primary capital of each Gamplong weaving industry varies. The non-machine weaving tools and cash that the industrial actor in this sector possesses make up its capital. Lack of money capital severely restricts the space for activities aimed at growing income because the various capital utilized by each entrepreneur will have a distinct influence on the level of revenue, production capability, market orientation, and industrial continuity (Soraya 2011).

According to Aulia & Ikhwana (2012) meeting the everyday needs of workers is another issue brought on by the cash that is available or the earnings from sales. This results from rising living expenses, or conversely, from using everyday living expenses to satisfy industry capital requirements. A strategy is an ongoing course of action that is determined by future expectations. The weaving industry's advantages and disadvantages are taken into consideration when developing strategy. The benefits of the weaving sector make the manufacturing in Gamplong Village a tourist destination, according to the study's findings. Both the diversity of weaving products and the original culture can be preserved through the employment of non-machine weaving tools. This may serve as a catalyst for the arrival of travelers or customers at the weaving industry players, so boosting the marketing of weaving goods in this region.

Since everything has been calculated and planned, a better budget plan will result in better industry finances. Financial planning will assist business owners in managing their money, which will improve the industry's financial situation. A key tactic for boosting productivity in the weaving sector is human resource management, which involves teaching weaving skills and researching the marketing opportunities for young workers. Because the weaving business is seen as promising, younger workers will be more interested in it (Rini and Budian, 2018).

The global textile and clothing industry faces gaps in achieving equitable economic, social, and environmental development, with CSR approaches varying across countries due to social, economic, political, and legal factors. Enhancing CSR engagement requires collaboration with governments and society, as progress depends on stronger institutions and governance (Cavalcanti et al., 2019). In the fashion industry, supplier integration

(SI) and green sustainability programs (GSP) are critical, requiring substantial resources and commitment. Adoption of SI and GSP improves financial performance, mitigates the impact of financial crises, and, for fashion enterprises selling trendy items, higher levels of SI or GSP adoption further enhance profitability (Li et al., 2020).

According to Fernandez (2024) Obtaining environmentally friendly products and equipment is challenging due to high costs and limited availability in the local market. Nevertheless, green practices—such as waste segregation, tree planting, and compliance with government environmental regulations—are strictly followed. Despite these sustainability efforts, issues remain across the three indicators that require attention and full compliance.

**International Studies**

The ancient craft of pattu is regarded as having cultural and historical value. This is a sustainable method of producing fabric that is based on natural fibers like cotton and wool and does not require any power-driven machinery or processes. Because there are many experienced weavers and reasonably priced tools and equipment available, this art requires little initial investment. The weaver's working hours are flexible and they may work from home with ease. When necessary, women are also seen helping with bobbin winding and other similar tasks. Since pattu is mostly made of cotton and wool, both of which are widely accessible in India, raw materials are also readily available. There is a lot of room for experimentation with colors, themes, and product ranges, all of which might contribute to the development of this craft. The Indian government is always striving to improve handloom and handicraft (Srivastava and Saxena, 2022).

Efforts to promote traditional textiles are underway in India and China. In India, the Ministry of Textiles, fashion designers, and NIFT collaborate to expand the reach of Pattu weaving through fairs, exhibitions, modern design integration, artisan workshops, and craft bazaars, while NGOs like Urmul Marusthali Bunkar Vikas Samiti support the social and economic development of weavers and their families. In China, studies using life cycle assessment and integrated models indicate that implementing GHG reduction policies in the textile sector—considering socioeconomic factors—could reduce annual carbon emissions by 89% and cumulative emissions by 34.5% by 2050, highlighting the importance of energy efficiency and carbon reduction in textile production.

Modernization through information and technology is now progressing extremely quickly. There is a concern that it could alter people's perspectives on the advancement of their local cultures. Bali Aga ethnic weavers need to stand up to the tide of change and defend their customs to prevent them from being lost (Sudarmanto, 2022). The reality that accesses to technology and training is still uneven must be faced by underinformed rural populations (Nurse, 2022). According to earlier research by Saraswati et al. (2023), social media and authenticity have an impact on the Gringsing Weaving Industry's sustainability. The sustainability of gringsing weaving necessitates scenario analysis in order to identify viable scenarios that represent the optimal course of action, given that prior research has indicated the benefits of each variable. This may be found out by calculating the likelihood scenario for the sustainability of Grinsing ikat weaving in Tenganan Village using SMIC-Prob analysis.

There are five main approaches to preserving the unique and attractive Gringsing woven fabric: (1) continuing business as usual, (2) expanding production, (3) increasing production, (4) expanding production while diversifying into other businesses such as food stalls or Banten crafts, and (5) enhancing weaving skills and knowledge. This study focuses on educational scenarios aimed at improving the skills and expertise of artisans. To ensure the sustainability and growth of Gringsing weaving in Tenganan Pegringsingan Village, Karangasem, it is essential to strengthen training programs and character education that foster appreciation for local culture among weavers (Agung et al., 2022).

Founded in 1954 with Shui-long as its first head, the Nantou County Craft Research Class was renamed the National Taiwan Craft Research and Development Institute (NTCRI) on January 2, 2010. NTCRI has consistently hosted workshops and exhibitions, providing diverse opportunities for people to learn about and appreciate Taiwanese handicrafts. The institute collaborates with communities, invites artisans to create

artworks on-site, and facilitates interactions with audiences and students. Academic research and promotional activities by NTCRI have increased interest in Taiwanese crafts, laying a strong foundation for innovation and sustainable development (Yikang et al., 2022).

**Synthesis and Research Gap**

The literature highlights that the Inaul weaving industry operates within a complex value chain where raw materials, production, and marketing activities significantly influence overall quality and sustainability. Constraints such as dependence on intermediaries for raw materials, rising costs, limited availability, and weak financial management reduce weavers' control and profitability. In production, challenges including an aging workforce, reliance on traditional looms, and low levels of innovation hinder productivity and scalability. Meanwhile, marketing limitations—such as weak branding, low technology adoption, and reliance on distributors—restrict market reach and reduce opportunities for direct engagement with consumers. Despite these challenges, scholars emphasize that strategic interventions such as supply chain optimization, human resource development, product diversification, and digital marketing adoption can enhance competitiveness and sustainability in traditional weaving industries.

Quality emerges as a multidimensional concept that goes beyond product durability to include cultural preservation, stakeholder collaboration, continuous improvement, and reputation. Studies indicate that quality in weaving is deeply rooted in respect for traditional knowledge, the use of authentic materials, adherence to cultural motifs, and the skills passed across generations. At the same time, quality is shaped by external factors such as government support, intellectual property protection, access to training, and financial assistance. The integration of innovation—particularly in design, color, and product application—demonstrates a balance between tradition and modernization. Furthermore, sustainability in the weaving sector is closely linked to socio-cultural and economic dimensions, where weaving not only preserves cultural identity but also provides livelihood, strengthens community ties, and empowers marginalized groups, especially women.

However, despite extensive discussions on supply chain challenges, quality dimensions, and sustainability, a significant research gap remains. Existing studies largely examine these elements in isolation and often within broader textile or handicraft contexts, with limited focus on localized industries such as the Inaul weaving sector in BARMM. There is insufficient empirical research exploring how industrial activities collectively influence quality as a central theme, particularly from the lived experiences of weavers, retailers, and other stakeholders. Moreover, the interplay between traditional knowledge transmission, modern industrial practices, and sustainability outcomes remains underexplored. This study therefore seeks to fill this gap by providing an integrated analysis of how industrial activities shape quality and sustainability in the Inaul weaving industry, grounded in the perspectives of its key participants.

**Theoretical Framework**

The study anchored the theories on Triple Bottom Line and Community Economic Development.

**The Triple Bottom Line (TBL)**

The Triple Bottom Line (TBL), coined by John Elkington in 1994 and also known as the "3Ps"—People, Planet, and Profit—provides a framework for evaluating organizational performance beyond financial outcomes. It emphasizes a comprehensive approach that considers social and environmental responsibilities alongside economic success. The social dimension (People) examines the impact on employees, customers, communities, and society at large. The environmental dimension (Planet) focuses on how an organization affects natural resources, pollution levels, and climate change, encouraging practices such as reducing emissions, conserving resources, and adopting sustainable methods. The financial dimension (Profit) assesses profitability, return on investment, and overall financial health. By integrating these three dimensions, organizations can enhance resilience, foster stakeholder trust, drive innovation, and create shared value.

In the context of the Inaul weaving industry, the TBL framework provides a useful lens for understanding how industrial activities influence sustainability. The People dimension is evident in the role of weavers,

intergenerational knowledge transfer, and the preservation of cultural identity. The Planet aspect relates to the sourcing and use of raw materials, including considerations for sustainability, durability, and environmental impact. The Profit dimension reflects how high-quality Inaul products—through durable materials, intricate designs, and skilled craftsmanship—enhance marketability, increase demand, and support the livelihoods of weavers. Overall, TBL highlights how improving industrial activities can simultaneously promote economic returns, strengthen communities, and support sustainable practices, showing that quality serves as a key link between industrial activities and long-term sustainability

**Community Economic Development**

Community Economic Development (CED) theory was developed collaboratively with key contributors such as Ron Shaffer, Steve Deller, and Dave Marcouiller, who explored the interconnectedness between community dynamics and economic processes. The growth and development of any community should primarily rely on the effective use of its own human and natural resources, emphasizing self-reliance and mobilizing local potential while seeking external support only when necessary. This approach aims to produce goods and services that improve the quality of life for community members and build a foundation for sustainable, self-sufficient development. Community Economic Development (CED) theory embraces this principle by recognizing the interconnected nature of economic, social, and environmental issues. It empowers communities by valuing local knowledge, skills, and traditions as essential assets for sustainability and improved livelihoods, particularly for marginalized groups. At its core, CED promotes collective action to generate local economic opportunities and enhance social well-being in a sustainable manner.

The theory directly aligns with the Inaul weaving industry in BARMM, where local artisans rely on indigenous techniques and intergenerational knowledge transfer. Beyond its economic role, the Inaul industry functions as a cultural and social system, supporting livelihoods—especially for women—while preserving heritage. By strengthening industrial activities such as raw materials, production, and marketing, CED principles demonstrate how local resources and skills can improve product quality and foster both economic and social benefits within the community.

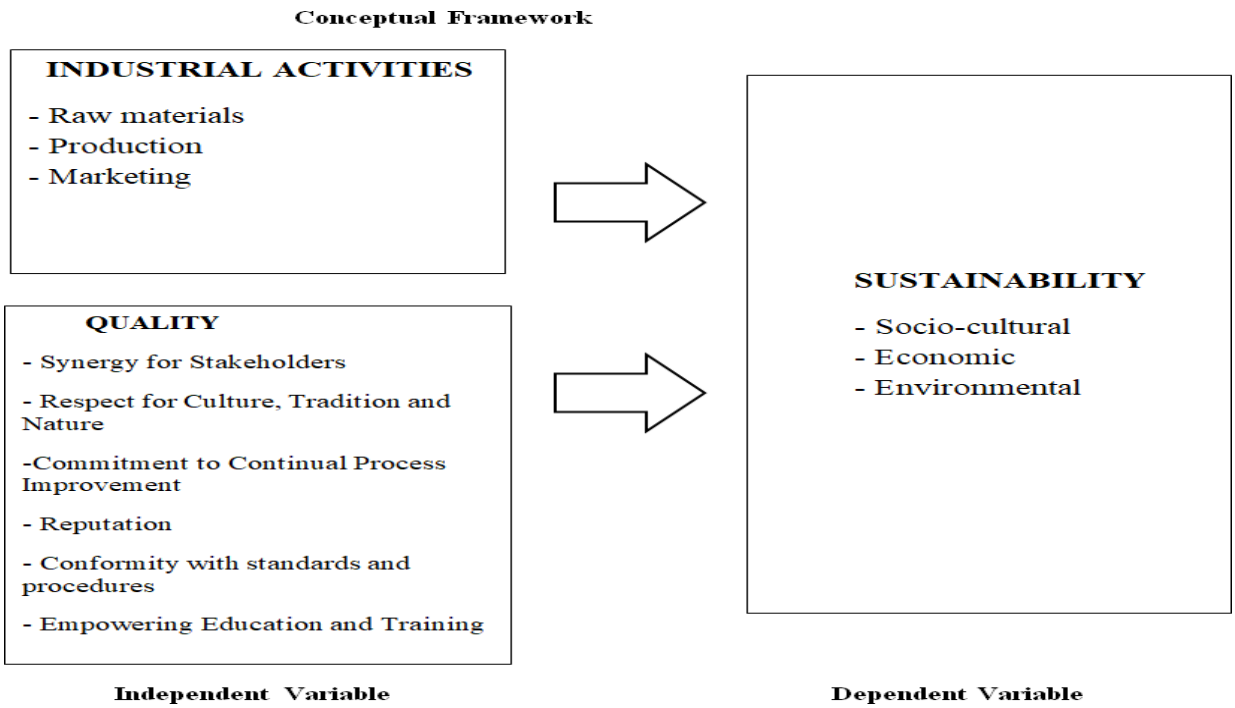



Figure 1. Conceptual Framework on the industrial activities, quality of inaul weaving and sustainability of Inaul industry in BARMM

The conceptual framework of this study illustrates the relationship between Industrial Activities, Quality of Inaul weaving, and the Sustainability of the Inaul industry in BARMM. Sustainability, the dependent variable, is assessed through three dimensions: socio-cultural, economic, and environmental. These dimensions reflect

the industry's ability to preserve cultural identity, support livelihoods, and maintain environmentally responsible practices. The independent variables include Industrial Activities—comprising raw materials, production, and marketing—and Quality of Inaul weaving, measured through stakeholder synergy, respect for culture, tradition, and nature, commitment to continual process improvement, reputation, conformity with standards and procedures, and empowering education and training. The framework shows that sustainability depends on the integration of well-managed industrial activities and culturally grounded quality practices, with each supporting and amplifying the other. The relationship depicted in the conceptual framework shows that Industrial Activities and Quality of Inaul weaving are the key drivers influencing the Sustainability of the Inaul industry in BARMM.

**Statement of the Problem and Objectives**

This study focused on the industrial activities, quality of inaul weaving, and sustainability of Inaul Industry in the BARMM. Specifically, it sought to answer the following questions:

1. What is the status of industrial activities in terms of (a) raw materials, (b) production, and (c) marketing?

2. What are the concepts on the "Quality" of Inaul?

3. What is the extent of sustainability of Inaul Industry in terms of (a) Socio-cultural, (b) Economic and (c) Environmental?

4. Do industrial activities, Quality of inaul weaving significantly influence the sustainability of the inaul industry?

5. What are the lived experiences of the participants on industrial activities, quality and sustainability?

6. How do qualitative results support the quantitative results?

**Hypothesis**

Ho1 – Industrial activities do not have a significant influence on the sustainability of the Inaul industry in BARMM.

Ho2 - The quality of Inaul weaving does not have a significant influence on the sustainability of the Inaul industry in BARMM.

**Significance of the study**

This study is significant for the weavers of Inaul, as it evaluates the sustainability of raw material acquisition and the production of woven products in accordance with established specifications and customer requirements in terms of design, materials, manufacturing processes, and management practices. The findings will equip them with the knowledge necessary to implement appropriate sustainable production procedures, thereby supporting the sustainability of Inaul weaving through labor regeneration and by strengthening connections with buyers beyond the BARMM region.

For Inaul retailers, this study is significant as it enhances their understanding of their vital role in the product's supply chain. It enables them to expand their market reach and access new business opportunities, while also encouraging continued support for weavers, particularly in promoting labor regeneration to ensure the sustainability of the industry.

For consumers, this study is significant as it promotes greater awareness of the proper care, handling, and cultural significance of Inaul textiles. This helps preserve product quality, prevent damage or misuse, and support fair pricing that reflects the craftsmanship and cultural value of Inaul weaving.

For the Inaul industry, this study is significant as it highlights the need for government agencies, local government units, and development partners to initiate financial support mechanisms, organize trainings, and creating organizations or associations that can address capital and material constraints, enabling weavers to sustain proper production processes that meet design, quality, and customer standards, thereby strengthening the overall sustainability of the Inaul industry.

For the Ministry of Trade, Investment, and Tourism (MTIT–BARMM), this study is significant as it provides a basis for enhancing programs that position Inaul weaving as both a cultural heritage product and a sustainable tourism attraction. It supports initiatives such as promoting the continued use of traditional looms, expanding participation in exhibitions and expos, and integrating Inaul into cultural tourism activities, thereby contributing to the preservation and revitalization of the centuries-old Maguindanaon weaving tradition.

Finally, for future researchers, this study is significant as it serves as a reference for identifying specific areas within the Inaul industry that require further investigation and improvement. It provides a foundation for advancing research on production processes, sustainability practices, marketing strategies, and cultural preservation, thereby contributing to the continuous development and strengthening of the Inaul industry.

**Operational Definition of Terms**

For the purpose of aiding clarity to the approach taken in this paper, the following definitions of key concepts are used:

**Economic factors -** the sustainability factor of inaul which includes livelihood to the community, ability to make decisions, additional income for women, additional business, enhancing skills, creating new jobs for the community, increase revenues for the community, product quality designs and access to resources and benefits.

**Environmental factors-** the sustainability factor of inaul which includes garbage disposal, clean water, peace and order, tourist, local livelihood, health and sanitation, environmental protection, environmental issues, economic opportunities and community identity.

**Inaul** – is a traditional hadwoven fabrics specific to Maguindanao. It is a combination of variety of woven patterns and designs.

**Inaul Industry-** a group of manufacturers or businesses that produce inaul products.

**Industrial activities-** the production process, raw materials handling and supplies and marketing strategies of Inaul weavers.

**Lived Experiences** – **person's** knowledge and experiences on creation, production and marketing Inaul (malong) .

**Marketing-** sets of activities that Inaul weavers adopt to fulfill the needs which will result in an increase in sales, profit maximization and sustainability. It is crucial for the success of the Inaul industry.

**Production -** the process of making or manufacturing Inaul products from raw materials. This includes the process of weaving, which involves using looms to hold the thread or yarn and can also be done by hand.

**Quality –** the standard of inaul as perceived by inaul weavers and retailers. It includes Synergy for Stakeholders, Respect for Culture, Tradition and Nature, Commitment to Continual Process Improvement, Reputation, Comformity with standards and procedures and Empowering Education and Traning

**Raw materials -** materials used for the production of Inaul malong, which includes cotton, rayon, silk and thread. These materials are essential for the creation of Inaul products.

**Retailers-** a person or business that buys Inaul from weavers and sells the product to other buyers.

**Resiliency** (**resilience**) **–** the ability of the inaul weavers and retailers to recover, adapt, and thrive in the face of challenges, stress, or adversity**.**

**Socio-cultural factors -** the sustainability factor of inaul which includes formation of a cooperative, networking, community kinship ties, community participation, community self-reliance, discipline and responsibility, collaboration and partnership, local culture and heritage, and community identity.

**Sustainability**- the ability to maintain or support the Inaul industry to achieve and maintain sustainable development through the Triple Bottom Line (TBL) or the three pillars, which are economic performance (profit), social performance (people), and environmental performance (planet) (Elkington, 2018).

**Weavers -** individual/s who weaves the Inaul fabric. They are the skilled craftsmen who create the Inaul products.

**Weaving -** the craft of lacing fibers together to male fabric or cloth. It involves using loom to hold the thread or yarn, and can also be done by hand. This process is a crucial part of the Inaul production process.

## METHOD

This chapter presents the discussion of the research design, participants, setting, measures, data collection, data analysis, and limitations of the study. It also includes sequence, emphasis and mixing procedures, and the figures of procedures.

### Design

The study utilized a Sequential Explanatory Design to obtain a comprehensive understanding and conduct an objective analysis of industrial activities and quality of inaul weaving and the sustainability of inaul industry in BARMM. The schematic representation of this research design is presented in Figure 2.

In the first phase, quantitative data were gathered and analyzed using a survey questionnaire to assess the status of industrial activities, quality of inaul weaving and sustainability. In the second phase, qualitative data were collected through in-depth interviews (IDI) and focus group discussions (FGD) to explore participants' perspectives and lived experiences regarding sustainability. The qualitative findings were then used to explain and support the quantitative results. Both data sets were given equal importance, conducted sequentially, and analyzed independently before being integrated for interpretation (Creswell & Plano Clark, 2018).

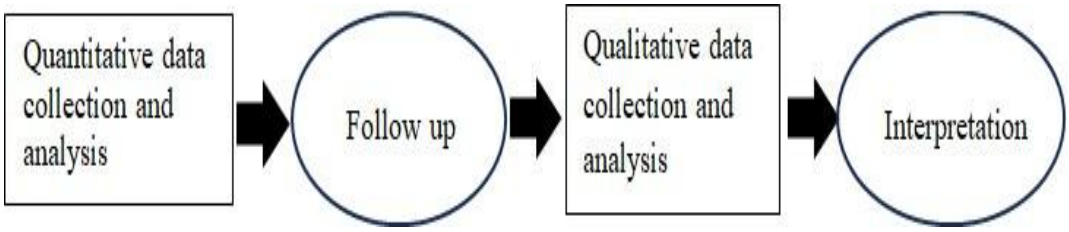



Figure 2. Explanatory Sequential Design (Creswell and Plano Clark, 2018)

The researcher employs a descriptive-correlational design in the quantitative strand of the study. This non-experimental study helped predict and explain the relationship between variables, specifically how industry activities and quality of inaul affects the sustainability of inaul industry.

In the qualitative strand, phenomenology was employed as a philosophy and investigative technique. To achieve this, in-depth interviews and focused group discussions was conducted to gather the views of participants on the issues that emerged from the quantitative results. The qualitative findings were used to support the explanation and interpretation of the quantitative investigation (Bowen et al., 2017; Qutoshi, 2018)

**Participants**

This section discusses the participants in the quantitative and qualitative phases of the study. Their involvement is essential in producing the data required to enhance the understanding on the study and to fulfill the study's objectives.

**Quantitative Strand**

A total of two hundred (200) respondents took part in the study, composed of weavers, retailers and inaul dress designers. The participants were chosen through purposive sampling, a non-probability technique that selects individuals based on specific criteria aligned with the study's objectives. Table 1 presents the aggregate count of respondents with their position in the industry and location.

Table 1. Number of Respondents per Location and Position in the Industry

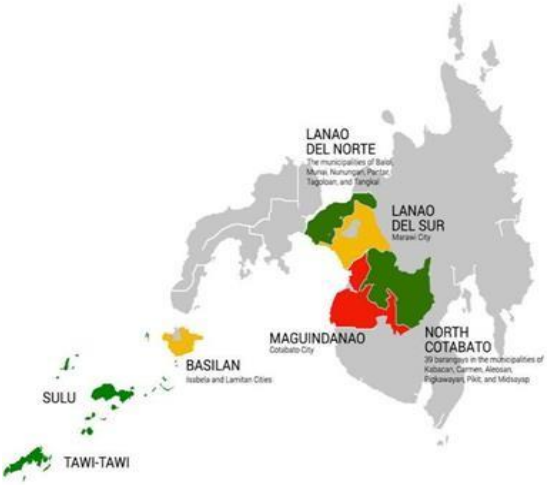
| Position in the Industry | Cotabato | D.O.S | Sultan Kudarat | North Cotabato | Datu Piang |
|---|---|---|---|---|---|
| Weavers | 3 | 15 | 35 | - | 102 |
| Retailers | 31 | 2 | 3 | 1 | 1 |
| Designers | 6 | - | 1 | - | - |
| **TOTAL** | **40** | **17** | **39** | **1** | **103** |

**Qualitative Strand**

The participants who took part in the focus group discussions and in-depth interviews were selected randomly using a random number generator. The weavers, retailers, and Inaul dress designers who were part of the quantitative study also served as participants in the qualitative phase. To allow for a more in-depth examination of the qualitative data, a total of ten (10) participants underwent in-depth interviews. Additionally, seven (7) participants took part in the Focus Group Discussion (FGD) to explore the qualitative aspects of industrial activities, quality, and sustainability of the Inaul industry.

**Locale of the Study**

The study was conducted at the selected Inaul weaving centers/areas that are actively operating in BARMM (map shown in Figure 3). Specifically, they are in key areas where several inaul weavers, retailers and designers are in Sultan Kudarat, Maguindanao Del Norte, Al-Jamelah Weaving Center, Datu Odin Sinsuat, Maguindanao Del Norte, Montay, Datu Piang, Maguindanao Del Sur, Balong, Datu Piang, Maguindanao Del Sur and Cotabato City. Thus, they are engaged in the production and distributing "Inaul".



Source: Wikipedia and Globalsecurity.org

Figure 3. Map of the BARMM and Maguindanao

**Measures**

This section focused on the instruments used in gathering the essential quantitative and qualitative data of this study.

**Quantitative Strand**

The research study utilized an adapted survey questionnaire employing 5-point Likert scale. The questionnaire has four parts. Part 1 is the Respondent's Profile which includes the name of respondents (optional), age, address, number of year/s in inaul industry and position/identity in the industry. Part 2 of the questionnaire focused on Industrial activities of Inaul weaving in BARMM which was adapted from "The value chain analysis of weaving industry" of Rini and Budiani (2018). It was composed of 9 items, which were divided into 3 parts— raw materials, production and marketing. Part 3 focused on the concept of weavers and retailers on "Quality" in Weaving Industry. The questionnaire was adapted from "The Interpretation of Quality in the Sustainability of Indonesian traditional weaving" of Semuel et.al, (2022). It was composed of 21 items, which is divided into 6 parts- commitment to continual process improvement, respect for traditional culture and nature, reputation, conformity with standard operating procedure, synergy of stakeholders and empowering education and training. Finally, Part 4 focused on the Sustainability Factors of Weaving Industry. The survey questionnaire was adapted from "Sustainability factors of Yakan Weaving for Community Economic Development" of Salang (2011) composed of 30 items, which is divided into 3 parts—socio cultural factors, economic factors and environmental factors. The study used a survey method with a five-point scale by Renis Likert (1981) to gather data.

**Industry Activities Scale**

The survey questionnaire for Industry Activities was adapted from the value chain analysis of weaving industry of Rini and Budiani (2018) composed of 9 items, which were divided into 3 parts— raw materials, production and marketing. The ratings were described using the interpretation matrix as follows:

| ***Range of Means*** | ***Description*** | ***Interpretation*** |
|---|---|---|
| 4.20-5.00 | High | Always evident |
| 3.40 – 4.19 | Above Average | Oftentimes evident |
| 2.60 – 3.39 | Average | Fairly evident |
| 1.80 – 2.59 | Low | Rarely evident |
| 1.00 – 1.79 | Very low | Not evident at all. |

**Quality Scale**

The survey questionnaire for the Quality of Inaul was adapted from The Interpretation of Quality in the Sustainability of Indonesian traditional weaving of Semuel et.al, (2022), which is composed of 21 items, which is divided into 6 parts- commitment to continual process improvement, respect for traditional culture and nature, reputation, conformity with standard operating procedure, synergy of stakeholders and empowering education and training. The ratings were described using the interpretation matrix as follows:

| ***Range of Means*** | ***Description*** | ***Interpretation*** |
|---|---|---|
| 4.20-5.00 | High | Always evident |

| | | |
|---|---|---|
| 3.40 – 4.19 | Above Average | Oftentimes evident |
| 2.60 – 3.39 | Average | Fairly evident |
| 1.80 – 2.59 | Low | Rarely evident |
| 1.00 – 1.79 | Very low | Not evident at all. |

**Sustainability Scale**

The survey questionnaire for the Sustainability factors of Inaul was adapted from Sustainability factors of Yakan Weaving for Community Economic Development of Salang (2019) composed of 30 items, which is divided into 3 parts—socio cultural factors, economic factors and environmental factors. The interpretation will be done using the following matrix:

| ***Range of Means*** | ***Description*** | ***Interpretation*** |
|---|---|---|
| 4.20 – 5.00 | High | Always practiced |
| 3.40 – 4.19 | Above Average | Oftentimes practiced |
| 2.60 – 3.39 | Average | Fairly practiced |
| 1.80 – 2.59 | Low | Rarely practiced |
| 1.00 – 1.79 | Very low | Not practiced at all |

**Qualitative Strand**

The guide questions for the in-depth interviews and targeted group discussions for the study's qualitative strand were developed using the quantitative data as a basis. It was used to ascertain the participants' perspectives on the extent and status of industrial activities, quality and sustianability of inaul industry. The guiding questions underwent content validation by three (3) experts in the research field.

**Validity and Reliability**

**Validity**

The questionnaires used in this study were subjected to content validation by three (3) research experts: Dr. Harold Fernandez and Dr. Hasna P. Lidasan, and Romeo Diocolano, MBA. The validators confirmed that the instrument was appropriate for generating accurate and relevant data on the study's specific variables and for effectively fulfilling the overall research objectives. The purpose of establishing validity is to ensure that the questionnaire accurately measures the intended concepts, producing reliable and meaningful data for addressing the research questions.

For the in-depth interviews and focus group discussion, three research experts – Dr. Nancy Alombro, Dr. Emraida C. Ali and Dr. Noraida C. Ali, reviewed and validated the interview guide questions to explore participants' perspectives on the status of industrial activities, the concept of quality, the extent of sustainability, and its significant influences. The validators ensured that the instrument was appropriate for generating meaningful descriptions of the study's specific variables and for achieving the overall research objectives.

**Reliability**

Pilot testing with 30 respondents was also conducted to ensure the reliability of the instrument. The validators confirmed that the instrument was suitable for producing accurate and relevant descriptions of the study's specific variables and for effectively addressing the overall research objectives. In essence, the goal of establishing reliability in research is to guarantee that the findings are accurate and the data are reliable and

repeatable. Table 2 presents the reliability test result of questionnaires used in the study highlighted the number of items and Cronbach alpha.

Table 2. Reliability Test Result of Questionnaire

| **Indicators** | **Number of Items** | **Cronbach Alpha *(a)*** |
|---|---|---|
| Industrial Activities | 10 | .928 |
| Quality | 21 | .965 |
| Sustainability | 30 | .943 |
| **Total Number of Items** | | **61** |

The instrument underwent reliability analysis and indicated a high Cronbach alpha value for every dimension, Industrial activities with (*a*=.928), Quality (*a*=.965) and Sustainability (*a*=.943). This indicates excellent internal consistency (George & Mallery, 2003). This suggests that the items reliably measure the same construct, with no single item significantly reducing the overall reliability. The result confirms that the instrument is stable, consistent, and appropriate for use in this study.

**Procedure**

This section focused on specific steps involved in gathering the data required for the study. Given that this research is explanatory in nature, the quantitative component of the study was primary emphasis of data collection, with qualitative information obtained through focus group discussions and in-depth interviews.

**Quantitative Strand**

The researcher personally sought permission from the Ministry of Investment and Tourism-BARMM to obtain the list of Inaul weaving centers and weavers in Maguindanao and was subsequently referred to the President of the Inaul Weaving Association.

Following the identification of the respondents, the researcher wrote to the graduate school dean requesting permission to conduct the study, with the adviser's consent. Upon approval, each respondent received an official letter from the researcher. Each participant was approached personally by the researcher during the administration of the survey. Prior to administering the survey questionnaires, participants were asked to provide their informed consent, and any queries or concerns were addressed. The goals of the study were explained to the participants. They were assured by the researcher that their answers would be kept private and anonymous. The distribution and retrieval processes took approximately two months to complete.

**Qualitative Strand**

The self-made interview guide questions for the second phase were generated based on the quantitative data. The participants who took part in the focus group discussions and in-depth interviews were selected randomly using a Random number generator.

Ten (10) participants in the in-depth interview were allowed to select the time and location that worked best for them to concentrate on the topics being covered. The researcher began the interview by outlining the goal of the investigation. A voice recorder was used to record and transcribe the conversations once informed consent had been obtained. Participants were assured that the transcripts would be sent to them for verification.

Conversely, the FGD with seven (7) participants took place at one of the study locations - Balong Datu Piang, Maguindanao Del Sur. The Focus Group Discussion (FGD) began once each participant had signed the Informed Consent Form (ICF). The facilitator was the researcher. Before allowing each participant to respond,

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

the researcher red each guide question twice and ensured that the necessary follow-up questions were asked to elicit meaningful information from the participants.

**Figure of Procedure**

*Figure 4* showed the flow of the mixed methods technique, specifically the explanatory-sequential design. The figure indicated that gathering quantitative data was the first step in the study's implementation, followed by data analysis. Afterward, participants for the IDI and FGD were selected in accordance with the predetermined criteria, and the guiding questions were developed based on the salient features of the quantitative results. The collection and examination of the qualitative data came next. To determine whether the qualitative data supported or refuted the quantitative findings, the quantitative and qualitative data were integrated.

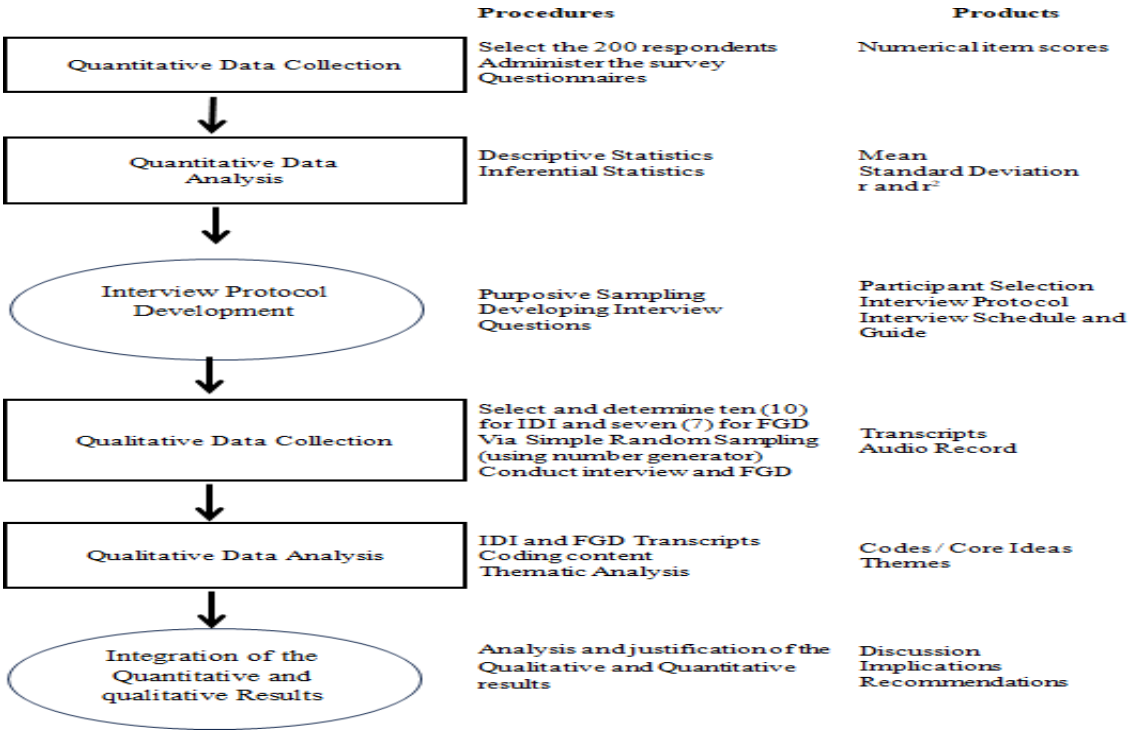



Figure 4. Flow of Procedure

**Data Analysis**

The procedure for evaluating the information produced by the quantitative and qualitative strands was covered in this section. To provide accurate and trustworthy results, the appropriate instruments were used.

**Quantitative Strand**

The quantitative data was analyzed using the following statistical tools: mean, multiple regression, correlation analysis and standard deviation. Sustainability, the dependent variable, is assessed through three dimensions: socio-cultural, economic, and environmental. These dimensions reflect the industry's ability to preserve cultural identity, support livelihoods, and maintain environmentally responsible practices. The independent variables include Industrial Activities—comprising raw materials, production, and marketing—and Quality of Inaul weaving, measured through stakeholder synergy, respect for culture, tradition, and nature, commitment to continual process improvement, reputation, conformity with standards and procedures, and empowering education and training.

The mean was used to determine the level of industrial activities, quality, and sustainability of Inaul weaving. Reverse coding was applied to negatively worded items on environmental dimensions to ensure consistency in the direction of responses. The participants' variability response was evaluated using standard deviation. Regression was conducted to determine which elements were most significant and how these factors

interacted. Regression analysis also helped the researchers understand the relationships between the different variables and the outcomes. Additionally, regression analysis can assist researchers in comprehending the relationships between various factors and the results (Alchemer, 2020).

The relationship between the independent and dependent variables was ascertained using Pearson's r correlation analysis. It helps determined whether industrial activities and quality had a significant impact on the sustainability of Inaul in BARMM.

**Qualitative Strand**

The researcher analyzed the qualitative data using data reduction, coding, and thematic analysis. The purpose of thematic analysis was to identify patterns of meaning within the collected data that addressed the research problem. This involved a systematic process of familiarizing with the data, coding, developing themes, and reviewing them.

The researcher first organized the gathered information through the initial cycle of coding. This included transcribing the recorded data from the IDI and FGD verbatim in the original dialect and translating it into English so that readers unfamiliar with the vernacular could understand the participants' responses.

Next, the researcher organized and reduced the qualitative data relevant to the research questions to maintain the natural flow of the interviews. Any unnecessary or unrelated details provided by the participants were removed while preserving the intended meaning of their responses.

During the second cycle of coding, the researcher restructured and reexamined the data and explored the relationships among categories to form a coherent synthesis. Recurring themes were then identified and grouped according to the study's conceptual framework. Finally, thematic analysis was employed as the primary method of interpreting the qualitative data. It places a strong emphasis on finding, evaluating, and deciphering meaningful patterns in qualitative data (Braun and Clarke, 2019).

**Sequence, Emphasis, and Mixing Procedures**

Mixed methods help further implementation research by supplying data on the fundamental elements that are used, by whom, and for what reasons (quantitative approaches) in order to create treatments that are durable and tailored to the practice setting. Because the intervention or implementation components are created while eliciting the experiences of the people in the contexts in which the interventions are to be carried out, it can facilitate movement of interventions along the translational continuum. Researchers can more easily ease translation by combining classic epidemiological and quantitative research methods with qualitative data and study through the conceptual and analytical integration of mixed methods. Because it integrates paradigms, research may be done from both an inductive and a deductive standpoint, which allows for the combination of theory development and hypothesis testing in a single study (Jogulu and Pansiri, 2011). Consequently, the study employed the following sequencing, emphasis, and mixing approaches.

**Sequence**

The collection of quantitative data was the first step in the study's sequence. Using customized survey questionnaires, the industrial activities (raw materials acquisition, production and marketing), quality and sustainability of Inaul in BARMM were assessed. Although the qualitative guiding questions were developed from the quantitative results, each strand was conducted independently. After the quantitative data analysis, the FGD and in-depth interviews were carried out. Potential participants were drawn from among the survey respondents.

**Emphasis**

The quantitative approach was emphasized in this explanatory sequential study. The data pertained to the industry activities, quality of Inaul, and the sustainability of the Inaul industry in BARMM.

### Mixing Procedure

In this study, the quantitative and qualitative data were related. Hence, mixing techniques were considered when developing the objectives and research questions.

### Limitations of the Study

This study was limited to assessing the sustainability of Inaul in BARMM in relation to the quality of inaul weaving and the industry activities of Inaul, specifically in raw materials, production, and marketing. Furthermore, the respondents of this study were limited to the weavers, retailers, and inaul dress designers in BARMM.

Additionally, as guidance for the research design and practices employed in the study, the following ethical considerations were taken into account: risk assessment, potential benefits, withdrawal, data privacy and confidentiality, incentives, and disclosure of potential conflicts of interest.

### Ethical Considerations

**Risk Assessment.** The researcher ensured that the study was conducted in accordance with ethical standards. Approval from the CRMC Research Ethics Review Committee was obtained prior to the conduct of the study.

**Potential Benefits.** The researcher ensured that the results of the study were shared with the Ministry of Trade, Investment, and Tourism (MTIT)-BARMM and MTIT-Maguindanao. The findings aimed to support the revival of the centuries-old production of colorful Maguindanaon Inaul fabric using traditional looms, which are prototypes of those used by weavers in the past century, and to promote the sustainability of Inaul for tourism. The study enhanced the sustainability of Inaul weaving by guiding weavers in proper production practices aligned with design, material, and customer requirements, while connecting them to buyers outside BARMM. It also helped retailers recognize the value of Inaul, expand market opportunities, and support the industry. By fostering continued support and awareness, the study promoted Inaul weaving as a culturally significant and viable livelihood for local communities.

**Withdrawal.** To uphold ethical standards, protect participant rights, and ensure the scientific validity of the study, participants were allowed to withdraw at any time. Informed consent was obtained prior to the distribution of instruments, and the researcher clearly explained that participants could leave the study without any repercussions to avoid misunderstandings.

**Data Privacy and Confidentiality.** The researcher ensured that all collected data were transcribed and stored securely in password-protected Microsoft storage. Electronic data were to be deleted after the completion of the study, and any hard copies stored on drives were to be destroyed after five years.

**Incentives.** No compensation was provided to participants. Participation was voluntary, and informed consent clearly stated their rights to participate or withdraw during the study.

**Disclosure of Potential Conflict of Interest.** The researcher declared that no conflict of interest existed, either financial or sponsorship-related, from any private or public entity. The study was conducted solely to fulfill the requirements for the Doctor of Business Administration at Notre Dame University

## RESULTS & DISCUSSIONS

In this chapter, the findings are organized according to the study's objectives. The quantitative strand explored several dimensions related to industrial activities, the quality of Inaul, and the sustainability of the Inaul industry. This includes assessing the industry's current status in terms of raw materials, production, and marketing. It also examined indicators of weaving quality, such as stakeholder synergy, respect for cultural and natural traditions, commitment, reputation, adherence to standard operating procedures, and access to education and training. Additionally, the study evaluated sustainability across economic, socio-cultural, and environmental aspects.

Meanwhile, the qualitative strand investigated the participants' real-life practices and challenges concerning industrial activities, the quality of Inaul weaving, and the sustainability of the industry. It further captured the lived experiences of the weavers as they engage with and navigate these components of the Inaul weaving industry.

## Quantitative Results

### 1. Status of Industrial Activities in terms of raw materials, production and marketing

Table 3 presents the results for the indicators of industrial activities in Inaul weaving in BARMM. In terms of raw materials, limited financial resources that restrict the purchase of supplies obtained the highest mean (M = 3.62), this suggests that financial constraints are a common and significant challenge among respondents. The relatively moderate standard deviation indicates that many share this experience, though the extent may vary. On the other hand, reliance on distributors recorded the lowest mean (M = 2.43), suggesting that participants generally perceive a low dependence on distributors within their community and obtain materials through alternative sources or independent means.

For production, the statement "productivity is low due to the use of traditional handlooms" registered the highest mean (M = 3.67), implying that the use of traditional handlooms limits the production of Inaul textiles. Meanwhile, "limited years of experience in weaving reduce productivity" had the lowest mean (M = 3.18), suggesting that lack of experience has a comparatively smaller effect on production.

Lastly, in terms of marketing, the statement "most weavers sell the final product through distributors and retailers" received the highest mean (M = 3.34), indicating that distributors and retailers play a significant role in bringing Inaul products to end consumers. On the other hand. The result indicates that "limited marketing opportunities for the product" **are** fairly evident (M = 2.98, SD = 1.55). This suggests that while some market access exists, it is not sufficient or fully developed, restricting the ability of weavers to expand their reach. The relatively high standard deviation shows varied experiences among respondents, meaning some have better access to markets than others.

Overall, the results suggest that challenges related to raw material acquisition, production, and marketing exist to a moderate extent and are fairly evident in the operations of the Inaul weaving industry in BARMM.

Table 3. Status of Industrial activities of Inaul weavers in BARMM

| Items | Mean | SD | Description |
|---|---|---|---|
| **Raw materials** | **3.03** | **1.49** | **Average / Fairly Evident** |
| Most weavers in our community rely on distributors for raw materials | 2.43 | 1.64 | Low / Rarely Evident |
| The price of raw materials has significantly increased | 2.93 | 1.44 | Average / Fairly Evident |
| Raw materials are often not readily available | 3.15 | 1.46 | Average / Fairly Evident |
| Limited resources affect my ability to purchase raw materials | 3.62 | 1.40 | Above Average /Oftentimes Evident |
| **Production** | **3.42** | **1.51** | **Above Average /Oftentimes Evident** |
| Productivity is low due to the use of traditional handlooms | 3.67 | 1.49 | Above Average /Oftentimes Evident |
| Most weavers are elderly, which affects weaving productivity | 3.41 | 1.47 | Above Average /Oftentimes Evident |
| Limited years of experience in weaving reduce productivity | 3.18 | 1.56 | Average / Fairly Evident |
| **Marketing** | **3.18** | **1.56** | **Average / Fairly Evident** |
| Limited marketing opportunities for the product | 2.98 | 1.55 | Average / Fairly Evident |
| Minimal use of digital tools in marketing | 3.23 | 1.52 | Average / Fairly Evident |
| Most weavers sell the final product through distributors and retailers | 3.34 | 1.61 | Average / Fairly Evident |

| Scale | Range of Means | Description |
|---|---|---|
| 5 | 4.20-5.00 | Always evident |
| 4 | 3.40- 4.19 | Oftentimes evident |
| 3 | 2.60-3.39 | Fairly evident |
| 2 | 1.80-2.59 | Rarely evident |
| 1 | 1.00-1.79 | Not evident at all |

**Summary of the Status of Industrial Activities**

Table 4 presents the summary of the overall mean scores for the status of raw materials, production, and marketing of Inaul. The table shows a grand mean of 3.21, indicating that challenges in industrial activities are fairly evident. Among the three areas, challenges on production obtained the highest overall mean score of 3.42, followed by marketing with a mean of 3.18 and raw materials recorded the lowest mean of 3.03.

Table 4. Summary of the status of Industrial activities

| **Industrial Activities Mean** | **Overall** | **Description** |
|---|---|---|
| Raw materials | 3.03 | Average / Fairly Evident |
| Production | 3.42 | Above Average / Oftentimes Evident |
| Marketing | 3.18 | Average / Fairly Evident |
| **GRAND MEAN** | **3.21** | **Average / Fairly Evident** |

| Scale | Range of Means | Description |
|---|---|---|
| 5 | 4.20-5.00 | Always evident |
| 4 | 3.40- 4.19 | Oftentimes evident |
| 3 | 2.60-3.39 | Fairly evident |
| 2 | 1.80-2.59 | Rarely evident |
| 1 | 1.00-1.79 | Not evident at all |

**Discussion**

These results suggest that the availability and affordability of materials pose continuing challenges for Inaul weavers. Most respondents indicated partial dependence on distributors rather than direct sourcing, a pattern typical of small-scale craft enterprises that cannot stock large inventories or establish supplier contracts. This dependence exposes them to fluctuating prices and delays in delivery, conditions that can slow production and narrow profit margins. The data imply that while the weaving activity remains steady, material constraints hinder efficiency and overall output quality.

Caniato et.al (2019) mentioned that industry rely on external partners to produce their products using raw materials and often sourced from distant locations and subcontracting different production activities to different companies scattered across the world (Caniato et.al, 2019). Masyarakat et al. (2018) observed that weaving communities relying on external distributors often face unstable supply chains. Similarly, Alauya (2020) pointed out that limited access to essential materials reduces artisans' autonomy and limits innovation. Srivastava and Saxena (2022) added that community-based approaches to managing raw materials are critical to ensure both sustainability and independence in traditional textile industries.

Fitri (2023) mentioned that limited financial literacy and management skills among weavers impede their ability to respond effectively to market conditions, often resulting in poor investment choices and unsustainable operations. This deficiency may also prevent weavers from taking advantage of opportunities to secure better prices or acquire materials more efficiently. Moreover, Liton (2016) emphasizes that government support is essential in helping weavers strengthen their financial management skills, which is vital for ensuring the long-term sustainability of the handloom sector. Without adequate financial oversight, weavers face increasing difficulty in coping with rising raw material costs and the growing pressures of market competition.

The results highlight that most Inaul producers continue to rely on handlooms rather than mechanized processes. The predominance of older weavers also suggests that knowledge transfer to younger generations is uneven. Without structured training or recruitment of younger artisans, there is a risk that weaving productivity will gradually decline. Sustaining production in the long term therefore requires both the modernization of tools and the cultivation of future practitioners who can balance innovation with traditional methods.

These findings are comparable with those of Fitri (2023) and Banerjee and Chakrabarti (2022), who noted that heritage-based weaving sectors often rely on aging craftspeople using manual techniques, resulting in low productivity. Rini and Budiani (2018) further stressed that modernization, when carefully integrated with cultural traditions, can help preserve artistry while enhancing efficiency and stability of production.

The data also suggest that most artisans rely on intermediaries—such as local distributors and retailers—to sell their products. While this arrangement enables access to markets, it also limits profit margins and prevents weavers from establishing brand identity or direct relationships with buyers. The relatively modest use of digital marketing tools further reveals a gap in technological skills and entrepreneurial awareness. The findings imply that the industry's reach is primarily local, and without stronger marketing initiatives or digital engagement, its visibility beyond the region remains constrained.

Existing studies indicate that although intermediaries play a crucial role in providing market access and facilitating the flow of products, their involvement often results in lower profit margins for artisans and reduced control over pricing, branding, and customer relations (Masyarakat et al., 2018). This reliance on intermediaries' further limits weavers' ability to develop a distinct brand identity and obtain direct market feedback, thereby weakening their entrepreneurial capacity (Banerjee & Chakrabarti, 2022). In addition, the limited use of digital marketing platforms highlights deficiencies in technological skills and marketing awareness, a common issue in traditional craft industries where restricted training opportunities and low familiarity with digital tools hinder broader market expansion (Luo et al., 2020). As such, the literature reinforces the conclusion that the industry's market reach remains predominantly local, and without enhanced marketing initiatives and greater digital engagement, the visibility and competitiveness of Inaul products beyond the region will continue to be limited.

Thus, the results across the three industrial dimensions—production, marketing, and raw materials—show that that the Inaul weaving industry continues to operate through cultural persistence but faces recurring challenges related to material sourcing, marketing exposure, and limited technological advancement. These results affirm Srivastava and Saxena's (2022) assertion that the sustainability of traditional crafts depends on balanced improvements in production efficiency, material management, and market integration.

**2. Concepts on the "Quality" of Inaul of Inaul weaving**

Table 5 presents the results for the indicators on the concept of quality of Inaul weaving in BARMM. **For Synergy of Stakeholders**, strong bond between weavers received the highest mean (M = 3.66), these results point to an industry sustained mainly through personal and community-based partnerships. Collaboration among weavers appears active, reflecting mutual trust and shared goals in preserving the craft. On the other hand, economic capital support achieved the lowest (M = 2.62), indicating a lack of financial and institutional involvement. Limited access to credit and external funding continues to hinder expansion and the adoption of improved technology.

For Respect for Traditional Culture and Nature, the statement on maintaining the use of traditional looms ranked the highest (M = 4.11), while the exploration of natural coloring materials received the lowest (M = 3.31). The figures highlight the strong cultural attachment that defines the Inaul weaving community. Weavers continue to rely on traditional handlooms, reflecting a deep respect for heritage and craftsmanship passed down through generations. This commitment to traditional practice preserves the authenticity of the fabric and reinforces its symbolic importance within the community. At the same time, the lower rating for the use of natural dyes indicates that environmental sustainability, although acknowledged, has not yet become a consistent aspect of production.

For Commitment to Continual Process Improvement, the highest scores were obtained for continuous experimentation in developing new motifs (M = 3.81) and for craftsmanship attributes such as patience,

tenacity, and attention to detail (M = 3.81). Independence in sourcing raw materials received the lowest mean (M = 2.98). The findings portray the Inaul weaving industry as a creative and collaborative community where artisans frequently share skills and experiment with designs. The emphasis on experimentation and craftsmanship reflects both innovation and respect for tradition. Weavers demonstrate strong commitment to improving their techniques and aesthetic range, but their ability to innovate is still limited by dependence on external suppliers of raw materials. This constraint affects the pace of improvement despite the artisans' motivation and creativity.

For Reputation, "weaving reflects the community's image" received the highest mean (M = 3.90), while "high selling value of weaving" had the lowest (M = 3.26). The Inaul weaving holds a strong symbolic and cultural value within the community. It is widely perceived as a source of local pride and a reflection of collective identity. The recognition of the craft by both government institutions and international audiences supports its role as a cultural emblem of BARMM. However, despite this symbolic prestige, the financial rewards remain modest. The relatively low rating for the selling value of woven products suggests that market prices do not fully reflect the cultural and artistic labor invested in each piece.

For Conformity with Standard Operating Procedure, the item concerning "efficient and effective production performance" obtained the highest mean (M = 3.87), while "standardization of weaving production processes" obtained a lower score (M = 3.33). These results indicate that Inaul weavers demonstrate a consistent level of discipline and quality control, even without formalized production systems. Efficiency is maintained largely through the artisans' personal skill and experience rather than standardized procedures. The community's strong craftsmanship traditions help preserve uniformity in the output, but the absence of written or formal guidelines limits the ability to scale operations or transfer best practices systematically.

For Empowering Education and Training, the statement on "mentoring and training to increase the capacity of weavers" obtained higher mean (M = 2.86) while "educating consumers on how to care for woven cloths properly" recorded the lowest mean (M = 2.46). The educational and training activities within the Inaul weaving sector remain limited. While most artisans possess valuable hands-on knowledge passed through generations, structured learning programs—such as formal training, design workshops, or consumer education—are scarce. As a result, both artisans and buyers have uneven awareness of product care, quality standards, and innovation processes.

Overall, the results indicate that the concept of quality on inaul weaving in terms of Synergy of Stakeholders, Respect for Traditional Culture and Nature, Commitment to Continual, Process Improvement, Reputation, Conformity with Standard Operating Procedure and Empowering Education and Training is present and clearly evident.

Table 5. The concept of "Quality" for Inaul weaving

| *Items* | *Mean* | *SD* | *Description* |
|---|---|---|---|
| ***Synergy of Stakeholders*** | ***3.27*** | | ***Average / Fairly Evident*** |
| Economic capital support | 2.62 | 1.61 | Average / Fairly Evident |
| Cooperation with stakeholders such as designers | 3.49 | 1.37 | Above Average / Oftentimes Evident |
| Strong bond between weavers | 3.66 | 1.36 | Above Average / Oftentimes Evident |
| Legal protection for weaving works | 3.31 | 1.56 | Average / Fairly Evident |
| ***Respect for Traditional Culture and Nature*** | ***3.64*** | | ***Above Average / Oftentimes Evident*** |
| Maintain the use of traditional looms | 4.11 | 1.18 | Above Average / Oftentimes Evident |
| Exploration of natural coloring materials to preserve sustainability | 3.31 | 1.53 | Average / Fairly Evident |
| Exploration of motifs based on local wisdom | 3.66 | 1.46 | Above Average / Oftentimes Evident |
| ***Commitment to Continual Process Improvement*** | ***3.61*** | | ***Above Average / Oftentimes Evident*** |
| Collaboration of knowledge, experience, and skills in weaving | 3.73 | 1.29 | Above Average / Oftentimes Evident |
| Continuous experimentation to develop new motifs | 3.81 | 1.19 | Above Average / Oftentimes Evident |
| Patience, tenacity, thoroughness, and skill in weaving | 3.81 | 1.27 | Above Average / Oftentimes Evident |
| Independence in finding raw materials for weaving | 2.98 | 1.46 | Average / Fairly Evident |
| The combination of color and variety of motifs | 3.63 | 1.42 | Above Average / Oftentimes Evident |
| Innovation and creativity | 3.70 | 1.30 | Above Average / Oftentimes Evident |
| ***Reputation*** | ***3.59*** | | ***Above Average / Oftentimes Evident*** |
| The high selling value of weaving | 3.26 | 1.48 | Average / Fairly Evident |
| Weaving reflects the community's image | 3.90 | 1.19 | Above Average / Oftentimes Evident |
| International recognition for weaving | 3.60 | 1.36 | Above Average / Oftentimes Evident |
| Recognition of weaving by the government | 3.57 | 1.36 | Above Average / Oftentimes Evident |
| ***Conformity with Standard Operating Procedure*** | ***3.60*** | | ***Above Average / Oftentimes Evident*** |
| Standardization of weaving production processes | 3.33 | 1.49 | Average / Fairly Evident |
| Efficient and effective production performance | 3.87 | 1.31 | Above Average / Oftentimes Evident |
| ***Empowering Education and Training*** | ***2.66*** | | ***Average / Fairly Evident*** |
| Educate consumers on how to care for woven cloths properly | 2.46 | 1.60 | Low / Rarely Evident |
| Mentoring and training to increase the capacity of weavers | 2.86 | 1.47 | Average / Fairly |

| Scale | Range of Means | | Description |
|---|---|---|---|
| 5 | 4.20-5.00 | | Always evident |
| 4 | 3.40- 4.19 | | Oftentimes evident |
| 3 | 2.60-3.39 | | Fairly evident |
| 2 | 1.80-2.59 | | Rarely evident |
| 1 | 1.00-1.79 | | Not evident at all |

**Summary of the Concept on Quality**

Table 6 presents the summary of the overall mean scores for the concept of quality in relation to Synergy of Stakeholders, Respect for Traditional Culture and Nature, Commitment to Continual, Process Improvement, Reputation, Conformity with Standard Operating Procedure and Empowering Education and Training. The table shows a grand mean of 3.43, indicating quality in Inaul weaving is Oftentimes evident. Among the six areas, Respect for Traditional Culture and Nature obtained the highest overall mean score of 3.64, followed by Commitment to Continual Process Improvement with a mean of 3.61, Conformity with Standard Operating Procedure with a mean of 3.60, Reputation with a mean of 3.59, Synergy of Stakeholders with a mean of 3.27. Finally, Empowering Education and Training obtained the lowest mean of 2.66.

Table 6. Summary of the concept on Quality

| **Concept on Quality** | **Overall Mean** | **Description** |
|---|---|---|
| Synergy of Stakeholders | 3.27 | Average / Fairly Evident |
| Respect for Traditional Culture and Nature | 3.64 | Above Average / Oftentimes Evident |
| Commitment to Continual Process Improvement | 3.61 | Above Average /Oftentimes Evident |
| Reputation | 3.59 | Above Average / Oftentimes Evident |
| Conformity with Standard Operating Procedure | 3.60 | Above Average / Oftentimes Evident |
| Empowering Education and Training | 2.66 | Average / Fairly Evid |
| **GRAND MEAN** | **3.43** | **Above Average / Oftentimes Evident** |

| Scale | Range of Means | | Description |
|---|---|---|---|
| 5 | 4.20-5.00 | | Always evident |
| 4 | 3.40- 4.19 | | Oftentimes evident |
| 3 | 2.60-3.39 | | Fairly evident |
| 2 | 1.80-2.59 | | Rarely evident |
| 1 | 1.00-1.79 | | Not evident at all |

**Discussion**

The result shows that Collaboration among weavers appears active, reflecting mutual trust and shared goals in preserving the craft. However, the same cannot be said of financial and institutional involvement. Limited access to credit and external funding continues to hinder expansion and the adoption of improved technology. Rather than being guided by formal organizations, many of the industry's cooperative efforts evolve from informal peer networks. While this arrangement fosters strong bonds and knowledge sharing, it lacks the structured support needed for long-term growth. Strengthening links with government programs, investors, and legal institutions could help formalize these collaborations and open new opportunities for financial stability and innovation.

Sridharan (2021) underscored that the synergy of institutions, government agencies, and other stakeholders is very important. The four agreed-upon elements of quality that comprise the concept of quality as a synergy are supported by: (1) economic capital support, (2) cooperation with stakeholders, (3) strong ties between weavers, and (4) legal protection of weaving works, such as IPRs. Synergy from various stakeholders is the key to ensuring the sustainability of the weaving business. Adequate financial access and the protection of intellectual property rights are essential for empowering artisans and promoting the sustainability of traditional crafts. Sridharan (2021) also added that Quality in cultural value is a strong bond between weavers. This strong bond becomes their social foundation, which help them to continue to preserve the weaving culture.

The findings reveal a balance between cultural fidelity and the gradual integration of sustainable practices. While artisans remain faithful to customary methods, there is growing awareness of the need to incorporate environmentally friendly techniques, particularly in dyeing and resource use. Expanding training or workshops on natural materials could help strengthen both ecological awareness and product authenticity.

Semuel et al. (2022) and Chayyi et al. (2019) observed that the quality of weaving in traditional industries often stems from respect for cultural motifs and local wisdom. Similarly, Masyarakat et al. (2018) emphasized that sustaining cultural identity in production enhances community participation and long-term engagement in craft industries.

The findings portray the Inaul weaving industry as a creative and collaborative community where artisans frequently share skills and experiment with designs. The emphasis on experimentation and craftsmanship reflects both innovation and respect for tradition. Weavers demonstrate strong commitment to improving their techniques and aesthetic range, but their ability to innovate is still limited by dependence on external suppliers of raw materials. This constraint affects the pace of improvement despite the artisans' motivation and creativity.

The results further indicate that process enhancement in Inaul weaving is driven by the artisans themselves rather than by formal institutional programs. Their motivation to innovate emerges from everyday problem-solving and community interaction. Encouraging structured workshops, collective design projects, or access to better resources could help channel this creativity into more sustainable improvements in productivity and quality.

Yang et al. (2018) and Luo et al. (2020) both observed that innovation within traditional weaving strengthens competitiveness without undermining cultural values. Likewise, Rini and Budiani (2018) found that collaboration and ongoing experimentation maintain both product diversity and cultural relevance.

The Inaul weaving holds a strong symbolic and cultural value within the community. It is widely perceived as a source of local pride and a reflection of collective identity. The recognition of the craft by both government institutions and international audiences supports its role as a cultural emblem of BARMM. However, despite this symbolic prestige, the financial rewards remain modest. The relatively low rating for the selling value of woven products suggests that market prices do not fully reflect the cultural and artistic labor invested in each piece.

This imbalance between cultural recognition and economic gain points to a broader issue common in many heritage industries, where craftsmanship is appreciated more for its cultural contribution than its market potential. Building stronger branding, storytelling, and market differentiation could help increase the perceived and actual value of Inaul weaving in both local and global markets.

Naimi et al. (2020) noted that cultural crafts tend to gain prestige primarily through their heritage significance rather than commercial success. Ferasso (2018) similarly emphasized that the market often undervalues artisanal goods despite their symbolic richness and authenticity.

The Inaul weavers demonstrate a consistent level of discipline and quality control, even without formalized production systems. Efficiency is maintained largely through the artisans' personal skill and experience rather than standardized procedures. The community's strong craftsmanship traditions help preserve uniformity in the output, but the absence of written or formal guidelines limits the ability to scale operations or transfer best practices systematically.

These suggest that informal norms and shared cultural values function as substitutes for formal operating standards. These internalized practices sustain quality and productivity, but greater attention to formalization could further enhance product consistency, especially for commercial expansion or export. Developing localized standard operating frameworks that respect traditional methods while ensuring quality could bridge this gap between cultural authenticity and professional production standards.

Samsir and Nurwati (2018) observed that informal production routines in small enterprises often serve the same function as formal systems, maintaining consistency across outputs. Likewise, Semuel (2022) emphasized that operational discipline and attention to process details are key to ensuring reliable quality in small-scale cultural industries.

The educational and training activities within the Inaul weaving sector remain limited. While most artisans possess valuable hands-on knowledge passed through generations, structured learning programs—such as formal training, design workshops, or consumer education—are scarce. As a result, both artisans and buyers have uneven awareness of product care, quality standards, and innovation processes.

The limited availability of training opportunities also affects the continuity of weaving skills among younger community members. Many weavers rely solely on experience and informal mentorship rather than organized instruction. Strengthening training initiatives and consumer education would not only enhance product quality and creativity but also ensure the transfer of traditional skills to future generations.

Ernawati (2021) and Chayyi et al. (2019) both emphasized that continuous learning and capacity-building are vital to maintaining creative industries. Their findings suggest that the absence of sustained training programs weakens innovation and skill renewal—an observation that closely mirrors the current situation in the Inaul weaving community.

**3. The Extent of Sustainability of Inaul Industry in terms of Socio-cultural, Economic and Environmental**

Table 7 presents the results for the indicators Sustainability of the Inaul Industry in BARMM in terms of Socio-cultural, Economic and Environmental. For Socio-Cultural factors, the highest mean values were shared by the statements "encourages collaboration and partnership" (M = 3.72) and "improves community identity" (M = 3.72), while "encourages the formation of a cooperative" received the lowest mean (M = 2.81). The results highlight that social cohesion and cultural solidarity remain strong among Inaul weaving communities. Weaving serves not only as an economic activity but also as a medium for cultural expression and social connection. However, the relatively low score for cooperative formation points to a lack of formal organizational structures. While community participation and partnership are actively practiced, institutional collaboration—such as registered cooperatives or associations—has yet to develop fully.

For Economic factors, "enhances skills" scored the highest (M = 3.88), and the lowest score was observed for "ensures equitable access to resources and benefits" (M = 3.18). This indicates that weaving enhances the skills of weavers and skill enhancement appear to be the most visible economic benefits, contributing to household income and community resilience. Despite these positive impacts, the unequal distribution of economic gains remains a concern. Some weavers experience limited access to financial support, market opportunities, or raw materials, which may create disparities within the industry.

For Environmental factors, reverse coding was applied to negatively worded items to ensure consistency in the direction of responses. The statement "strengthens community ties through participation in festivals" had the highest mean (M = 3.89). The high score for participation in cultural festivals indicates that collective events serve as platforms for fostering environmental awareness, unity, cooperation, and a shared sense of cultural identity among community members. The moderate standard deviation shows that most respondents have similar positive experiences. Interestingly, the lack of clean water is fairly practiced or moderately experienced (M = 3.29, SD = 1.62). While access to clean water is generally available, there are noticeable inconsistencies and occasional shortages affecting some weavers. The relatively high standard deviation indicates varied experiences among participants, with some having sufficient access while others face challenges. Although clean water is not reported as a major constraint, it remains a concern that could impact production processes and the sustainability of Inaul weaving if not consistently addressed. This finding is somewhat surprising, given that areas within BARMM—particularly in Maguindanao—are widely known to experience issues with clean water supply.

Overall, the results indicate that sustainability of inaul industry in terms of Socio-cultural, economic and environmental factors is generally practiced. The inaul weaving plays a meaningful and regularly experienced role in the community's social, economic, and environmental context.

Table 7. Extent of Sustainability of Inaul Industry in BARMM

| *Items* | *Mean* | *SD* | *Description* |
|---|---|---|---|
| ***Socio-Cultural Factors*** | ***3.46*** | | ***Above Average / Oftentimes Practiced*** |
| Encourages formation of a cooperative | 2.81 | 1.60 | Average / Fairly Practiced |
| Strengthens networking | 3.27 | 1.57 | Average / Fairly Practiced |
| Strengthens community kinship ties | 3.38 | 1.57 | Average / Fairly Practiced |
| Promotes community participation | 3.44 | 1.54 | Above Average / Oftentimes Practiced |
| Enhances community self-reliance | 3.62 | 1.54 | Above Average / Oftentimes Practiced |
| Enhances discipline and responsibility | 3.59 | 1.47 | Above Average / Oftentimes Practiced |
| Encourages collaboration and partnership | 3.72 | 1.39 | Above Average / Oftentimes Practiced |
| Strengthens local culture and heritage | 3.64 | 1.36 | Above Average / Oftentimes Practiced |
| Improves community identity | 3.72 | 1.39 | Above Average / Oftentimes Practiced |
| ***Economic Factors*** | ***3.67*** | | ***Above Average / Oftentimes Practiced*** |
| Provides livelihood to the community | 3.67 | 1.35 | Above Average / Oftentimes Practiced |
| Improves ability to make decisions | 3.56 | 1.32 | Above Average / Oftentimes Practiced |
| Provides additional income for women | 3.62 | 1.31 | Above Average / Oftentimes Practiced |
| Creates additional businesses | 3.75 | 1.19 | Above Average / Oftentimes Practiced |
| Enhances skills | 3.88 | 1.17 | Above Average / Oftentimes Practiced |
| Creates new jobs for the community | 3.80 | 1.25 | Above Average / Oftentimes Practiced |
| Helps increase revenues for the community | 3.83 | 1.17 | Above Average / Oftentimes Practiced |
| Improves product quality and design | 3.74 | 1.31 | Above Average / Oftentimes Practiced |
| Ensures equitable access to resources and benefits | 3.18 | 1.49 | Average / Fairly Practiced |
| ***Environmental Factors*** | ***3.01*** | | ***Average / Fairly Practiced*** |
| Garbage disposal in the village is a problem | 2.23 | 1.32 | Average / Fairly Practiced |
| Lack of clean water | 3.29 | 1.62 | Average / Fairly Practiced |
| Peace and order issues lead to environmental problems | 2.78 | 1.37 | Average / Fairly Practiced |
| Tourists are afraid to visit due to safety concerns | 3.21 | 1.48 | Average / Fairly Practiced |
| Issues of local livelihood are ignored | 2.72 | 1.44 | Average / Fairly Practiced |
| Awareness of health and sanitation is addressed | 3.12 | 1.60 | Average / Fairly Practiced |
| Weavers are conscious of environmental protection | 3.01 | 1.39 | Average / Fairly Practiced |
| Market demands cannot be met due to security concerns | 3.06 | 1.41 | Average / Fairly Practiced |
| Environmental issues are not given priorities | 2.72 | 1.36 | Average / Fairly Practiced |
| Weavers are decreasing due to other economic opportunities | 2.34 | 1.14 | Average / Fairly Practiced |
| Weaving creates community identity | 3.83 | 1.15 | Average / Fairly Practiced |
| Strengthens community ties through participation in festivals | 3.89 | 1.19 | Above Average / Oftentimes Practiced |

| Scale | Range of Means | | Description |
|---|---|---|---|
| 5 | 4.20-5.00 | | Always practiced |
| 4 | 3.40- 4.19 | | Oftentimes practiced |
| 3 | 2.60-3.39 | | Fairly practiced |
| 2 | 1.80-2.59 | | Rarely practiced |
| 1 | 1.00-1.79 | | Not evident at all |

**Summary of the Extent of Sustainability**

Table 8 presents the summary of the overall mean scores for the extent of sustainability in Socio-cultural, economic and environmental factors. The table shows a grand mean of 3.88, indicating that sustainability is Oftentimes practiced. Among the three areas, economic factors obtained the highest overall mean score of 3.67, followed by Socio-cultural factors with an overall mean of 3.46. Finally, Environmental factors obtained the lowest overall mean of 3.01.

Table 8. Summary of the extent of sustainability

| **Extent of Sustainability** | **Overall Mean** | **Description** |
|---|---|---|
| Socio-cultural factors | 3.46 | Above Average / Oftentimes Practiced |
| Economic factors | 3.67 | Above Average / Oftentimes Practiced |
| Environmental factors | 3.01 | Average / Fairly Practiced |
| **GRAND MEAN** | **3.40** | **Above Average / Oftentimes Practiced** |

| *Scale* | *Range of Means* | *Description* |
|---|---|---|
| 5 | 4.20-5.00 | Always practiced |
| 4 | 3.40- 4.19 | Oftentimes practiced |
| 3 | 2.60-3.39 | Fairly practiced |
| 2 | 1.80-2.59 | Rarely practiced |
| 1 | 1.00-1.79 | Not evident at all |

**Discussion**

Weaving serves not only as an economic activity but also as a medium for cultural expression and social connection. Collaboration, kinship, and a shared sense of pride in local identity are central to maintaining the industry's vitality. The craft reinforces bonds among artisans and strengthens collective belonging, ensuring the continuity of cultural knowledge and traditional artistry.

However, the relatively low score for cooperative formation points to a lack of formal organizational structures. While community participation and partnership are actively practiced, institutional collaboration—such as registered cooperatives or associations—has yet to develop fully. Establishing such organizations

could help streamline operations, enhance bargaining power, and promote equitable distribution of resources within the industry.

Salang (2019) found that weaving activities contribute significantly to strengthening kinship and community pride. Similarly, Nurse (2019) and Fletcher (2020) emphasized that socio-cultural integration forms the foundation of sustainability for cultural and creative industries. These studies reinforce the idea that cultural continuity and strong community ties are key to sustaining traditional crafts like Inaul weaving.

The Inaul weaving industry plays a vital role in supporting the local economy. Weaving enhances the skills of weavers and as the result and so provides livelihood opportunities, promotes women's participation in income generation, and stimulates related enterprises such as textile retailing and design services. Skill enhancement and entrepreneurship appear to be the most visible economic benefits, contributing to household income and community resilience.

Despite these positive impacts, the unequal distribution of economic gains remains a concern. Some weavers experience limited access to financial support, market opportunities, or raw materials, which may create disparities within the industry. Addressing these inequalities would help strengthen both productivity and inclusiveness, ensuring that the economic benefits of weaving are shared more evenly across communities.

The present results align with the observations of Masyarakat et al., (2018) who emphasized that weaving activities contribute to economic resilience by enhancing artisans' technical capabilities and encouraging participation in related enterprises such as textile retailing, product design, and creative marketing initiatives. Li (2020) stressed that the industry also supports inclusive economic participation by providing income-generating opportunities at the household and community levels, thereby reinforcing local economic sustainability and resilience. Despite these positive contributions, the distribution of economic benefits within the weaving industry remains uneven.

Fitri (2023) and Banerjee & Chakrabarti (2022) highlighted that limited access to financial resources, raw materials, and market linkages constrains some weavers' ability to fully benefit from the industry, resulting in disparities in income and productivity. Alauya (2020) and Liton 2016) noted that dependence on intermediaries and inadequate financial management further exacerbate these inequalities by reducing profit margins and restricting opportunities for expansion and innovation. Addressing these challenges through improved access to capital, strengthened stakeholder collaboration, and enhanced entrepreneurial support mechanisms would promote greater inclusiveness and ensure that the economic benefits of Inaul weaving are more equitably shared across communities (Sridharan, 2021; Azrani & Maulana, 2021).

Interestingly, the high score for participation in cultural festivals indicates that collective events still serve as platforms for fostering environmental awareness and unity. These gatherings help promote shared responsibility for the local environment, even if formal environmental programs are not yet in place. Powter and Rose (2022) as well as Caniato et al. (2019) found that traditional textile sectors in developing regions often face environmental limitations due to inadequate infrastructure and local governance but integrating environmental initiatives into cultural and economic programs could strengthen the overall sustainability of the Inaul weaving industry.

Aguinaldo (2022) noted that despite abundant water resources, many households in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) still lack sufficient access to safe drinking water. Communities are particularly vulnerable to water-borne diseases, with numerous low-income families depending on unprotected or contaminated water sources. According to the Philippine Statistics Authority (2016), only 53% of families in BARMM have access to potable water, significantly below the national average of 85%. Gardetti and Torres (2018) mentioned that the textile sector generally consumes substantial amounts of water and generates significant waste; however, the weaving industry in this context appears to experience fewer concerns regarding water availability and sanitation. Likewise, Li et al. (2019) highlighted that strengthening social responsibility and fostering sustainable awareness are effective strategies for promoting sustainability within supply chain systems.

**4. Influence of Industrial Activities and Quality of Inaul on the Sustainability of the Inaul Industry**

Table 9.1 shows the intercorrelations among the three key variables: Industrial Activities, Quality, and Sustainability. All relationships were positive and statistically significant, with industrial Activities and sustainability demonstrating the strongest correlation ($r = .512$, $p < .001$), and followed by quality and sustainability ($r = .442$, $p < .001$). This suggests that the probability of the relationships happening by chance is extremely low, indicating a statistically significant connection among the variables.

*Table 9.1* **Correlations of Industrial Activities, Quality and Sustainability of Inaul Industry in BARMM**

*Table 9.1* Intercorrelations among Key Variables

| *Variables* | *1* | *2* | *3* | *Mean* | *SD* |
|---|---|---|---|---|---|
| 1. Industrial Activities | — | .675** | .512 | 3.21 | 1.18 |
| 2. Quality of Inaul | .675** | — | .442** | 3.43 | .745 |
| 3. Sustainability of Inaul Industry | .512** | .442** | — | 3.40 | .478 |

* $p < .05$; ** $p < .01$; *** $p < .001$

To further explore these relationships, a multiple regression analysis (Table 9.2) was conducted. The model yielded $R = .78$, $R^2 = .61$, Adjusted $R^2 = .60$, $F(2, N-1) = 61.28$, $p < .001$, indicating that Industrial Activities and Quality together explained 61 percent of the variance in sustainability scores. Industrial challenges significantly predict sustainability ($B = .392$, $p < .001$). Industrial issues are expected to have a negative impact on sustainability; however, the impact was found to be positive because, despite challenges with financial resources, manual handlooms, marketing practices, and reliance on intermediaries, the weavers remain resilient. They recognize these challenges but continue producing Inaul, as it is their primary means of sustaining their livelihood. Quality also has a significant effect ($B = 178$, $p = .031$), it influences sustainability because it directly affects the longevity, value, and cultural relevance. It acts as a bridge between economic viability, cultural preservation, and environmental responsibility, making it a central factor for the overall sustainability of Inaul weaving.

Table 9.2 Multiple Regression Analysis Predicting Sustainability of the Inaul Industry

| *Predictor Variables* | *Unstandardized Coefficients (B)* | *Standard Error* | *Standardized Coefficients (β)* | *t* | *p* |
|---|---|---|---|---|---|
| Constant | 2.446 | 0.138 | — | 17.67 | .000 |
| Industrial Activities | 0.159 | 0.033 | .392 | 4.78 | .000 |
| Quality of Inaul | 0.114 | 0.053 | .178 | 2.16 | .031 |
| **Model Summary:** $R = .78$, $R^2 = .61$, Adjusted $R^2 = .60$, $F(2, N-1) = 61.28$, $p < .001$ | | | | | |

**Split-Half Method**

This study used a split-half method reliability method to assess the instrument's internal consistency and validate the findings on the influence of industrial activities and quality indicators on sustainability. In this test, the 200 was split into two halves.

Table 9.3 reveals the results of this test, through multiple regression analysis, the split-half method shows that industrial activities consistently predict sustainability across both groups, as they remain statistically

significant in the first half ($\beta = 0.339$, $p < 0.05$) and the second half ($\beta = 0.456$, $p < 0.05$). This suggests that industrial activities serve as a stable and dependable predictor of sustainability in the Inaul weaving industry. In comparison, quality is statistically significant only in the first half ($\beta = 0.261$, $p < 0.05$) and not in the second half ($\beta = 0.090$, $p > 0.05$), indicating that its effect is less consistent.

Overall, the similar $R^2$ values (0.298 and 0.274) along with significant F-values in both groups demonstrate the strength and internal consistency of the model, thereby supporting the reliability of the results obtained through the split-half method.

Table 9.3 Multiple Regression Analysis Predicting Sustainability of the Inaul Industry through Split-half method

| *Variables* | *Group 1.00 (first half)* | *Group=0.00 (second half)* |
|---|---|---|
| R | 0.545 | 0.523 |
| $R^2$ | 0.298 | 0.274 |
| Adjusted $R^2$ | 0.283 | 0.259 |
| F-value | 20.545 | 18.298 |
| Sig. (Model) | 0.000 | 0.000 |
| Industrial Activities | | |
| Beta (β) | 0.339 | 0.456 |
| t-value | 3.038 | 3.749 |
| Sig | 0.003 | 0.000 |
| Quality | | |
| Beta (β) | 0.261 | 0.090 |
| t-value | 2.339 | 0.736 |
| Sig. | 0.021 | 0.464 |

**Qualitative Results**

**Profile of the Participants**

The data presented in Table 10 pertains to the individuals who participated in the in-depth interviews and focus group discussions. Seventeen (17) participants were identified as weavers or retailers who willingly agreed to take part in the inquiry, ten (10) in the in-depth interviews and seven (7) for focus group discussions. The findings illustrate how lived experiences on industrial activities, indicators on the concept of quality of Inaul and indicators on the sustainability are applied within the Inaul industry in BARMM. The results are presented according to the key themes that emerged from the data.

Table 10 . Profile of the Respondents

| CODE | PSEUDONYM | POSITION IN THE INDUSTRY | LOCATION |
|---|---|---|---|
| IDI-001 | Abdilla | Weaver | Balong, Datu Piang, MDS |

| | | | |
|---|---|---|---|
| IDI-002 | Shahanie | Weaver | Balong, Datu Piang, MDS |
| IDI-003 | Muslimin | Weaver | Balong, Datu Piang, MDS |
| IDI-004 | Dindie | Weaver | Balong, Datu Piang, MDS |
| IDI-005 | Maguid | Weaver | Balong, Datu Piang, MDS |
| IDI-006 | Dauping | Retailer | Supermarket, Cotabato City |
| IDI-007 | Fatima | Retailer | Supermarket, Cotabato City |
| IDI-008 | Merriam | Weaver | Al-Jamelah Weaving Center, Tamontaka, DOS |
| IDI-009 | Nor | Retailer | Sariling-Atin, Cotabato City |
| IDI-010 | Shaif | Weaver | Sultan Kudarat, MDN |
| FGD-001 | Junaida | Weaver | Balong, Datu Piang, MDS |
| FGD-002 | Bailani | Weaver | Balong, Datu Piang, MDS |
| FGD-003 | Aida | Weaver | Balong, Datu Piang, MDS |
| FGD-004 | Haguiar | Weaver | Balong, Datu Piang, MDS |
| FGD-005 | Saida | Weaver | Balong, Datu Piang, MDS |
| FGD-006 | Norma | Weaver | Balong, Datu Piang, MDS |
| FGD-007 | Rowena | Weaver | Balong, Datu Piang, MDS |

**Lived Experiences of Participants**

This section provides an account of the lived experiences of the participants in industrial activities, quality and sustainability of inaul industry. Table 11 displays six (6) fundamental themes such as Capital constraints shape daily production, emotional discipline, patience, and craftmanship define quality, shared but flexible production standards, collaboration build skills, identity, and community ties, absence of cooperatives and benefits and weaving as cultural preservation and family livelihood.

Table 11. Lived Experiences of Participants

| **Essential Theme** | **Core Ideas** |
|---|---|
| **Capital Constraints Shape Daily Production** | Limited resources affect raw material purchase |
| | Budget and capital determine output |
| | Handloom not the cause of low production |
| **Emotional Discipline, Patience, and Craftmanship Define Quality** | Emotional state affects weaving quality |
| | Attention to detail prevents loss |

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

| | |
|---|---|
| | Innovation sustains demand |
| **Shared but Flexible Production Standards** | Shared understanding of processes |
| | Standards adjust to orders |
| | Precision in thread counting |
| **Collaboration Build Skills, Identity, and Community Ties** | Learning through collaboration |
| | Gaining community identity through Inaul |
| | Festivals as convergence spaces |
| **Absence of Cooperatives and Benefits** | Difficulty forming cooperatives |
| | Inequitable access to benefits |
| **Weaving as Cultural Preservation and Family Livelihood** | Inaul as cultural identity and symbol of Maguindanaon heritage |
| | Cultural and economic fulfillment and supports education and needs |

**Capital constraints shape daily production realities.** The main idea behind how capital constraints shape daily production lies in the limitation of resources for purchasing raw materials, rather than issues with the handloom itself. Below are the participants' narratives:

Maguid, one of the participants, shared how limited resources affect *inaul* production:

"When the budget is insufficient, we cannot purchase all the necessary raw materials and earnings from inaul are low. We were forced to stop"

*"Ameka dala capital or kulang i kita nami na di kami bun pakamasa sa tanul para sa inaul ga stop bun su kabagol nami."* **(IDI_005)**

Aida also explained how capital constraints impact their work. She shared:

"Yes, we are affected. When there is no budget, we have to temporarily stop production."

*Oo naapektuhan kami, kapag walang budget, maka stop kami muna "***(FGD_003)**

Abdilla firmly make a stand that production is not because of handloom but the capital. He stated:

"I do not agree that low production is because of the loom; it depends on the capital."

*"Hindi ako sang ayon doon sa konteng produksyon gamit ang pangablan kasi depende na yan sa kapital."***(IDI_001)**

**Emotional Discipline, Patience, and Craftsmanship Define Quality.** The key ideas in this theme highlight that emotional state influences weaving quality, attention to detail prevents losses, and innovation sustains demand.

Merriam shared that she avoids weaving when she is not in the right emotional state because it affects the outcome:

"When I am angry, I should not sit here to weave because the threads will break."

*"Kapag galit ako hindi ako pwedeng umupo dito sa Irwan kasi mapuputol yang tanul."* **(IDI_008)**

Norma pointed out the importance of patience, as threads frequently break:

"The threads often break, so patience is really necessary."

*"Madalas napuputol ang sinulid kaya kailangan talang ng pasensya"* **(FGD_006)**

Dindie mentioned that they experiment with new designs to improve their skills:

"We also experiment with new designs to further enhance our abilities."

*"Nag eexperiment din kami ng new designs para mahasa pa kami."* **(IDI_004)**

**Shared but Flexible Production Standard.** This theme emphasizes that standards adjust based on orders, there is a shared understanding of processes, and precision in thread counting is essential.

Shahanie shared that while their processes are similar, designs differ:

"We all follow the same process in making inaul."

*"Pare pareho kami ng process sa paggawa ng Inaul."***(IDI_002)**

Maguid added that their designs depend on customer orders:

"We create different designs depending on the orders."

*"Iba-iba kasi kami ng ginagawang design depende sa orders."***(IDI_005)**

Merriam emphasized accuracy in preparation:

"The thread count must be correct before starting the process."

*"Dapat tama ang bilang bago mag-process.*"**(IDI_008)**

**Collaboration Builds Skills, Identity, and Community Ties.** The narratives highlight learning through collaboration, strengthening community identity, and festivals as spaces for connection.

Norma shared that she seeks help from other weavers when she is unfamiliar with a design:

"Sometimes I ask others to come over because I am not familiar with the design."

*"Sinasabi ko minsan na puntahan nyo ako kasi di ko alam itong design"* **(FGD_006)**

Muslimin noted that weavers, retailers, and designers gather during festivals and important events like the Datu Piang Founding Anniversary:

"During the Datu Piang anniversary, we all gather together."

*"Sa kaarawan ng Datu Piang nagkikita-kita kami."* **(IDI_003)**

Haguiar proudly shared that their barangay is recognized for producing high-quality inaul:

"Our community is known for its weavers. If you are from Balong, the inaul is beautiful."

*"Nakikilala ang community namin na mga weavers. Kapang taga Balong magaganda ang Inaul"***(FGD_004)**

**Absence of Cooperatives and Benefits.** This theme reflects the challenges in forming cooperatives and the unequal access to benefits.

Maguinda expressed their desire to establish a cooperative but noted the lack of support:

"We really want to have a cooperative, but no one is helping us."

*"Gustung-gusto namin magkaroon kaya lang wala talagang tumutulong."***(IDI_005)**

Dindie added that they rely solely on their income due to the absence of benefits:

"We do not receive any benefits."

*"Wala din kaming benefits na natatanggap."***(IDI_004)**

**Weaving as Cultural Preservation and Family Livelihood.** This theme shows that *inaul* weaving represents cultural identity and serves as a source of livelihood that supports family needs and education.

Muslimin described inaul as a symbol of identity for the Maguindanaon people:

"It is a sign that we are Maguindanaon"

*"Palatandaan na Maguindanaon tayo."***(IDI_003)**

Shahanie also shared that weaving helps support their education:

"That is where we get money to pay for school"

*"Diyan kami kumukuha ng pamabayad sa school"* **(IDI_002)**

**Discussion**

The lived experiences of the participants provide a holistic understanding of how industrial activities, quality, and sustainability intersect in everyday practice within the Inaul industry. Participants largely affirmed the quantitative findings, particularly regarding capital limitations, the role of retailers, skill-based quality production, collaboration, and cultural significance, while offering nuanced insights based on their personal realities.

Most participants agreed that limited financial resources directly affect the ability to purchase raw materials, often resulting in delayed or reduced production. However, they strongly challenged the notion that traditional handlooms (pangablan/Irwan) cause low production, emphasizing instead that capital availability and budget constraints are the primary limiting factors. For many, the handloom is not a barrier but the very foundation of Inaul production and identity.

Participants consistently described patience, perseverance, focus, and attention to detail as indispensable to producing quality Inaul. Weaving was portrayed as a mentally and emotionally demanding process requiring calmness, discipline, and sincerity. Continuous experimentation with designs was seen as essential for meeting customer demands and maintaining competitiveness. While production processes follow common steps, full standardization remains difficult due to variations in design complexity, thread thickness, and customer specifications.

Lived experiences also highlighted strong collaboration among weavers, retailers, and designers**,** often occurring informally through family networks, shared workspaces, festivals, and expos. These collaborations not only enhance skills and market reach but also strengthen community identity and social cohesion, particularly during cultural events and public celebrations.

At the same time, participants unanimously expressed that establishing cooperatives and accessing equitable benefits remain significant challenges. Most weavers rely solely on personal effort and income from finished products, with minimal institutional or government support. Despite this, weaving continues to serve as a powerful source of cultural preservation and family livelihood, reinforcing Maguindanaon identity while providing daily income for education, food, and basic needs.

The lived experiences of weavers and retailers reveal that sustainability in the Inaul industry is not merely structural but deeply personal—rooted in patience, identity, collaboration, and daily survival.

The lived experiences of Inaul weavers affirm that industrial activities, quality, and sustainability are deeply intertwined through cultural practice rather than formal industrial support**.** Consistent with earlier studies, participants identified capital limitations and raw material constraints as the most significant barriers to production, rather than the use of traditional handlooms. This supports findings that rising raw material costs, dependence on distributors, and weak financial management constrain weaving industries more than production technology itself. Similar to Alauya (2020) and Banerjee and Chakrabarti (2022), the participants' narratives reveal that traditional looms are not perceived as obstacles but as core assets of identity and craftsmanship**,** reinforcing cultural authenticity over mechanized efficiency.

In terms of production and quality, participants' emphasis on patience, perseverance, attention to detail, and emotional discipline aligns strongly with the literature that defines quality in traditional weaving as skill-based, culturally grounded, and process-oriented**,** rather than standardized or machine-driven

This mirrors Semuel et al.'s (2022) assertion that quality for weavers is a commitment to tradition, continuous improvement, and respect for cultural symbols rather than productivity metrics. The difficulty in achieving full standardization due to varying designs and customer specifications further supports the view that quality in weaving SMEs cannot be measured using modern industrial efficiency standards alone

The collaborative nature of Inaul weaving**,** particularly through family networks, informal mentoring, and shared spaces, reflects strong social capital within the industry. This finding echoes Salang's (2019) observation that weaving strengthens kinship ties, cooperation, and community identity, even in contexts where institutional linkages remain weak. Such collaboration contributes not only to skill transmission and market access but also to cultural continuity, reinforcing weaving as both an economic and socio-cultural activity.

Despite this resilience, participants shared concern over the lack of cooperatives, limited institutional support, and absence of equitable benefits aligns with studies highlighting the vulnerability of traditional weaving industries without sustained government intervention, financial assistance, and legal protection. Stakeholder synergy—including capital support, training, marketing assistance, and intellectual property protection—is essential to sustain quality and competitiveness in traditional textiles. The absence of these mechanisms places the burden of sustainability largely on individual weavers and families.

Finally, the findings underscore weaving's role in sustainability through culture**,** where economic survival, cultural preservation, and social cohesion coexist. This supports broader sustainability frameworks that recognize culture as a fourth pillar of sustainable development, alongside economic, social, and environmental dimensions. The persistence of the Inaul industry, despite structural constraints, illustrates how indigenous knowledge, tradition, and collective effort function as adaptive strategies for sustainability, consistent with Fletcher (2020) and Nurse (2019).

Overall, the lived experiences reveal resilience: despite structural constraints, the Inaul industry persists through skill, tradition, collaboration, and cultural pride**.**

**Standpoints of the Participants on the qualitative Results**

The data presented in Table 12 presents the standpoints of the participants on the qualitative results regarding industrial activities, quality of inaul weaving sustainability of inaul industry. The essential themes for

industrial activities were raw materials, production and marketing. For quality, the essential themes were Synergy of Stakeholders, Respect for Traditional Culture and Nature, Commitment to Continual Process Improvement, Reputation, Conformity with Standard Operating Procedure and Empowering Education and Training. For sustainability, the essential themes were Socio-cultural factors, economic factors and environmental factors.

Table 12. Standpoints of the Participants on the Qualitative Results

| **Variable** | **Essential Themes** | **Core Ideas** |
|---|---|---|
| 1. **Industrial Activities**<br><br>***(Independent Variable)*** | Raw materials | Local distributors are limited or absent, leading to dependence on Cotabato City and Manila for yarn and other materials. |
| | | Raw materials in the community or nearby barangays are inconsistent and insufficient. |
| | | Insufficient capital limits the ability to purchase raw materials and sustain production. |
| | Production | The use of handlooms does not directly cause low production. |
| | | Production depends more on capital than on tools used. |
| | | Lack of experience is offset by observation, training, and family support. |
| | Marketing | Inaul products are sold through markets, retailers, online platforms, and expos |
| | | Retailers serve as the main link between weavers and consumers. |
| | | Retailers buy multiple pieces, ensuring continuous production. |
| 2. **Quality**<br><br>***(Independent Variable)*** | Synergy of Stakeholders | Reliance on personal capital; cooperation without material benefits |
| | | Mutual help but limited financial aid |
| | | Support seen as trainings rather than cash |
| | Respect for Traditional Culture and Nature | Continued use of *pangablan/Irwan and* radition as source of identity |
| | | Durability issues and fear of fading |
| | Commitment to Continual Process Improvement | Avoiding thread breakage and defects |
| | | Creation of new and unique designs |
| | | Purchased materials do not affect quality process |
| | Reputation | Community recognition through Inaul |
| | | Design and material determine price |

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

| | | |
|---|---|---|
| | | Market resistance to higher prices |
| | Conformity with Standard Operating Procedure | Heavy, thick, and durable Inaul |
| | | Lack of standardized practices |
| | | Expertise critical in early processes |
| | Empowering Education and Training | Government and NGO-led capacity building |
| | | Care instructions given informally |
| **3. Sustainability** ***(Dependent Variable)*** | Socio-cultural factors | Absence of formal cooperative structures |
| | | Strong mutual support among weavers |
| | Economic factors | The formation of personal values |
| | | Absence of financial benefits or consistent support |
| | | Livelihood heavily dependent on production output |
| | Environmental factors | Water not needed in weaving |
| | | Weavers meet through festivals |
| | | Inter-community participation |

**Raw materials**. The core ideas for raw materials are access to raw materials remains a significant challenge for weavers. Local distributors are either limited or entirely absent, resulting in reliance on external sources such as Cotabato City and Manila for yarn and other supplies. Additionally, the availability of raw materials within the community or nearby barangays is inconsistent and often insufficient. Limited capital further constrains the ability of weavers to purchase materials and maintain continuous production.

Abdilla explained that threads are typically sourced from outside their barangay due to the lack of local suppliers, stating,

"Threads are usually purchased in Cotabato City. At present, there is no one selling them here"

*"Yung mga sinulid binibili kadalasan sa Cotabato City. Sa ngayon parang wala pang nagbebenta dito."* **(IDI_001)**

Similarly, Shahanie noted that while they sometimes obtain materials within the community, they also rely on nearby barangays:

"We also get supplies from the community, but sometimes from other barangays"

*"Kumukuha din kami sa community pero minsan sa ibang barangay."***(IDI_002)**

Maguid emphasized that even when materials are available locally, financial limitations hinder procurement, stating,

"Even if raw materials are available, if we do not have the budget, we cannot buy them"

*"Kahit may available na raw materials kung wala kaming budget di kami makakabili."***(IDI_005)**

**Production. The core ideas for production are** the use of handlooms does not directly cause low production, production depends more on capital than on tools used and lack of experience is offset by observation, training, and family support.

Maguid clarified that low production is not caused by the handloom, stating,

"The handloom is not the reason. Production levels are normal"

*"Hindi naman pangablan ang dahilan sa produksyon. Normal naman ang produksyon"* **(IDI_005)**

Abdilla reinforced this point by emphasizing the role of financial resources, explaining:

"It depends on the capital; if the capital is small, then production is also limited"

*"Nakadepende yung nagagawa naming inaul sa kapital, kung kulang ang kita, konte lang din magagawa namin"***(IDI_001)**

Merriam added that lack of experience does not hinder productivity, as knowledge is passed on through guided learning and observation:

"It does not affect production because we teach them, and while we work, they observe us—they are free to watch"

*"Hindi naman nakaka apekto kasi tinuturuan namin sila saka habang gumagawa kami pwede naman sila tumingin"***(IDI_008)**

**Marketing. The core ideas for marketing are** facebook and online posting expand reach beyond the community, retailers buy multiple pieces, ensuring continuous production and retailers serve as the main link between weavers and consumers.

Muslimin shared that social media platforms such as Facebook are now used to promote and sell their products to a wider audience, stating,

"We also use social media. Now, we receive orders from different places"

*"Gumagamit din kami ng social media. Ngayon kahit saan lugar may nag oorder."***(IDI_003)**

Maguid emphasized the importance of retailers in market access, noting,

"Retailers are a great help to us. Sometimes they order a large quantity of inaul from us because they have many orders."

*"Malaking tulong ang retailers sa amin. Minsan Madakelg ed pegukuwan nilan sa lekami. Madakel orders nilan."***(IDI_005)**

Dauping, a retailer, highlighted their role in the supply chain, stating,

"If we were not here, they might have difficulty. We help them sell inaul"

*"Kung wala kami baka mahirapan sila magbenta ng Inaul. Gadtabangan nami silan"****(IDI_006***

Lastly, Shahanie explained that bulk orders from retailers enable higher production output, stating,

"We are able to produce more when retailers tell us they will purchase in large quantities"

*"Nakaka rami kami kapag minsan sinasabi ng retailers nila na kukuha sila ng marami"***(IDI_002)**

**Discussion**

The qualitative findings confirm the quantitative result that the Inaul weaving community exhibits low reliance on local distributors of raw materials. Most weavers and retailers reported that yarns and other essential weaving inputs are primarily sourced from Cotabato City and Manila, due to the absence or inconsistency of local suppliers within the community and nearby barangays.

Participants emphasized that although occasional sourcing occurs within nearby barangays, these sources are unreliable and insufficient to support continuous production. Consequently, external suppliers are preferred to ensure material availability, quality, and price competitiveness.

Additionally, the findings reveal that capital availability directly affects the ability to purchase raw materials. Weavers with limited capital reported delays or complete stoppage of production due to insufficient funds, even when raw materials are available in the market. Retailers, particularly those with stronger financial backing, experienced fewer constraints, indicating unequal financial resilience within the value chain.

Contrary to the quantitative finding suggesting that production is low due to the continued use of traditional handlooms, the majority of participants disagreed with this conclusion. Weavers emphasized that the use of *pangablan* or traditional handlooms does not hinder production capacity. Instead, capital availability and access to raw materials were consistently identified as the primary determinants of production volume.

The findings further show that weaving experience has minimal impact on production output. Participants reported that weaving skills are transferred through observation, practice, and family-based training. Younger weavers assist older artisans, particularly in tasks requiring clearer eyesight, while experienced weavers' complete intricate portions of the weaving process. This intergenerational cooperation sustains production despite age-related physical limitations.

The results indicate that marketing opportunities for Inaul products are not limited. Weavers and retailers reported selling products through multiple channels, including local markets, retailers, online platforms (particularly Facebook), trade fairs, and national expos in Manila and Davao.

Retailers play a critical intermediary role in the marketing process by purchasing Inaul products in bulk and connecting weavers to wider consumer markets. Institutional buyers such as the City Government and DTI-Manila were also identified as significant contributors to sustaining demand and ensuring income stability for weavers.

The study's findings align with previous research emphasizing that material availability and quality significantly influence production sustainability. Pitt et al. (2019) asserted that higher-quality materials enhance product durability and economic value, which explains why Inaul weavers prefer sourcing raw materials from established suppliers in urban centers. Similarly, Bascoro and Muslim (2023) emphasized that supply chain efficiency and financial viability are essential for sustainable industrial operations.

The limited presence of local raw material distributors reflects broader sustainability issues within traditional industries. Winter and Lasch (2018) highlighted that supplier accessibility and evaluation are crucial sustainability criteria, particularly in industries reliant on external inputs. The dependence on Cotabato City and Manila suppliers exposes the weaving industry to vulnerabilities such as price fluctuations and supply disruptions, reinforcing the need for localized supply chain development.

Capital constraints further exacerbate procurement challenges. Consistent with Rini and Budian (2018), insufficient financial planning and budgeting restrict production continuity and limit industrial growth. While some participants resort to borrowing as a coping mechanism, this approach mirrors survival-oriented practices rather than sustainable financial strategies.

The rejection of traditional handlooms as a limiting factor supports the assertion of Srivastava and Saxena (2022) that traditional weaving technologies remain viable when paired with adequate capital and management support. The findings also reflect the work of Agung et al. (2022), who emphasized that preservation of

traditional weaving does not necessarily require technological replacement but rather improved access to resources and institutional support**.**

The minimal effect of limited weaving experience on production aligns with Soraya (2011), who argued that intergenerational knowledge transfer is crucial for sustaining traditional industries. Family-based cooperation observed in this study reinforces cultural continuity while compensating for physical limitations among older weavers.

The presence of diverse marketing channels supports Li et al. (2019), who emphasized that market access and value chain integration are essential for industrial sustainability, particularly in contrast to the vulnerabilities associated with fast fashion supply chains. Social media platforms have expanded market reach, allowing weavers to bypass geographic limitations and access broader consumer bases.

Retailers emerge as indispensable actors within the value chain, consistent with Schneider et al. (2017), who identified intermediaries as critical facilitators of sustainability in small-scale industries. Institutional buyers such as DTI-Manila and local government units further strengthen market stability by ensuring regular demand and income flow, supporting the economic sustainability of weaving households.

Anchored on the literature, the findings demonstrate that the sustainability of the Inaul weaving industry is less constrained by traditional technology and more affected by capital availability, supply chain access, and market linkages**.** Strengthening local raw material distribution, improving financial access, and expanding institutional marketing support are therefore essential strategies to enhance both the cultural preservation and economic viability of the Inaul weaving industry.

**Synergy for stakeholder.** This theme is characterized by reliance on personal financial resources, cooperation without material incentives, mutual assistance with limited financial support, and the perception of support primarily in the form of training rather than monetary aid.

Dindie confirmed the presence of strong collaboration among weavers but emphasized the lack of benefits, stating,

"It is true that we have strong collaboration. We help one another, but in terms of benefits, there are none"

*"Totoo, meron kaming matibay na collaboration Nagtutulungan kami pero yung sa benefits wala po."***(IDI_004)**

Similarly, Abdilla highlighted the absence of financial assistance, noting that even their tools are self-funded:

"There is no support; we use our own money, and even the loom is made by us"

*"Wala pong support, sariling pera lang kahit yung pangablan sariling gawa rin namin."***(IDI_001)**

Merriam added that training opportunities are already considered valuable support, stating,

"We are already satisfied even if only training is provided to us. It's better to have training than nothing at all"

*"Okay na kami kahit trainings lang mabigay sa amin. Mapya den kesa dala"***(IDI_008)**

**Respect for culture, tradition and nature.** This theme reflects the continued use of traditional tools such as the handloom (*pangablan/irwan*) as a source of cultural identity, alongside concerns regarding durability and color fading.

Merriam explained their continued reliance on traditional weaving methods, stating,

"We continue to use the loom because it is the only way to produce inaul, and it is also our source of livelihood. We are known for our traditional practices"

*"Patuloy po kaming gumagamit ng pangablan kasi yan lang naman makakagwa ng inaul at dyan lang nanggagaling yung pang sustento namin. Sa tradisyunal po tayo nakilala*."**(IDI_008)**

However, Shahanie expressed concerns about the use of natural dyes, noting their tendency to fade:

"Those tend to fade, whereas the threads we use take a long time before fading"

*"Naga fade yun, itong sa amin na sinulid matagal bago mag fade"***(IDI_002)**

**Commitment to Continual Process Improvement.** This theme highlights efforts to improve production processes through careful weaving techniques, innovation in design, and maintaining quality regardless of material sourcing.

Muslimin pointed out that rushing the weaving process increases the likelihood of defects, stating,

"If you weave too quickly, there is a possibility that the thread will break"

*"Kapag binilisan mo and paggawa possible na maputol ang sinulid."***(IDI_005)**

Shaif shared that experimentation with new designs not only enhances their skills but also benefits other weavers, stating,

"We experiment with new designs so others can also replicate them"

*"Nag eexperiment din kami ng bagong designs para magaya din ng iba."* **(IDI_010)**

Dindie added that the use of purchased raw materials does not negatively affect the weaving process, stating,

"The raw materials that are bought do not affect the process"

*"Yung raw materials na nabibili na, hindi nakaka apekto."*

**(IDI_004)**

**Reputation.** This theme suggests that inaul weaving contributes significantly to community recognition, with pricing influenced by design complexity and market sensitivity to price increases.

Junaida shared that their community has gained recognition due to inaul weaving, stating,

"We are recognized because of inaul. When it comes from Balong, it is truly distinct*"*

*"Nakikilala kami dahil sa Inaul."Kapag galing sa Balong ang Inual, na iba talaga"***(FGD_001)**

Abdilla explained that pricing is determined by the level of difficulty in production, stating,

"The more difficult the process, the higher the price"

*"Meka mapasang kabagumbal lun na medyo mapulo bun i alaga nin."***(IDI_001)**

However, Shaif noted concerns about market demand, stating,

"The selling price is low, but it is difficult to increase it because customers might stop buying"

*"Mababa ang bentahan kaya lang mahirap pataasin, basi dala mamasa lun."***(IDI_010)**

**Conformity with Standard Operating Procedure.** This theme highlights perceptions of quality, the lack of standardized practices, and the importance of expertise during the early stages of production.

Maguid explained that quality inaul is characterized by its weight and thickness, stating,

"If the inaul is heavy and thick, it is a sign of good quality"

*"Kapag mabigat at makapal ang inaul palatandaan na maganda."*

**(IDI_005)**

Haguiar noted that production processes vary depending on the design, stating,

"The process differs, especially when the designs are different"

*"Magkakaiba ang proseso lalo na pag magkakaiba ang design."*

**(FGD_004)**

Merriam emphasized the importance of precision, explaining that errors require restarting the process:

"Once the thread is damaged, the process must be repeated"

*"Once na nasira ang tanol, dapat ulitin."* ***(IDI_008)***

**Empowering Education and Training**. This theme shows that education and training initiatives are primarily facilitated by government agencies and non-governmental organizations, while knowledge on product care is informally shared with customers.

Bailanie mentioned that they occasionally participate in local weaving trainings, stating,

"Occasionally, we attend trainings at SKP to improve our knowledge of new designs."

*"Pa minsan-minsan may trainings din sa SKP. Sumasali kami Talaga kasi apya demun gomanan su katawan nami a design"* **(FGD_002)**

Merriam also shared that an organization from Manila provides training opportunities, stating,

"PTR conducts training sessions, including one where they introduced raw materials sourced from butterflies."

*"PTR ang nagbibigay ng training sa amin dati. Aden ibeg introduce nilan salekami dati raw materials galing sa butterfly."***(IDI_008)**

Additionally, Saida explained that they guide customers on proper handling of inaul, stating,

"We tell customers not to crumple or brush it because it can get damaged. When washing, do not wring it—just soak it in water with fabric softener and hang it to dry"

*"Pedtalun nami sa customers na di nu pegkuso meka bamipyan, bawal i brush ang inaul ka egkalat meka igkumanan nu. Meka pebpipyan na ipedsumbuk bus a ig a aden mamot a sabon nin tapos di pegkemesen diretso sampay den."***(FGD_005)**

**Discussion**

The findings reveal that the quality of Inaul **is** sustained primarily through artisan skill, patience, traditional knowledge, and collaborative family-based production**,** rather than through strong financial or institutional support. Although weavers maintain close collaboration with fellow artisans**,** most participants reported receiving only minimal to moderate financial assistance**,** relying largely on personal or family capital to continue production. Support, when available, often comes in the form of trainings, mentoring, and access to trade fairs**,** rather than direct financial aid.

Traditional handlooms (*pangablan* or *Irwan*) remain central to Inaul production and are perceived as essential to preserving cultural identity and craftsmanship. The use of natural dyes remains limited, primarily due to technical difficulties, such as thread breakage, complexity of the dyeing process, and concerns over color durability. As a result, most weavers prefer pre-colored commercial threads, which are viewed as more reliable and efficient.

Quality improvement is strongly associated with patience, perseverance, attention to detail, and continuous experimentation with designs. Participants emphasized that intricate designs require longer production time, often taking two to three days per piece, and that rushing the process compromises quality. Independence in sourcing raw materials was generally perceived as having little effect on quality improvement, since threads are commonly purchased rather than produced locally.

Inauls are widely recognized as a symbol of community identity, particularly among Maguindanaon communities. However, perceptions of pricing varied. While many participants believed prices were fair and design-dependent, others acknowledged that market prices remain relatively low compared to the labor-intensive nature of the craft, making price increases difficult without risking reduced demand.

Production processes were generally described as efficient and effective, producing durable and finely crafted textiles. Nonetheless, there is limited standardization, as processes and quality benchmarks vary depending on design complexity, customer orders, and individual weaver techniques.

While mentoring and training programs are intermittently provided—often by government agencies or partner organizations—participants consistently noted that consumer education on product care remains insufficient. As a result, weavers and retailers take personal responsibility for instructing buyers on proper washing, drying, and handling to preserve product quality.

Inauls maintain high quality through cultural knowledge, discipline, and craftsmanship, but face challenges related to financial sustainability, standardization, and consumer education. The findings of this study align closely with existing literature that emphasizes the role of artisan skill, patience, and traditional knowledge as the primary foundations of quality in traditional weaving industries. Alauya (2020) and Fitri (2023) similarly observed that weaving communities often operate with minimal financial or institutional support, relying instead on personal capital, family labor, and intergenerational knowledge transfer to sustain production. This reinforces the view that quality in heritage textiles is rooted more in human skill and cultural practice than in formal industrial inputs.

The continued use of traditional handlooms (pangablan or Irwan) is consistent with the arguments of Banerjee and Chakrabarti (2022) and Rini and Budiani (2018), who noted that handloom technologies are integral to preserving cultural identity and craftsmanship despite limitations in productivity and standardization. The limited adoption of natural dyes further supports Srivastava and Saxena's (2022) findings that technical complexity, durability concerns, and process inefficiencies discourage artisans from shifting away from commercially prepared materials, particularly in resource-constrained settings.

Finally, the strong reliance on informal collaboration and family-based production observed in this study reflects Salang's (2019) assertion that social networks and communal cooperation compensate for weak institutional structures in traditional crafts. At the same time, participants' concerns regarding pricing and market valuation resonate with Masyarakat et al. (2018), who highlighted the difficulty of aligning labor-intensive craft production with market pricing pressures. Together, these parallels demonstrate that the challenges and adaptive strategies experienced by Inaul weavers are not isolated but reflect broader patterns within traditional textile industries.

**Socio-Cultural factors**. This theme was characterized by the absence of formal cooperative structures alongside strong mutual support among weavers. Despite the lack of organized groups, informal collaboration remains evident within the community.

Maguid noted the absence of a cooperative in their area but expressed willingness to participate if one were established, stating,

"We do not have a cooperative. We are willing to have one, but there is really a lack of support"

*"Wala kaming Cooperative. Willing din kami magkaroon kaso kulang lang ng support talaga."***(IDI_005)**

Meanwhile, Bailanie highlighted the collaborative nature of weaving, particularly when dealing with complex designs, stating,

"We help each other; when a task is too difficult, we ask others to finish it"

*"Nagtutulungan kami kumbaga pag di kaya sinasabi namin sa iba na ikaw na tumapos"***(FGD_002)**

**Economic factors**. This theme reflects the development of weaving skills, the formation of personal values, the absence of financial benefits or consistent support, and a livelihood heavily dependent on production output.

Muslimin emphasized that weaving fosters patience, stating,

"Weaving inaul teaches us to be more patient if one thread snaps, the others are not affected"

*"Nyaba kaba ol, talagang pamanduwan ka nin sa kad sabar ka moget inya penggulan. Mamali ka bus a saka tanul na daden"***(IDI_003)**

Similarly, Shaif explained that continuous weaving improves their skills, stating,

"Our skills are further enhanced through making inaul"

*"Mas gomanan su skills nami sabap sa kaba gumpal sa inaul."***(IDI_010)**

However, Fatima pointed out the lack of benefits within the industry, stating,

"We do not receive any benefits. I'm not sure about the others if they have it"

*"Wala kaming natatanggap na benefits.Di ko bu katawan sa kaped anya meka aden gakwa nilan a benefits"***(IDI_007)**

Muslimin further described the uncertainty of their income, explaining,

"We depend on the inaul we are able to finish. If we do not complete any, then we also have no income"

*"Umaasa lang kami sa mga natatapos namin na inaul. Kapag walang natapos wala din income."***(IDI_005)**

**Environmental factors.** The core ideas for this theme are water not needed in weaving; weavers meet through festivals and inter-community participation.

Aida noted that water is not a critical factor in weaving, stating,

"Water does not affect the production of inaul. Water is not needed in making inaul.

*"Yung tubig, hindi sya nakaka apekto sa paggawa ng inaul. Di bun man kailangan sa kabagumbal sa inaul"***(FGD_003)**

Maguid shared that festivals and exhibitions serve as opportunities for interaction among weavers, stating,

"We meet other weavers during festivals or inaul expos. That's where we usually meet"

*"Nagkakakilala kami ng ibang weavers kapag may mga festivals or inaul expo. Pakapagilaya kami"(IDI_005)*

Merriam further added that these events occur across different locations, stating,

"Some inaul expos are held in Cotabato, while others take place in Tawi- Tawi"

*"Yung ibang inaul expo dito pumunta sa Cotabato bale yung ibang inaul expo sa Tawi-Tawi naman."* **(IDI_008)**

**Discussion**

The findings indicate that the sustainability of the Inaul industry is shaped by institutional gaps, strong informal collaboration, skills development through practice, unequal access to benefits, stable basic resources, and cultural participation. Most participants agreed that establishing and sustaining cooperatives remains difficult within the community. The absence of cooperatives was largely attributed to lack of financial capital, limited external support, leadership gaps, and low organizational capacity. While many weavers expressed willingness to join or form cooperatives, they emphasized that sustained institutional assistance is necessary for such initiatives to succeed.

Despite the absence of formal cooperatives, the data show strong evidence of collaboration among weavers, retailers, and designers, which contributes to community recognition and identity. Informal partnerships, shared design work, joint participation in programs, and collective responses to customer orders enable weavers to strengthen their presence in local and external markets.

Weaving was also found to play a significant role in enhancing individual skills, including technical weaving abilities, patience, creativity, communication skills, and discipline. Continuous engagement in weaving allows artisans to refine their craftsmanship and adapt to market demands, particularly in design innovation.

However, the study revealed unequal access to resources and benefits. Most weavers reported little to no financial benefits, allowances, or regular training opportunities, relying mainly on income from finished Inaul products. Only a few participants cited indirect benefits such as profit-sharing by employers or inclusion in exhibitions.

In terms of basic infrastructure, respondents consistently reported that lack of clean water is not a major issue in the community. The availability of clean water through pumps, purchased mineral water, or piped systems was not seen as a constraint to weaving activities.

Finally, the findings demonstrate that participation in festivals, cultural events, and Inaul expos strengthens community ties and cultural identity. These events provide venues for showcasing Inaul, facilitating social interaction among weavers, and reinforcing pride in Maguindanaon heritage.

While the Inaul industry demonstrates strong cultural sustainability and social cohesion, its institutional and economic sustainability remains fragile due to limited cooperative structures and unequal access to resources.

The findings of this study indicate that the sustainability of the Inaul weaving industry is influenced by a combination of institutional limitations, strong informal collaboration, skills development through practice, unequal access to benefits, stable basic resources, and active cultural participation. These dimensions align with existing literature that frames sustainability as a balance among social, economic, cultural, and institutional factors rather than a purely economic outcome.

The difficulty in establishing and sustaining cooperatives among Inaul weavers reflects persistent institutional gaps commonly observed in traditional weaving industries. Participants attributed the absence of cooperatives to insufficient financial capital, weak leadership, limited organizational capacity, and lack of sustained external support. Similar findings are reported by by Fitri (2023) and Liton (2016) that difficulty in establishing and sustaining cooperatives among Inaul weavers reflects persistent institutional gaps commonly observed in traditional weaving industries. Participants attributed the absence of cooperatives to insufficient financial

capital, weak leadership, limited organizational capacity, and a lack of sustained external support. Similar challenges have been documented in traditional craft sectors, where inadequate financial literacy, weak governance structures, and limited managerial skills undermine collective organization and cooperative sustainability. Moreover, studies emphasize that without consistent government intervention and strong stakeholder collaboration, artisan groups struggle to formalize organizations capable of providing shared access to capital, training, and markets, resulting in fragmented production systems and limited collective bargaining power (Alauya, 2020).

Despite the absence of formal cooperatives, the study reveals strong informal collaboration among weavers, retailers, and designers. These collaborations include shared design development, collective responses to customer orders, and joint participation in programs and exhibitions. This finding supports Salang's (2019) assertion that weaving communities rely heavily on social capital, kinship ties, and mutual cooperation to sustain production and livelihoods. The literature identifies such informal partnerships as alternative governance mechanisms in contexts where formal institutions are weak (Lubis, 2004; Sridharan, 2021). Strong interpersonal networks not only facilitate market access and resource sharing but also reinforce community identity and recognition, which are essential for sustaining traditional craft industries.

The findings also highlight weaving as a key avenue for individual skills development, including technical proficiency, patience, creativity, discipline, and communication. This aligns with studies emphasizing that weaving skills are primarily acquired through continuous practice, observation, and experiential learning rather than formal education (Chayyi et al., 2019; Semuel et al., 2022). Continuous engagement in weaving enables artisans to refine craftsmanship and adapt designs to changing market demands. As noted by Haddad et al. (2020), in traditional weaving industries, cultural knowledge and skill mastery are more critical than formal educational attainment. This reinforces the role of weaving not only as an economic activity but also as a mechanism for sustaining human capital and cultural knowledge.

Although weaving contributes to household income and cultural preservation, the study reveals unequal access to economic benefits and institutional support. Most weavers reported receiving no regular allowances, training, or financial incentives beyond income derived from finished Inaul products, while only a few benefited indirectly through profit-sharing arrangements or participation in exhibitions. This pattern is consistent with findings that traditional weaving industries often experience uneven economic outcomes due to limited access to financial resources, weak institutional linkages, and selective participation in market-oriented opportunities (Alauya, 2020; Fitri, 2023). Studies further note that dependence on intermediaries and insufficient government or organizational support tend to concentrate benefits among a small number of better-connected actors, reinforcing disparities within weaving communities (Banerjee & Chakrabarti, 2022; Liton, 2016). The literature further indicates that limited access to capital, training, and market exposure weakens economic sustainability and discourages younger generations from entering the weaving industry (Hakim, 2012; Rini & Budiani, 2018).

In contrast to many textile industry studies that highlight water scarcity and sanitation as major constraints, respondents consistently reported that access to clean water is not a significant issue in the community. Water availability through pumps, piped systems, or purchased water was sufficient to support weaving activities. This finding diverges from broader concerns regarding the environmental impact of textile production (Gardetti & Torres, 2018; De Brito et al., 2018) but aligns with Salang (2019), who emphasized that environmental challenges vary by locality. In the context of Inaul weaving, stable access to basic resources supports production continuity and reduces environmental vulnerability at the community level.

Participation in festivals, cultural events, and Inaul expos emerged as a significant contributor to social cohesion and cultural sustainability. These events provide platforms for showcasing Inaul products, strengthening social interaction among weavers, and reinforcing pride in Maguindanaon heritage. The literature consistently affirms that culture is a central pillar of sustainability. Nurse (2019) and Fletcher (2020) argue that sustainable development is incomplete without cultural participation, as culture embeds values of continuity, identity, and collective responsibility. In this study, cultural events not only support marketing efforts but also function as mechanisms for cultural transmission and resilience.

Overall, the findings suggest that the sustainability of the Inaul weaving industry is sustained by strong informal collaboration, cultural engagement, and experiential skills development, while being constrained by institutional weaknesses and unequal access to benefits. Consistent with the literature, the study underscores the need for strengthened stakeholder synergy—particularly sustained government and institutional support—to complement existing social networks and promote inclusive, long-term sustainability of the Inaul industry.

**Standpoints of the participants on the Quantitative Results Regarding the Influence of the Industrial activities, quality and sustainability**

The data provided in Table 13 presents the standpoints of the participants on the high influence of industrial activities, quality and sustainability. The information highlighted the essential theme of the confirmed worth of industrial activities and quality towards sustainability.

**Table 13.** Standpoints of the participants on the Quantitative Results

| **Influence of Industrial activities and Quality on Sustainability** | **Essential Themes** | **Core Ideas** |
|---|---|---|
| High Influence of Industrial activities to Sustainability | Confirmed worth of Industrial activities to Sustainability | Longevity and resistance to fading |
| | | Raw materials linked to continuity |
| | | Production and selling reinforce sustainability |
| High Influence of Quality and Sustainability | Confirmed worth of Quality and Sustainability | Skills transfer ensures continuity |
| | | Long-term usability across generations |
| | | Quality inputs strengthen industry |

**Confirmed worth of Industrial activities to Sustainability.** The participants confirmed the high influence of Industrial activities to Sustainability. The core ideas of the participants include longevity and resistance to fading, raw materials linked to continuity, and production and selling reinforce sustainability.

The following are the discourse made by participants to support the confirmed worth of Industrial activities to sustainability as an essential theme:

Muslimin affirms that the colors of Inaul stays vibrant over time and does not fade because high-quality, branded raw materials are used. He explained,

"Yes, I agree, because the colors of Inaul do not fade since the materials used are branded."

*"Opo. Sang ayon ako kasi yang kulay kasi ng inaul di yan kumukupas kasi yung materials na gamit ay branded."* **(IDI_005)**

Maguid also highlighted that the durability of Inaul is due to the quality of its raw materials. He stated,

"Yes.Inaul lasts long because of the raw materials used."

*"Tama po. Tatagal ang Inaul dahil sa raw materials na ginagamit namin."* **(IDI_003)**

Meanwhile, Nor discussed the factors contributing to the sustainability of the Inaul industry. She shared,

"The raw materials used in production and the process of selling are the reasons why the Inaul industry continues to endure."

*"Yung mga raw materials sa production, yung paggawa nila, yung pagbenta, yan ang dahilan para tumagal ang inaul industry" (***IDI_009)**

**Confirmed worth of Quality and Sustainability.** The participants confirmed the high influence of quality to sustainability. The core ideas of the participants include skills transfer ensures continuity, long-term usability across generations and quality inputs strengthen industry.

The following are the discourse made by participants to support the confirmed worth of quality to sustainability as an essential theme:

Meriam affirms that the Inaul industry can endure if its knowledge and skills are passed on to the next generation. She shared,

"That's right. Our Inaul will truly continue if we teach and pass on the knowledge to the new generation."

*"Tama po. Mananatili talaga yung inaul natin kapag itinuro at ipinasa natin yung kaalaman sa new generation."* **(IDI_008)**

Dindie also agreed that future generations will still be able to use Inaul because of its quality and durability. She stated,

"Absolutely. My children will be able to use Inaul, because of its quality, it does not easily get damaged."

*"Benal. Magamit pan na mga wata ko i inaul kasi grabe ang quality, matagal masira."* **(IDI_004)**

Shaif likewise believed that maintaining high-quality craftsmanship ensures the sustainability of the Inaul industry. He explained,

"Yes, if the Inaul is well-made, the Inaul industry will surely last."

*"Uwai. Kung maganda ang pagkagawa ng inaul, tatagal ang inaul industry"* **(IDI_010)**

**Discussion**

The findings strongly indicate that participants agree with the survey result that industrial activities and product quality significantly influence the sustainability of the Inaul industry**.** Across weavers and retailers, sustainability was consistently described as the outcome of good-quality raw materials, skilled production processes, and the ability to pass knowledge across generations**.**

The industrial activities, product quality, and sustainability are deeply interconnected within the Inaul industry. Quality raw materials and skilled craftsmanship enable durable products, which sustain market demand and cultural relevance. When combined with knowledge transfer and training, these elements create a self-reinforcing sustainability cycle that supports both livelihood continuity and cultural preservation.

The findings of this study strongly affirm that industrial activities and product quality play a crucial role in shaping the sustainability of the Inaul weaving industry. Participants' agreement with the survey results reflects a shared understanding that sustainability is not an isolated outcome but the cumulative result of quality raw materials, skilled production processes, and the successful transmission of weaving knowledge across generations. This perspective is consistent with sustainability frameworks that emphasize the interconnectedness of production quality, economic viability, and socio-cultural continuity

Participants highlighted those high-quality raw materials—particularly durable and colorfast threads—are fundamental to the longevity and perceived value of Inaul textiles. This finding aligns with previous studies emphasizing that raw material quality directly influences product durability and sustainability (Ferng, 2018; Raffat, 2018). In traditional weaving industries, the use of superior materials extends product life and enhances consumer satisfaction, thereby reinforcing sustained demand. Moreover, Semuel et al. (2022) argue that for weavers, quality begins with careful selection of raw materials that align with cultural standards and production requirements. When Inaul products last for years or generations, they acquire not only economic

value but also symbolic and cultural significance. This durability strengthens the reputation of the craft and supports long-term sustainability by encouraging repeat purchases and intergenerational use of woven textiles.

Beyond raw materials, participants consistently emphasized the importance of skilled craftsmanship, including careful weaving techniques, intricate designs, and adherence to proper production practices. This finding supports literature asserting that quality craftsmanship is central to sustaining traditional weaving industries in competitive markets (Banerjee & Chakrabarti, 2022; Schneider et al., 2017) . According to Semuel et al. (2022), quality in weaving is not measured by speed or mass production but by conformity to cultural standards, precision in execution, and commitment to process. Well-crafted Inaul textiles are more likely to attract buyers, gain wider recognition, and be prominently displayed in retail spaces. This visibility enhances market credibility and reinforces continuous production, creating a positive feedback loop between quality and sustainability.

Participants further emphasized that sustainability extends beyond materials and craftsmanship to include the transmission of knowledge and skills to younger generations. Teaching weaving techniques within families and conducting formal trainings were viewed as essential strategies for ensuring the continuity of the Inaul industry. This finding is strongly supported by literature that identifies skills transfer and human capital development as key pillars of sustainability in traditional crafts (Chayyi et al., 2019; Haddad et al., 2020). Salang (2019) notes that weaving strengthens community identity and social cohesion through intergenerational learning, while Hakim (2012) warns that the absence of consistent income and training discourages youth participation. In this study, respondents' emphasis on training and mentorship reflects an understanding that sustainability is not solely about economic survival but also about preserving cultural identity, craftsmanship, and livelihood across generations.

Overall, the findings reveal a cyclical and reinforcing relationship among industrial activities, quality, and sustainability in the Inaul industry. High-quality raw materials and skilled production processes result in durable, marketable products, which sustain consumer demand and generate income. This economic viability, in turn, motivates continued production and facilitates the transfer of knowledge to future generations. This cyclical relationship echoes De Brito et al. (2018), who argue that sustainability in supply chains is influenced not only by financial performance but also by product quality, human resource management, and inter-organizational relationship. Similarly, Semuel et al. (2022) emphasize that quality serves as both a cultural and economic foundation for sustainability, particularly in traditional weaving SMEs where identity, reputation, and craftsmanship are inseparable.

The findings show that the sustainability of the Inaul weaving industry depends on the integration of quality industrial activities and the transfer of knowledge across generations. Sustainability is achieved through the combined influence of quality materials, skilled craftsmanship, and cultural continuity. The study highlights that strengthening quality at all production stages is vital for both market competitiveness and the preservation of the industry's cultural and economic future.

**Data Integration of Quantitative Results and Qualitative Results**

Table 14. Joint Display of Quantitative Results and Qualitative Results

| Research Area | Quantitative Result | Qualitative Result | Nature of Integration |
|---|---|---|---|
| 1. Status of Industrial in terms of raw materials,<br><br>production and marketing | The three (3) indicators of industrial activities – raw materials, production and marketing obtained category mean scores ranging 3.03-3.42 that resulted to an overall mean of 3.21, which is described as average of fairly | The participants confirmed the rating of the three indicators as showed in the three themes which are raw materials, production and marketing | Connecting-merging (confirmation) |

| | | | |
|---|---|---|---|
| | evident.<br><br>(Refer to Table 4) | (Refer to Table 12) | |
| 2. Concepts on the Quality<br><br>Of Inaul | The six (6) indicators of quality-synergy of stakeholders, respect for traditional culture and nature, commitment to continual process improvement, reputation, conformity with standard operating procedure and empowering education and training obtained category mean scores ranging 2.66-3.64 that resulted to an overall mean of 3.43, which is described as above average of oftentimes evident.<br><br>(Refer to Table 6) | The participants confirmed the high rating of the six indicators which resulted to six essential themes with a positive core of ideas in the qualitative results<br><br>(Refer to Table 12) | Connecting-merging (confirmation) |
| 3. Extent of Sustainability<br><br>of Inaul Industry in terms of Socio-cultural, Economic and Environmental | The three (3) indicators of Sustainability – Socio-cultural, Economic and Environmental factors obtained category mean scores ranging 3.01-3.67 that resulted to an overall mean of 3.88, which is described as above average or oftentimes practiced<br><br>(Refer to Table 8) | The participants confirmed the high rating of the three indicators which resulted to three essential themes with a positive core of ideas in the qualitative results<br><br>(Refer to Table 12) | Connecting-merging (confirmation) |
| 4. High Influence of Industrial activities to Sustainability | The industrial activities were the strongest predictor of sustainability since it has a high Beta coefficient (B=.512, p<.05)<br><br>(Refer to Table 9.1) | The respondents agreed on the result that industrial highly influence the sustainability of inaul as showed in the essential theme *Confirmed worth of Industrial activities to Sustainability*<br><br>(Refer to Table 13) | Connecting-merging (confirmation) |
| 5. High Influence of Quality to Sustainability | The quality is also strong predictor of sustainability since it has a high Beta coefficient (B=.442, p<.05) | The respondents agreed on the result that quality highly influence the sustainability of inaul as showed in the essential theme *Confirmed worth of Quality to* | Connecting-merging (confirmation) |

| | | | |
|---|---|---|---|
| | (Refer to Table 9.1) | *Sustainability*<br><br>(Refer to Table 13) | |

**Status of Industrial activities.** The study reveals that industrial activity indicators have an overall mean of 3.21. The results suggest that the challenges in industrial activities – raw materials, production and marketing was fairly evident. The participant's confirmation of the quantitative results aligns with their claims regarding the presence of three indicators of industrial activities. Therefore, the nature of integration is *connecting-merging (confirmation).*

**Concepts on the Quality of inaul weaving.** The category means of the six indicators of quality range from 2.66-3.64, indicating an above average level of agreement or evidence. The participants' responses consistently expressed positive responses towards the six indicators- synergy of stakeholders, respect for traditional culture and nature, commitment to continual process improvement, reputation, conformity with standard operating procedure and empowering education and training. Therefore, the nature of integration is *connecting-merging (confirmation).*

**Extent of Sustainability.** The study reveals that sustainability indicators have an overall mean of 3.88. The results suggest a general agreement or evidence of sustainability. The participant's confirmation of the quantitative results aligns with their claims regarding the presence of three indicators of sustainability- socio-cultural, economic and environmental factors. Therefore, the nature of integration is *connecting-merging (confirmation).*

**High Influence of Industrial activities to Sustainability.** The results of the quantitative analysis show that industrial activities are the most significant predictor of sustainability, a finding that was also supported by the study participants. Thus, the nature of integration is *connecting-merging (confirmation).*

**High Influence of Quality to Sustainability.** The findings of the quantitative analysis also confirm a high influence of quality to sustainability of inaul industry, and this result was confirmed by the participants involved in the study. Thus, the nature of integration is *connecting-merging (confirmation).*

**Discussion**

The quantitative finding that industrial activities in the Inaul weaving industry are *Fairly Evident*, with production rated highest and raw material access lowest, is strongly supported by qualitative evidence and existing literature. Interview data reveal a clear contradiction with the quantitative findings: while survey results suggest that weaving skill and the continued use of traditional handlooms are central to production, participants lived experiences indicate that production continuity is shaped far more by capital availability and access to raw material suppliers.

Weavers emphasized that even with high skill levels and strong cultural commitment to traditional methods, production is frequently delayed or interrupted when financial resources are insufficient or when raw materials are difficult to obtain. This contrast highlights that craftsmanship alone cannot sustain continuous production without adequate economic and supply support, underscoring a gap between the perceived importance of traditional practices and the practical constraints that ultimately govern daily production decisions. This aligns with Masyarakat et al. (2018), Alauya (2020), and Banerjee and Chakrabarti (2022), who emphasize that dependence on distributors, rising material costs, and weak financial management constrain traditional weaving industries more than production techniques themselves.

In terms of raw materials, the convergence of quantitative and qualitative findings underscores raw material access as a persistent structural challenge in the Inaul weaving industry. The lowest quantitative mean reflects ongoing supply limitations and fluctuating costs, indicating constraints that affect production stability. This result is strongly reinforced by interview data, where participants emphasized minimal reliance on local distributors and identified financial capacity as the primary determinant of raw material acquisition. Weavers explained that limited capital restricts their ability to purchase materials in sufficient quantity or at stable

prices, leading to delayed or reduced production regardless of skill level or commitment. The alignment of both data sets highlights that challenges in raw material access are not merely logistical but deeply rooted in economic constraints, positioning capital availability as a critical factor shaping production continuity and overall industry sustainability. Prior studies note that dependence on distributors, rising material prices, limited availability, and weak financial management significantly constrain raw material procurement and disrupt production continuity (Masyarakat et al., 2018; Banerjee & Chakrabarti, 2022). This supports the qualitative findings showing minimal reliance on local distributors and emphasizing capital availability as a decisive factor in securing inputs, consistent with research highlighting financial capacity as central to sustaining production in handloom sectors (Fitri, 2023).

The moderate marketing score can be explained by the central role of retailers as intermediaries in the Inaul weaving industry. Rather than engaging directly with broader or formal markets, most weavers rely on retailers to handle product distribution, pricing, and customer access. This intermediary system allows weavers to focus on production but limits their direct control over marketing strategies, market expansion, and profit margins. As a result, marketing activities remain functional but constrained, reflecting a balance between accessibility through retailers and restricted opportunities for wider market reach and independent promotion echoing findings by Azrani and Maulana (2021) and Wiratama (2014), who highlight exhibitions, intermediaries, and informal market linkages as crucial mechanisms for sustaining artisan market access in the absence of strong institutional marketing support.

Regarding quality, quantitative results showing high respect for tradition and craftsmanship and low formal training are contextualized by qualitative findings that define quality as artisan skill, patience, family collaboration, and intergenerational knowledge transmission. This understanding is consistent with Samsir and Nurwati (2018) and Semuel et al. (2022), who argue that quality in weaving SMEs cannot be assessed using modern efficiency-based standards but must be understood through cultural symbolism, motif authenticity, and adherence to inherited practices. The limited role of institutional training and consumer education supports observations by Salang (2019) and Fitri (2023), who note weak institutional linkages and low technical assistance for weavers, contributing to limited standardization and undervaluation of labor-intensive products.

The quantitative ranking of sustainability dimensions—economic highest, followed by socio-cultural and environmental—is reinforced by qualitative narratives and prior studies. Economic sustainability is reflected in livelihood support, women's participation, and income generation, aligning with findings by Sridharan (2021) and Pratama (2016), who emphasize the role of weaving in poverty alleviation and local economic development. The strong socio-cultural dimension corresponds with Salang (2019), Fletcher (2020), and Nurse (2019), who highlight weaving as a source of social capital, identity formation, and cultural continuity.

Meanwhile, the lower emphasis on environmental sustainability mirrors the concerns raised by Gardetti and Torres (2018) and Hamner (2006), who note that environmental initiatives in textile industries are often constrained by resource limitations, lack of technology, and limited regulatory enforcement in small-scale settings

Finally, the strong statistical relationships among industrial activities, quality, and sustainability are given depth by qualitative explanations portraying these elements as cyclical and mutually reinforcing. The regression findings showing that industrial activities and quality significantly predict sustainability align with Schneider et al. (2017) and De Brito et al. (2018), who argue that sustainability in supply chains and SMEs emerges from the interaction of production practices, organizational culture, and relationship quality rather than isolated interventions. Qualitative accounts further support Semuel et al. (2020) and Chayyi et al. (2019), who describe quality craftsmanship as both an economic driver and a medium for cultural transmission, sustaining demand while reinforcing intergenerational knowledge transfer.

Overall, the integration of quantitative and qualitative findings confirms existing scholarship that sustainability in traditional weaving industries is culturally embedded and socially constructed rather than purely industrial or technological. Consistent with Li (2020) and Bazalgette (2017), the Inaul industry functions as a creative and cultural enterprise where informal collaboration, cultural entrepreneurship, and indigenous knowledge systems underpin resilience and long-term sustainability.

# SUMMARY OF FINDINGS, CONCLUSIONS, RECOMMENDATION

## Summary of the Research Findings

This following were the main findings of the study on the status of industrial activities, concept on quality, extent of sustainability, influence of industrial activities, quality and sustainability, lived experiences on inaul industry, and standpoints of the participants on quantitative study.

**1.** The findings show that the three dimensions of industrial activities are generally evident, but key challenges remain in raw materials, production, and marketing. Production had the highest mean, indicating consistent weaving practices, though this is affected by reliance on traditional handlooms and an aging workforce. Marketing showed moderate exposure with continued dependence on intermediaries, while raw materials had the lowest mean due to limited supply and unstable costs. The qualitative findings, organized into the themes of raw materials, production, and marketing, largely support the quantitative results, particularly regarding dependence on external raw material distributors and the critical role of capital in sustaining production. However, participants disagreed that handlooms limit productivity and noted that experience has little effect on output. Marketing opportunities remain available, with retailers playing an important role in connecting weavers to wider markets. Overall, the industry continues through strong cultural commitment despite challenges in resources, efficiency, and modernization.

**2.** The findings indicate that quality in Inaul weaving is generally evident and is mainly driven by strong craftsmanship and deep respect for tradition. Respect for traditional culture and nature received the highest rating, highlighting the strong cultural connection, while education and training received the lowest, pointing to limited opportunities for skill development and consumer awareness. The qualitative results identified key themes such as stakeholder collaboration, cultural respect, continuous improvement, reputation, adherence to practices, and training. Overall, quality is maintained through artisan skills, patience, traditional knowledge, and family-based practices rather than strong institutional support. Traditional handlooms remain important for preserving authenticity, while commercial threads are preferred over natural dyes due to practical challenges. Although Inaul is valued as a cultural symbol and produces durable textiles, issues such as limited standardization, insufficient training, and pricing that does not fully reflect the effort involved remain concerns.

**3.** The findings indicate that sustainability in the Inaul industry is generally practiced, with the economic dimension ranking highest, reflecting contributions to livelihoods, skill development, and women's participation. The socio-cultural aspect also scored high, highlighting strong community identity and cooperation, while the environmental dimension was less emphasized, showing limited ecological initiatives. Qualitative results revealed three main themes: socio-cultural, economic, and environmental factors. Sustainability is largely driven by informal collaboration, hands-on skill development, and community participation rather than formal institutional support, which remains limited due to capital constraints and weak organizational capacity. Access to financial resources and training is uneven, but basic needs like clean water are generally met, and participation in cultural events and Inaul expos strengthens social cohesion and preserves Maguindanaon cultural identity.

**4.** All variables—industrial activities, quality, and sustainability—showed positive and statistically significant relationships. Industrial activities had the strongest correlation with sustainability ($r = .512$, $p < .001$), followed by quality ($r = .442$, $p < .001$), indicating a very low probability of these relationships occurring by chance. Multiple regression analysis showed $R = .78$, $R^2 = .61$, and Adjusted $R^2 = .60$, with $F(2, N-1) = 61.28$, $p < .001$, indicating that industrial activities and quality together explain 61% of the variance in sustainability. Industrial activities emerged as the strongest predictor of sustainability ($B = .392$, $p < .001$), and followed by the quality ($B = .178$, $p = .031$). Split-half analysis confirmed the consistency of industrial activities as a predictor across both groups ($\beta = 0.339$, $p < 0.05$; $\beta = 0.456$, $p < 0.05$), whereas quality was significant only in the first half ($\beta = 0.261$, $p < 0.05$) and not in the second ($\beta = 0.090$, $p > 0.05$).

Qualitative findings supported these results, identifying two themes: the confirmed importance of industrial activities and the confirmed importance of quality in relation to sustainability. The relationship among the

three variables is interdependent and mutually supportive: high-quality inputs and processes produce durable, marketable products, which sustain demand, livelihoods, and the transfer of weaving knowledge. Overall, the findings demonstrate that the sustainability of the Inaul industry is rooted in the integration of effective industrial activities, skilled craftsmanship, and intergenerational knowledge, forming a holistic system that preserves both economic and cultural heritage

**5.** The lived experiences of Inaul weavers and retailers highlighted six (6) fundamental themes such as capital constraints shape daily production, emotional discipline, patience, and craftmanship define quality, shared but flexible production standards, collaboration build skills, identity, and community ties, absence of Cooperatives and benefits and weaving as cultural preservation and family Livelihood.

The findings indicate that sustainability in the Inaul industry is primarily grounded in cultural and personal practices rather than formal industrial systems. Daily habits such as patience, perseverance, collaboration, and the preservation of cultural identity drive continuity, while limited capital and raw material access pose key production challenges. Traditional handlooms are valued as essential tools for craftsmanship, and quality is seen as a skill-based, detail-oriented practice rooted in tradition rather than mechanized efficiency. Social capital—through family-based work, mentoring, and shared spaces—supports knowledge transfer and cooperation, though the absence of cooperatives and limited institutional support place much responsibility on individual weavers. Overall, the resilience of the industry demonstrates how indigenous knowledge, collective effort, and cultural engagement sustain both livelihoods and cultural heritage.

**6.** Across all indicators, the quantitative and qualitative findings are integrated, consistent and mutually confirm each other. The status of industrial activities was confirmed with three essential themes, concept on quality of inaul weaving was also confirmed with six essential themes, and extent of sustainability was also confirmed with three essential themes. The findings confirm a high influence of industrial activities to sustainability and high influence of quality to sustainability. Quantitative data establishes magnitude, strength, and direction of relationships. Qualitative data explains the reasons, processes, and lived experiences behind those patterns.

## Conclusion

The study found that the Inaul weaving industry in BARMM demonstrates evident and practiced industrial activities, quality, and sustainability, though key challenges persist. Production remains resilient despite reliance on traditional handlooms and an aging workforce, while raw material shortages, limited financial resources, and dependence on intermediaries' limit efficiency and scalability. Quality is largely sustained through artisan skill, patience, traditional knowledge, and family-based collaboration, with handlooms central to preserving cultural authenticity, though formal training, organization, association and standardization on the process are limited.

Sustainability is most evident in economic and socio-cultural dimensions, supporting livelihoods, skill development, women's participation, and Maguindanaon cultural identity, while environmental practices remain less emphasized. Environmental awareness sustained through participation on cultural festivals. This indicates that the inaul industry can achieve and maintain sustainable development through the Triple Bottom Line (TBL) and Community Economic Development. Correlation analysis shows strong, positive, and interdependent relationships among industrial activities, quality, and sustainability. Industrial activities exert the greatest influence on sustainability, followed by quality. Thus, the null hypothesis—that industrial activity and quality do not significantly influence sustainability—is rejected.

Lived experiences further highlight the critical role of social capital, collaboration, and cultural engagement, with the industry relying on informal practices rather than formal structures. Overall, the findings demonstrate that the continuity and sustainability of Inaul industry in BARMM are rooted in the integration of effective industrial practices, skilled craftsmanship, cultural preservation, and intergenerational knowledge transfer, forming a holistic system that sustains both economic livelihoods and cultural heritage.

**Recommendations**

Based on the findings and conclusions of the study, the following recommendations are proposed to support the sustainability and continued development of the Inaul weaving industry:

**a.** Government agencies, local government units, and development partners should establish targeted financial support mechanisms such as micro-financing schemes, revolving funds, and subsidized access to raw materials. These initiatives aim to overcome capital and raw material challenges while helping weavers maintain proper production processes that meet design, quality, and customer standards.

**b.** Capacity-building programs focusing on market expansion, supply chain management, and ethical sourcing should be implemented to enhance cooperation between retailers and weavers, promoting shared responsibility in sustaining production, supporting workforce renewal, and securing wider market access and consistent demand for woven products.

**c.** Support from institutions, including training in leadership, governance, financial management, and organizational development, should be provided to promote the establishment and long-term sustainability of weaving cooperatives or associations.

**d.** Branding, storytelling, and digital marketing programs should be institutionalized to promote Inaul as a culturally significant and sustainably produced textile. Strengthening online presence, participation in trade fairs, and linkages with designers and retailers will help expand market reach, empower buyers to patronize authentic inaul products, and reinforce fair valuation of the craft.

**e.** Structured and ongoing training programs in design innovation, quality improvement, standardization process, sustainable production, and basic business management should be established. Additionally, mentoring and apprenticeship initiatives are recommended to engage young participants and ensure the transfer of weaving skills across generations, preserving the continuity of Inaul craftsmanship.

**f.** Efforts to educate consumers on the proper care, handling, and cultural significance of inaul textiles should be enhanced. Raising consumer awareness can help maintain product quality, prevent damage or misuse, and ensure pricing that fairly reflects the craftsmanship and cultural value of Inaul weaving.

**g.** Environmental considerations—such as responsible material use, waste management, and the gradual exploration of sustainable dyeing techniques—should be integrated into existing cultural programs, festivals, and training activities. This approach will promote environmental sustainability while respecting traditional weaving practices and cultural authenticity.

**h.** The Ministry of Trade, Investment, and Tourism (MTIT-BARMM) should leverage the study's findings to enhance programs that position Inaul weaving as both a cultural heritage product and a sustainable tourism attraction. Encouraging the continued use of traditional looms, providing opportunities to participate in exhibitions and expos, and incorporating Inaul into cultural tourism initiatives can help preserve and revitalize the centuries-old Maguindanaon weaving tradition.

**Recommendations for Future Studies**

The study highlights the findings and identified gaps for future studies.

1. Comparative analysis with other traditional textile industries should be conducted.

2. Examine the long-term economic impacts of cooperative models.

3. Investigate consumer perceptions of value and willingness to pay.

4. Inform policy formulation, program design, and industry development.

## ACKNOWLEDGEMENT

It has truly been a meaningful journey. Indeed, Allah (S.W.T.) is the Best of Planner—granting our prayers at the most perfect time.

My deepest gratitude goes to our Graduate School Dean, Dr. Ma. Aracelli C. Juliano, for believing in this study. Your encouragement has meant so much and has served as a constant source of motivation throughout this journey. I extend my heartfelt appreciation to my adviser, Dr. Catlyn O. Pongot, whose unwavering support and guidance have been invaluable. Thank you for always being there, especially for helping me prepare for both the in-house and final defense. To our esteemed reader, Dr. Ma. Theresa Llano, thank you for your insightful guidance, particularly during the qualitative phase of this study. I am deeply grateful.

I am also sincerely thankful to the panel members headed by Dr. Ronald G. Mamaril, Dr. Margie Clavano, Dr. Alfred Taboada, and Dr. Harold Fernandez—for your valuable insights and constructive comments that greatly enhanced this paper. I will always be grateful for your support.

To Ama and Ina, our steadfast supporters, thank you for standing by us every step of the way, especially during those difficult phases. Your encouragement became my strength. Your unwavering support means more than words can express. To my husband, Esmael, and my children, Jana Eshal and Muhammad Suhail, thank you for being my inspiration. You are among the reasons why this research came to life. Finally, I can spend more time with you, In Shaa Allah.

To my research buddies, Ina, Noraima, Kaka Anda, Kaka Kweng and Bapa Sadat, thank you for your helping hand and for always ensuring that I had the support I needed throughout this journey. To my relatives, friends, students, colleagues, and my CBPA family, I am deeply grateful for your unwavering support and encouragement; your faith in me inspires me.

Above all, to Almighty Allah (S.W.T.), I offer my deepest gratitude for this achievement. Truly, “Whatever Allah wills to be shall be, and whatever He does not will shall not be (Maa shaa’a Allaahu kaana, wa maa lam yasha’ lam yakun).

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## APPROVAL SHEET

This Dissertation entitled "**INDUSTRY ACTIVITIES, QUALITY OF INAUL WEAVING AND ITS SUSTAINABILITY IN THE BARMM**", prepared and submitted by **MARJANAH B. ANTOK** in partial fulfillment of the requirements for the degree **DOCTOR IN BUSINESS ADMINISTRATION**, is hereby recommended for Acceptance and Approval for Oral Examination.

**DR. CATLYN O. PONGOT** **DR. MA. THERESA P. LLANO**

Adviser Co Adviser/ Reader

Approved by the Panel of Examiners during the Oral Examination on March 30, 2026 with a Rating of PASSED.

**DR. RONALD G. MAMARIL, CPA**

Chairperson

**DR. MARIA ARACELI C. JULIANO** **DR. MARGIE J. CLAVANO, CPA**

Member External Assessor

Accepted and approved as partial fulfillment of the requirements for the degree **DOCTOR IN BUSINESS ADMINISTRATION.**

**DR. MARIA ARACELI C. JULIANO**

Dean, Graduate School

Date

**APPROVAL SHEET FOR QUALITY AND STYLE**

Name of Student: Marjanah B. Antok

College: Graduate School

Dissertation Title:

**Industry Activities, Quality Of Inaul Weaving And Its Sustainability In The Barmm**

**APPROVED:**

**DR. MA. THERESA P. LLANO**

Reader for Style

April 2026

**Certificate Of Authentic Authorship**

I hereby declare that this research paper is my own work and to the best of my knowledge, contains no materials previously published or written by another person or group of persons, which have been accepted for the conferment of any other degree or diploma at Notre Dame University or any other Higher Educational Institutions, except where due acknowledgment or citation is made. Also, any bibliographic entries; intellectual properties such as design, concepts, framework, format and style, linguistic expressions, and others whether it be adopted or adapted have been explicitly cited and acknowledged.

**MARJANAH B. ANTOK**

Researcher

## APPENDICES

**Appendix A**

**(Consent Informed Form for Respondents- Quantitative)**

**Informed Consent** *(Pahintulot na May Kaalaman)*

**Title of the Study** ***(****Pamagat ng Pag-aaral)*

**INDUSTRY ACTIVITIES, QUALITY OF INAUL WEAVING AND ITS SUSTAINABILITY IN THE BARMM: AN EXPLANATORY SEQUENTIAL DESIGN**

*(MGA GAWAIN SA INDUSTRIYA, KALIDAD NG PAGHABLA NG INAUL, AT ANG KANAPAN NITO SA BARMM: ISANG EXPLANATORY SEQUENTIAL NA DISENYO)*

| **Researcher** *(Mananaliksik)* | **Contact Information** *(Impormasyon sa pakikipag-ugnayan)* |
|---|---|
| Marjanah B. Antok | 19400033-student@ndu.edu.ph or 09358858445 |

The researcher greatly values your collaboration, which is entirely voluntary *(Ang mananaliksik ay lubos na pinahahalagahan ang iyong pakikiisa, na ganap na boluntaryo).* You are afforded the opportunity to decide whether or not to engage in this study *(Ikaw ay binibigyan ng pagkakataong magpasya kung lalahok o hindi sa pag-aaral na ito)*. All procedures are primarily intended for research purposes *(Ang lahat ng mga proseso ay isinagawa para sa layuning pang-pananaliksik lamang)* . Your confidentiality and the security of all your information are ensured *(Tinitiyak ang pagiging kumpidensyal at seguridad ng lahat ng iyong impormasyon)*. However, there is a potential risk that, if survey responses are not properly secured during storage or transmission, personal information could be exposed through hacking or data leak *(Gayunpaman, may potensyal na panganib na kung ang mga sagot sa survey ay hindi maayos na maseguro habang iniimbak o ipinapadala, maaaring malantad ang personal na impormasyon sa pamamagitan ng hacking o pagtagas ng datos)*. Should you elect to participate, you will be required to sign a consent form *(Kung pipiliin mong lumahok, kakailanganin mong lumagda sa isang pahintulot na form)*.Even after providing your consent, you retain the option to withdraw by contacting the researcher using the details provided above and the CRMC

Research Ethics Committee (CREC) contact number 0966-6650825 *(Kahit na ikaw ay nakapagbigay na ng pahintulot, nananatili ang iyong karapatang umatras sa pag-aaral sa pamamagitan ng pakikipag-ugnayan sa mananaliksik gamit ang impormasyong nasa itaas at sa CRMC Research Ethics Committee (CREC) sa numerong 0966-6650825).*However, please be aware that such withdrawal would necessitate the destruction and non-utilization of the data you have provided *(Gayunpaman, pakatandaan na ang iyong pag-atras ay mangangahulugan ng hindi paggamit ng anumang datos na iyong naibigay).*

**Consent** *(Pahintulot)*

I've read the material, comprehended it, and been given the opportunity to ask questions. I am aware that I can choose to stop participating at any moment and that it is completely optional. I willingly agreed to participate in this study *(Nabasa at naunawaan ko ang mga impormasyon, at ako ay nabigyan ng pagkakataong magtanong. Batid ko na maaari akong huminto sa paglahok anumang oras at na ang aking pagsali ay ganap na boluntaryo. Kusang-loob akong pumapayag na lumahok sa pag-aaral na ito).*

Respondent's signature *(Lagda ng Kalahok)*

Date *(Petsa)* _____

The aforementioned individual has been notified about this study, and I have requested their consent in writing *(Ang nabanggit na indibidwal ay naipaalam tungkol sa pag-aaral na ito, at ako ay humingi ng kanilang nakasulat na pahintulot).*

Researcher's Signature over Printed Name

*(Lagda at Buong Pangalan ng Mananaliksik)*

Date *(Petsa)* _____

**Appendix B**

**(Consent Informed Form for Respondents- Qualitative)**

**Informed Consent Form** *(Pahintulot na May Kaalaman)*

**Title of the Study** ***(****Pamagat ng Pag-aaral)*

**INDUSTRY ACTIVITIES, QUALITY OF INAUL WEAVING AND ITS SUSTAINABILITY IN THE BARMM: AN EXPLANATORY SEQUENTIAL DESIGN**

*(MGA GAWAIN SA INDUSTRIYA, KALIDAD NG PAGHABLA NG INAUL, AT ANG KANAPAN NITO SA BARMM: ISANG EXPLANATORY SEQUENTIAL NA DISENYO)*

| **Researcher** *(Mananaliksik)* | **Contact Information** *(Impormasyon sa pakikipag-ugnayan)* |
|---|---|
| Marjanah B. Antok | 19400033-student@ndu.edu.ph or 09358858445 |

The researcher greatly values your collaboration, which is entirely voluntary *(Ang mananaliksik ay lubos na pinahahalagahan ang iyong pakikiisa, na ganap na boluntaryo).* You are afforded the opportunity to decide whether or not to engage in this study *(Ikaw ay binibigyan ng pagkakataong magpasya kung lalahok o hindi sa pag-aaral na ito)*. All procedures are primarily intended for research purposes *(Ang lahat ng mga proseso ay isinagawa para sa layuning pang-pananaliksik lamang)* . Your confidentiality and the security of all your information are ensured *(Tinitiyak ang pagiging kumpidensyal at seguridad ng lahat ng iyong impormasyon)*. However, there is a potential risk that, if survey responses are not properly secured during storage or transmission, personal information could be exposed through hacking or data leak *(Gayunpaman, may potensyal na panganib na kung ang mga sagot sa survey ay hindi maayos na maseguro habang iniimbak o*

*ipinapadala, maaaring malantad ang personal na impormasyon sa pamamagitan ng hacking o pagtagas ng datos)*. Should you elect to participate, you will be required to sign a consent form *(Kung pipiliin mong lumahok, kakailanganin mong lumagda sa isang pahintulot na form)*.Even after providing your consent, you retain the option to withdraw by contacting the researcher using the details provided above and the CRMC Research Ethics Committee (CREC) contact number 0966-6650825 *(Kahit na ikaw ay nakapagbigay na ng pahintulot, nananatili ang iyong karapatang umatras sa pag-aaral sa pamamagitan ng pakikipag-ugnayan sa mananaliksik gamit ang impormasyong nasa itaas at sa CRMC Research Ethics Committee (CREC) sa numerong 0966-6650825)*.However, please be aware that such withdrawal would necessitate the destruction and non-utilization of the data you have provided *(Gayunpaman, pakatandaan na ang iyong pag-atras ay mangangahulugan ng hindi paggamit ng anumang datos na iyong naibigay).*

**Consent** *(Pahintulot)*

I've read the material, comprehended it, and been given the opportunity to ask questions. I am aware that I can choose to stop participating at any moment and that it is completely optional. I willingly agreed to participate in this study *(Nabasa at naunawaan ko ang mga impormasyon, at ako ay nabigyan ng pagkakataong magtanong. Batid ko na maaari akong huminto sa paglahok anumang oras at na ang aking pagsali ay ganap na boluntaryo. Kusang-loob akong pumapayag na lumahok sa pag-aaral na ito).*

By signing, I am aware of the fact that all conversation between me and the researcher will be recorded. I am aware that I have the option to approved or disapproved the recording process.*(Sa pamamagitan ng pagpirma, ako ay may kaalaman na ang lahat ng pag-uusap sa pagitan ko at ng mananaliksik ay ire-record. Nauunawaan ko na mayroon akong pagpipiliang aprubahan o hindi aprubahan ang proseso ng pagre-record).*

Respondent's signature *(Lagda ng Kalahok)*

Date *(Petsa)* _____

The aforementioned individual has been notified about this study, and I have requested their consent in writing *(Ang nabanggit na indibidwal ay naipaalam tungkol sa pag-aaral na ito, at ako ay humingi ng kanilang nakasulat na pahintulot).*

Researcher's Signature over Printed Name

*(Lagda at Buong Pangalan ng Mananaliksik)*

Date *(Petsa)* _____

Noted by:

**DR. CATLYN O. PONGOT** **DR. MARIA ARACELI C. JULIANO**

Adviser Dean-Graduate School

**Appendix C**

**Adapted Survey Questionnaire**

*(Inangkop na Kwestyonaryo ng Sarbey)*

**Directions:** Please answer the following statements in Part II, Part III and Part IV based on a scale that corresponds your answers.

***(Panuto:*** *Mangyaring sagutan ang mga pahayag sa* ***Bahagi II, Bahagi III, at Bahagi IV*** *base sa antas ng pagsang-ayon o karanasan gamit ang itinalagang iskala)*

**PART I. Respondent's Profile** *(Profile ng Tumugon)*

Name *(Pangalan)* (Optional) :_____

Age *(Edad):* _____

Address *(Tirahan):* _____

Number of Years in Industry *(Bilang ng Taon sa Industriya):* _____

Position/Identity in the Industry *(Posisyon o Pagkakakilanlan sa Industriya*): _____

**PART II. Industrial Activities** *(Mga Gawaing Pang-industriya)*

Please indicate your appropriate responses to each of the following statements by putting ***(/)*** to your answer based on the following scale below:

*(Lagyan ng (✔) ang bilang na tumutugma sa iyong sagot ayon sa sumusunod na iskala):*

**(5)** Always Evident *(Laging nakikita)*

**(4)** Oftentimes Evident *(Madalas na nakikita)*

**(3)** Faily Evident *(Katamtamang nakikita)*

**(2)** Rarely Evident *(Bihirang nakikita)*

**(1)** Not Evident at all *(Hindi kailanman nakikita)*

| **A. Industrial activities of Inaul weaving in BARMM**<br><br>*(Mga Gawaing Pang-industriya sa Inaul Weaving sa BARMM)* | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| 1. Raw Materials *(Hilaw na Materyales)*<br><br>a. Most weavers in our community rely on distributor for raw materials<br><br>*(Karamihan sa mga manghahabi sa aming komunidad ay umaasa sa distributor ng hilaw na materyales)* | | | | | |
| b. The price of raw materials has significantly increased<br><br>*(Malaki ang itinaas ng presyo ng hilaw na materyales)* | | | | | |
| c. Raw materials are often not readily available<br><br>*(Ang mga hilaw na materyales ay madalas hindi agad-agad makuha)* | | | | | |
| d. Limited resources affect my ability to purchase raw materials<br><br>*(Ang limitadong mapagkukunan ay nakaaapekto sa aking kakayahang bumili ng materyales)* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 2. Production *(Produksyon):*<br>a. Productivity is low due to the use of traditional handloom<br>*(Mababa ang produksyon dahil sa paggamit ng tradisyunal na habihan)* | | | | | |
| b. Most weavers are elderly which affects weaving productivity<br>*(Karamihan sa mga manghahabi ay matatanda na kay naaapektuhan ang produktibidad)* | | | | | |
| c. Limited years of experience in weaving reduces productivity<br>*(Ang kakulangan sa karanasan sa paghahabi ay nagpapababa ng produksyon)* | | | | | |
| 3. Marketing *(Pagmemerkado):*<br>a. Limited marketing opportunity of the product<br>*(Limitado ang oportunidad sa pagmemerkado ng produkto)* | | | | | |
| b. Minimal use of digital tools in marketing<br>*(Kaunti lamang ang paggamit ng digital na kagamitan sa pagmemerkado)* | | | | | |
| c. Most of the weavers sell the final product through distributors and retailers<br>*(Karamihan sa mga manghahabi ay ibinibenta ang produkto sa pamamagitan ng distributor at retailer)* | | | | | |

**PART III. Quality of Inaul** *(Kalidad ng Inaul)*

Please indicate your appropriate responses to each of the following statements by putting ***(/)*** to your answer based on the following scale below:

*(Lagyan ng (✔) ang bilang na tumutugma sa iyong sagot ayon sa sumusunod na iskala:)*

**(5)** Always Evident *(Laging nakikita)*

**(4)** Oftentimes Evident *(Madalas na nakikita)*

**(3)** Faily Evident *(Katamtamang nakikita)*

**(2)** Rarely Evident *(Bihirang nakikita)*

**(1)** Not Evident at all *(Hindi kailanman nakikita)*

| **B. Concept of weavers and retailers on "Quality" in Weaving Industry.**<br>***(Pananaw ng mga Manghahabi at Retailer ukol sa "Kalidad" sa Industriya ng Paghahabi)*** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| 1. Quality is the Synergy of stakeholders<br>*(Ang Kalidad ay Pagsasama-sama ng mga Stakeholder)* | | | | | |

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

| | | | | | |
|---|---|---|---|---|---|
| a. Economic capital support<br><br>*(Suportang pinansyal)* | | | | | |
| b. Cooperation with stakeholders such as designers<br><br>*(Kooperasyon sa mga stakeholder gaya ng mga designer)* | | | | | |
| c. Strong bond between weavers<br><br>*(Matibay na ugnayan sa kapwa manghahabi)* | | | | | |
| d. Legal protection for weaving works<br><br>*(Legal na proteksyon sa mga gawaing paghahabi)* | | | | | |
| 2. Quality is respect for traditional culture and nature<br><br>*(Ang Kalidad ay Paggalang sa Tradisyonal na Kultura at Kalikasan)*<br><br>a. Maintain the use of traditional loom<br><br>(*Pananatili sa paggamit ng tradisyunal na habihan)* | | | | | |
| b. Exploration of natural coloring materials to preserve the sustainability<br><br>*(Paggamit ng likas na pangkulay para sa pagpapanatili ng kalikasan)* | | | | | |
| c. Exploration of motifs based on local wisdom is a must *(Pagbuo ng disenyo (motif) batay sa lokal na karunungan)* | | | | | |
| 3. Quality is a commitment<br><br>*(Ang Kalidad ay Paninindigan)*<br><br>a. Collaboration of knowledge, experience, and skills in weaving<br><br>(*Pagsasama ng kaalaman, karanasan, at kasanayan sa paghahabi* | | | | | |
| b. Continuous experimentation to develop new motifs *(Tuloý-tuloý na eksperimento para makabuo ng bagong disenyo)* | | | | | |
| c. Patience, tenacity, thoroughness, and skill in weaving *(Pagtitiyaga, kasanayan, at kabuuang kahusayan sa paghahabi)* | | | | | |
| d. Independence in finding raw materials for weaving *(Kakayahang makahanap ng sariling hilaw na materyales)* | | | | | |
| e. The combination of color, and a variety of motifs<br><br>*(Wasto at malikhaing pagsasama ng kulay at disenyo)* | | | | | |
| f. Innovation and creativity<br><br>*(Inobasyon at pagiging malikhain)* | | | | | |

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

| | | | | | |
|---|---|---|---|---|---|
| 4. Quality is reputation<br>*(Ang Kalidad ay Reputasyon)*<br>a. The high selling value of weaving<br>*(Mataas na halaga ng pagbenta ng habing produkto)* | | | | | |
| b. Weaving reflects the image<br>*(Ang habing produkto ay sumasalamin sa imahe ng komunidad)* | | | | | |
| c. International recognition for weaving<br>*(Pandaigdigang pagkilala sa paghahabi)* | | | | | |
| d. Recognition of weaving by the government<br>*(Pagkilala mula sa pamahalaan)* | | | | | |
| 5. Quality is conformity with standard operating procedure<br>*(Ang Kalidad ay Pagsunod sa Pamantayan)*<br>a. Standardization of weaving production includes the use of raw materials for yarn, dyes, and weaving processes<br>*(Pagpapatupad ng standard sa mga hilaw na materyales at proseso)* | | | | | |
| b. Efficient and effective production performance<br>*(Mabisang paggawa at mahusay na paggawa)* | | | | | |
| 6. Quality is empowering education and training<br>*(Ang Kalidad ay Nakaugat sa Edukasyon at Pagsasanay)*<br>a. Educate consumers on how to care for cloths properly<br>*(Pagtuturo sa mamimili kung paano alagaan ang tela)* | | | | | |
| b. Mentoring and training to increase the capacity of weavers<br>*(Pagtuturo at pagsasanay upang mapalakas ang kakayahan ng manghahabi)* | | | | | |

**PART IV. Sustainability** *(Pagpapanatili)*

Please indicate your appropriate responses to each of the following statements by putting **(/)** to your answer based on the following scale below:

*(Lagyan ng (✔) ang bilang na tumutugma sa iyong sagot ayon sa sumusunod na iskala:)*

**(5)** Always Practiced *(Laging isinasagawa)*

**(4)** Oftentimes Practiced *(Madalas isinasagawa)*

**(3)** Faily Evident *(Katamtamang isinasagawa)*

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

**(2)** Rarely Practiced *(Bihirang isinasagawa)*

**(1)** Not Evident at all *(Hindi kailanman isinasagawa)*

| **C. Sustainability Factors of Weaving Industry**<br>*(Mga Salik ng Pagpapanatili sa Industiya ng Paghahabi)* | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| 1. Socio-Cultural Factor/s:<br>*(Mga Panlipunang at Kultural na Salik)*<br>a. Encourages formation of a cooperative<br>*(Pagsuporta sa pagbuo ng kooperatiba)* | | | | | |
| b. Strengthens networking<br>*(Pagpapalakas ng ugnayan)* | | | | | |
| c. Strengthens community kinship ties<br>*(Pagpapalakas ng ugnayan sa komunidad)* | | | | | |
| d. Promotes community participation<br>*(Pagsuporta sa partisipasyon ng komunidad)* | | | | | |
| e. Enhance community self-reliance<br>*(Pagpapalakas ng sariling kakayahan ng komunidad)* | | | | | |
| f. Enhance discipline and responsibility<br>*(Paghubog ng disiplina at responsibilidad)* | | | | | |
| g. Encourage collaboration and partnership<br>*(Pagsuporta sa kolaborasyon at pagtutulungan)* | | | | | |
| h. Strengthens local culture and heritage<br>(*Pagpapalakas ng lokal na kultura at pamana)* | | | | | |
| i. Improves community identity<br>(*Pagpapalago ng pagkakakilanlan sa komunidad)* | | | | | |
| 2. Economic Factor/s:<br>*(Mga Pang-ekonomiyang Salik)*<br>a. Provides livelihood to the community<br>*(Nagbibigay ng kabuhayan sa komunidad)* | | | | | |

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

| | | | | | |
|---|---|---|---|---|---|
| b. Improves ability to make decisions<br>*(Pinapalakas ang kakayahang makapagdesisyon)* | | | | | |
| c. Provides additional income for women<br>*(Nagbibigay ng karagdagang kita sa kababaihan)* | | | | | |
| d. Creates additional business<br>*(Nagsisilbing daan sa paglikha ng karagdagang negosyo)* | | | | | |
| e. Enhance skills<br>*(Pinapaunlad ang mga kasanayan)* | | | | | |
| f. Creates new jobs for the community<br>*(Lumilikha ng bagong trabaho sa komunidad)* | | | | | |
| g. Helps increase revenues for the community<br>*(Tumutulong sa pagtaas ng kita ng komunidad)* | | | | | |
| h. Improves product quality designs<br>*(Pinapaganda ang disenyo at kalidad ng produkto)* | | | | | |
| i. More equitable access to resources and benefits<br>*(Mas pantay na akses sa yaman at benepisyo)* | | | | | |
| 3. Environmental Factor/s:<br>*(Mga Pangkalikasang Salik)*<br>a. Garbage disposal in the village is a problem<br>*(Problema ang pagtatapon ng basura sa nayon)* | | | | | |
| b. Lack of clean water<br>*(Kakulangan sa malinis na tubig)* | | | | | |
| c. Peace and order resulted in environmental problem<br>*(Ang kaguluhan ay nagdudulot ng problemang pangkapaligiran)* | | | | | |
| d. Tourist are afraid to visit the city due to kidnapping threats<br>*(Takot ang mga turista dahil sa banta ng pagkidnap)* | | | | | |
| e. Issues of local livelihood ignored<br>*(Hindi nabibigyang pansin ang lokal na kabuhayan)* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| f. Awareness of health and sanitation is addressed<br><br>*(Nabibigyang pansin ang kalusugan at kalinisan)* | | | | | |
| g. Weavers are conscious of environmental protection<br><br>*(Ang mga manghahabi ay may malasakit sa kapaligiran)* | | | | | |
| h. Cannot meet the demands of the market due to the peace and order situation<br><br>*(Hindi matugunan ang demand sa merkado dahil sa kaguluhan)* | | | | | |
| i. Environmental issues are not given priorities<br><br>*(Hindi binibigyang prayoridad ang mga isyung pangkalikasan)* | | | | | |
| j. Weavers are decreasing due to other economic opportunities<br><br>*(Kumakaunti na ang mga manghahabi dahil sa ibang oportunidad)* | | | | | |
| k. Weaving creates community identity*(Ang paghahabi ay lumilikha ng pagkakakilanlan sa komunidad)* | | | | | |
| l. Strengthens community ties through community participation during festival<br><br>*(Pinapatatag ang ugnayan ng komunidad sa pamamagitan ng iba't-ibang pagdiriwang)* | | | | | |

**End of Survey**

*(Wakas ng Sarbey)*

**Appendix D**

**Interview Guide**

Title of the Study: Industry Activities, Quality of Inaul Weaving and its Sustainability in the BARMM: An Explanatory Sequential Design

Research Design: Explanatory Sequential Design

Qualitative Phase: Key Informant Interview (KII)

Type of Respondents: Weavers, Retailers, Designers, Cooperative Officers, and other Key Stakeholders in the Inaul Industry

I. Introduction Script

Good day! *(Magandang araw po)*. I am MARJANAH B. ANTOK, a researcher conducting a study titled "Industrial Activities, Quality of Inaul Weaving, and Sustainability of the Inaul Industry in BARMM: An explanatory sequential design." *(Ako po si **MARJANAH B. ANTOK**, isang mananaliksik na kasalukuyang nagsasagawa ng pag-aaral na pinamagatang **"Industrial Activities, Quality of Inaul Weaving, and Sustainability of the Inaul Industry in BARMM: An explanatory sequential design").*** The purpose of this interview is to gather deeper insights that will help explain the quantitative findings of the study. Your responses will help us understand the lived experiences, challenges, and perspectives of individuals involved in the Inaul industry. *(Layunin ng panayam na ito na makakalap ng mas malalim na kaalaman at karanasan na*

*makatutulong sa pagpapaliwanag ng mga resulta ng aming naunang sarbey. Ang inyong mga kasagutan ay makatutulong upang mas maunawaan ang mga karanasan, hamon, at pananaw ng mga taong kasangkot sa industriya ng Inaul).*

All information you share will be treated with strict confidentiality and used solely for academic purposes. This interview will last approximately 45–60 minutes. You may refuse to answer any question or withdraw at any time. *(Lahat ng impormasyong ibabahagi ninyo ay mahigpit na pangangalagaan at gagamitin lamang para sa layuning pang-akademiko. Ang panayam ay tatagal nang humigit-kumulang* ***45 hanggang 60 minuto****. Maaari po kayong tumangging sumagot sa alinmang tanong o umatras anumang oras kung inyong nanaisin).*

With your permission, I would like to record this interview to ensure accuracy of transcription. *(Sa inyong pahintulot, nais ko pong* ***i-record ang panayam*** *upang matiyak ang katumpakan ng pagkakatranskribo ng inyong mga sagot).*

Do I have your consent to proceed with the interview and recording? *(Pinahihintulutan po ba ninyo akong ituloy ang panayam at ang pagre-record nito?)*

II. Profile Information

| | |
|---|---|
| Name (optional) | |
| Age | |
| Sex | |
| Role/Position in the Inaul Industry | |
| Years of Experience | |
| Location/Community | |

III. Main Interview Questions (***Mga Pangunahing Tanong sa Panayam)***

**A. Industrial Activities *(Mga Gawaing Pang-Industriya)***

1. The quantitative study/ survey that we have conducted revealed that your community has a low reliance on local distributors of raw materials. Do you agree on this? Why or why not? *(Ang kwantitatibong pag-aaral o survey na aming isinagawa ay nagpakita na ang inyong komunidad ay hindi masyadong umaasa sa mga lokal na tagapamahagi ng mga hilaw na materyales. Sumasang-ayon ka ba rito? Bakit o bakit hindi?*

*2.* Based on the result of the study, limited resources affects the ability to purchase raw materials. Is this true? Why or why not? (*Batay sa resulta ng pag-aaral, ang kakulangan sa mga pinagkukunan o yaman ay nakaaapekto sa kakayahang makabili ng mga hilaw na materyales.* ***Totoo ba ito? Bakit o bakit hindi?)***

*3.* The quantitative study revealed *that the production of Inaul is low because of the use of traditional handlooms.* Do you agree on this? Why or why not?*( Ipinakita ng kwantitatibong pag-aaral na mababa ang produksiyon ng Inaul dahil sa patuloy na paggamit ng tradisyunal na habihan. Sumasang-ayon ka ba rito? Bakit o bakit hindi?*

*4.* Based on the result of the study, *limited weaving experience has less effect on the production of Inaul.* Is this true? *Why or why not? (Batay sa resulta ng pag-aaral, ang kakulangan sa karanasan sa paghahabi ay hindi masyadong nakaaapekto sa produksyon ng Inaul.* ***Totoo ba ito? Bakit o bakit hindi?)***

*5.* The study revealed *that marketing opportunities to promote and sell Inaul products are not very limited.* Do you agree on this? Why or why not? (*Ipinakita ng pag-aaral na hindi naman limitado ang mga oportunidad upang maipromote at maibenta ang mga produktong Inaul.* ***Sang-ayon po ba kayo rito? Bakit o bakit hindi?)***

*6.* Based on the result of the study, *most weavers can sell the Inaul final product through the help of distributors and retailers.* Is this true? *Why or why not? (Batay sa resulta ng pag-aaral, karamihan sa mga manlilikha ng Inaul ay naibebenta ang kanilang mga natapos na produkto sa tulong ng mga distributor at retailer. Totoo ba ito? Bakit o bakit hindi?)*

**B. Quality Of Inaul (*Kalidad Ng Inaul)***

*1.* The study revealed that weavers receive only moderate financial support even though they have strong connections or collaborations with other weavers in the Inaul industry. Do you agree on this? Why or why not? *(Ipinakita ng pag-aaral na ang mga manghahabi ay tumatanggap lamang ng katamtamang suportang pinansyal kahit na mayroon silang matibay na ugnayan o pakikipagtulungan sa iba pang manghahabi sa industriya ng Inaul.* ***Sang-ayon ba kayo rito? Bakit o bakit hindi?)***

*2.* Based on the result of the study, weavers continue to use traditional looms and have limited efforts in exploring natural dye materials as a way to preserve sustainability? Is this true? *Why or why not? (Batay sa resulta ng pag-aaral, patuloy pa ring ginagamit ng mga manghahabi ang tradisyunal na habihan at kakaunti lamang ang pagsisikap na tuklasin ang paggamit ng mga likas na pangkulay bilang paraan ng pagpapanatili ng kasustentuhan.* ***Totoo ba ito? Bakit o bakit hindi?)***

*3.* The study revealed that patience, perseverance, attention to detail, skill in weaving and continuous experimentation in creating new designs help improve the ongoing Inaul weaving process, while the independence in sourcing raw materials less affects its continual process improvement? Is it true? Why or why not? *(Ipinakita ng pag-aaral na ang pagtitiyaga, pagpupursige, pagiging maingat sa detalye, kasanayan sa paghahabi at patuloy na pag-eeksperimento sa paglikha ng mga bagong disenyo ay nakatutulong sa pagpapabuti ng proseso ng paghahabi ng Inaul, samantala ang kakayahang makakuha ng sariling hilaw na materyales ay hindi masyadong nakaaapekto sa pagpapatuloy nito.* ***Totoo ba ito? Bakit o bakit hindi?)***

*4.* Based on the result of the study, weaving represents the identity of the community, yet it is sold at a low market value. Do you agree? Why or why not? *(Batay sa resulta ng pag-aaral, ang paghahabi ay kumakatawan sa pagkakakilanlan ng komunidad, subalit ito ay naibebenta lamang sa mababang halaga sa merkado.* ***Sang-ayon ba kayo rito? Bakit o bakit hindi?)***

*5.* The study revealed that weaving production is generally efficient and effective, yet there is a lack of standardization in its production processes. Is this true? Why or why not? *(Ipinakita ng pag-aaral na ang produksyon ng paghahabi ay karaniwang mahusay at epektibo, ngunit may kakulangan sa pamantayan o standardisasyon ng mga proseso ng produksyon.* ***Totoo ba ito? Bakit o bakit hindi?)***

6. Based on the result of the study, mentoring and training programs are provided to enhance the skills of weavers, but consumers are not well educated on how to properly care for woven products. Is this true? Why or why not? *(Batay sa resulta ng pag-aaral, may mga mentoring at training program na ibinibigay upang mapaunlad ang kasanayan ng mga manghahabi, subalit ang mga mamimili ay hindi sapat na natuturuan kung paano aalagaan nang maayos ang mga hinabing produkto.* ***Totoo ba ito? Bakit o bakit hindi?)***

**C. Sustainability Of Inaul Industry *(Pagpapanatili Ng Industriyang Inaul)***

1. The study revealed that most of the weavers in community find it hard to establish or maintain a cooperative. Do you agree? Why or why not? *(Ipinakita ng pag-aaral na karamihan sa mga manghahabi sa komunidad ay nahihirapan na magtatag o mapanatili ang isang kooperatiba.* ***Sang-ayon po ba kayo rito? Bakit o bakit hindi?)***

*2.* Based on the result of the study, weavers have the opportunity to collaborate with other weavers, retailers, or well-known *inaul* dress designers in the *inaul* industry and improves their community identity. Is this true?

Why or why not? *(Batay sa resulta ng pag-aaral, ang mga manghahabi ay may pagkakataong makipagtulungan sa iba pang manghahabi, mga nagtitinda, o kilalang mga designer sa industriya ng Inaul at pinapalakas ang kanilang pagkakakilanlan sa komunidad.* ***Totoo ba ito? Bakit o bakit hindi?)***

*3.* The study revealed that most of weavers are able to enhance their skills because of weaving. Do you agree? Why or why not? *(Ipinakita ng pag-aaral na karamihan sa mga manghahabi ay napapaunlad ang kanilang mga kasanayan dahil sa paghahabi.* ***Sang-ayon ba kayo rito? Bakit o bakit hindi?)***

*4.* Based on the result of the study, weavers has no equitable access to resources and benefits. Is it true? Why or why not?*(Batay sa resulta ng pag-aaral, ang mga manghahabi ay walang pantay na akses sa mga resources at benepisyo.* ***Totoo ba ito? Bakit o bakit hindi?)***

*5.* The study revealed that lack of clean water is not commonly experienced in your community. Do you agree? Why or why not? *(Ipinakita ng pag-aaral na ang kakulangan ng malinis na tubig ay hindi karaniwang nararanasan sa inyong komunidad.* ***Sang-ayon ba kayo rito? Bakit o bakit hindi?)***

*6.* The study revealed that weaving strengthens community ties through participation in festivals. Is this true? Why or why not? *(Ipinakita ng pag-aaral na ang paghahabi ay nagpapalakas ng ugnayan sa komunidad sa pamamagitan ng pakikilahok sa mga pista o pagdiriwang.* ***Totoo ba ito? Bakit o bakit hindi?)***

**D. Relationship Among Industrial Activities, Quality, And Sustainability *( Ugnayan ng mga Gawaing Pang-industriya, Kalidad, at Pagpapanatili)***

*1.* The survey revealed that the industrial activities and product quality significantly influence sustainability of Inaul Industry. Do you agree with this finding based on your own experience? Why or why not? *(Ipinakita sa survey na ang mga gawaing pang-industriya at ang kalidad ng produkto ay may malaking impluwensya sa pagpapanatili ng industriya ng Inaul. Sumasang-ayon ka ba sa natuklasang ito batay sa iyong sariling karanasan? Bakit o bakit hindi?)*

**E. Lived Experiences *(Mga Naranasang Karanasan)***

1. The quantitaive study revealed that limited resources affect the ability to purchase raw materials, that the production of Inaul is low due to the use of traditional handlooms, and that there are distributors, retailers, and businesses that buy the Inaul you produce. Do you agree with these findings based on your own experience? Why or why not? *(Ipinakita ng kwentatibong pag-aaral na ang kakulangan sa resources ay nakakaapekto sa kakayahang bumili ng mga hilaw na materyales, mababa ang produksyon ng Inaul dahil sa paggamit ng tradisyunal na handloom, at may mga distributor, retailer, at negosyo na bumibili ng Inaul na iyong ginagawa.* ***Sang-ayon ka ba sa mga natuklasang ito batay sa iyong sariling karanasan? Bakit o bakit hindi?)***

*2.* The study revealed that patience, perseverance, attention to detail, skill in weaving and continuous experimentation in creating new designs helps improve the quality of Inaul but there is a lack of standardization in its production processes? Do you agree with these findings based on your own experience? Why or why not? (*Ipinakita ng pag-aaral na ang pasensya, tiyaga, pagiging masinsinan, kasanayan sa paghahabi, at tuloy-tuloy na pag-eeksperimento sa paggawa ng bagong disenyo ay nakatutulong upang mapabuti ang kalidad ng Inaul. Ngunit may kakulangan naman sa standardisasyon ng proseso ng produksyon ng Inaul.* ***Sang-ayon ka ba sa mga natuklasang ito batay sa iyong karanasan? Bakit o bakit hindi?)***

*3.* The study revealed that weavers have the opportunity to collaborate with other weavers, retailers, and Inaul dress designers; and that weaving enhances their skills, strengthen community ties through participation in festivals, and improves community identity. Do you agree with these findings based on your own experience? Why or why not? (*Ayon sa pag-aaral, may pagkakataon ang mga manhuhabi na makipag-collaborate sa ibang weavers, retailers, at Inaul dress designers; at ang paghahabi ay nakatutulong upang mapaunlad ang kanilang kasanayan, mapalakas ang ugnayan sa komunidad sa pamamagitan ng festivals, at mapagtibay ang*

*identidad ng komunidad.* ***Sang-ayon ka ba sa mga natuklasang ito batay sa iyong karanasan? Bakit o bakit hindi?)***

*4.* The study revealed that most of the weavers find it hard to establish or maintain a cooperative and they have no equitable access to resources and benefits. Do you agree with these findings based on your own experience? Why or why not? (*Ipinakita ng pag-aaral na karamihan sa mga manghahabi ay nahihirapang magtatag o magpanatili ng kooperatiba at wala rin silang pantay na access sa resources at mga benepisyo.* ***Sang-ayon ka ba sa mga natuklasang ito batay sa iyong sariling karanasan? Bakit o bakit hindi?)***

5. The survey revealed **that weaving helps people preserve their culture and traditions while also providing income to support their families.** Do you agree with these findings based on your own experience? Why or why not? (*Ipinakita sa survey na ang paghahabi ay nakatutulong sa mga tao upang mapanatili ang kanilang kultura at tradisyon, habang nagbibigay din ng kabuhayan upang matustusan ang pangangailangan ng kanilang pamilya. Sumasang-ayon ka ba sa natuklasang ito batay sa iyong sariling karanasan? Bakit o bakit hindi?)*

**IV. Closing Statement**

Thank you very much for your time and meaningful insights. Your contribution is valuable in understanding how industrial activities, product quality, and sustainability interact in preserving the Inaul weaving heritage of BARMM. *(Maraming salamat po sa inyong oras at sa mahahalagang pananaw na inyong ibinahagi. Malaki ang ambag ninyo sa pag-unawa kung paano nagkakaugnay ang mga gawaing pang-industriya, kalidad ng produkto, at pagpapanatili sa pagpapanatong ng pamana ng paghahabi ng Inaul sa BARMM)*

**V. Interview Notes and Observations**

Key responses and highlights

Non-verbal cues or emotional tone

Emerging themes or patterns

Additional reflections

VI. Interview Details

Interview Date

Interview Duration

Interview Mode (Face-to-face / Online)

Interview Location

Interviewer's Name

**Appendix E**

**Statistical Results**

***Reliability Pilot Test***

**Scale: ALL VARIABLES**

| **Case Processing Summary** | | |
|---|---|---|
| | N | % |

| | | | |
|---|---|---|---|
| Cases | Valid | 30 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 30 | 100.0 |
| a. Listwise deletion based on all variables in the procedure. | | | |

| **Reliability Statistics** | | |
|---|---|---|
| **Cronbach's Alpha** | **Cronbach's Alpha Based on Standardized Items** | **N of Items** |
| **.978** | **.979** | **61** |

| Cronbach's alpha | Internal consistency |
|---|---|
| $\alpha \geq 0.9$ | Excellent |
| $0.9 > \alpha \geq 0.8$ | Good |
| $0.8 > \alpha \geq 0.7$ | Acceptable |
| $0.7 > \alpha \geq 0.6$ | Questionable |
| $0.6 > \alpha \geq 0.5$ | Poor |
| $0.5 > \alpha$ | Unacceptable |

| **Summary Item Statistics** | | | | | | |
|---|---|---|---|---|---|---|
| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance |
| Inter-Item Covariances | .578 | -.262 | 1.483 | 1.745 | -5.658 | .086 |
| Inter-Item Correlations | .437 | -.246 | .891 | 1.137 | -3.620 | .044 |

| **Summary Item Statistics** | |
|---|---|
| | N of Items |
| Inter-Item Covariances | 61 |
| Inter-Item Correlations | 61 |

| **Item-Total Statistics** | | | | | |
|---|---|---|---|---|---|
| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
| PartIIA1.a | 227.73 | 2129.099 | .570 | . | .978 |
| PartIIA1.b | 227.20 | 2149.821 | .496 | . | .978 |

| | | | | | |
|---|---|---|---|---|---|
| PartIIA1.c | 227.37 | 2149.551 | .544 | . | .978 |
| PartIIA1.d | 227.57 | 2145.909 | .535 | . | .978 |
| PartIIA2.a | 227.33 | 2101.747 | .823 | . | .978 |
| PartIIA2.b | 227.33 | 2117.195 | .758 | . | .978 |
| PartIIA2.c | 227.50 | 2118.603 | .713 | . | .978 |
| PartIIA3.a | 227.67 | 2106.023 | .792 | . | .978 |
| PartIIA3.b | 227.60 | 2114.593 | .700 | . | .978 |
| PartIIA3.c | 227.40 | 2092.386 | .762 | . | .978 |
| PartIIIB1.a | 227.47 | 2100.189 | .862 | . | .977 |
| PartIIIB1.b | 227.33 | 2109.471 | .791 | . | .978 |
| PartIIIB1.c | 227.07 | 2095.099 | .861 | . | .977 |
| PartIIIB1.d | 227.30 | 2136.562 | .551 | . | .978 |
| PartIIIB2.a | 227.20 | 2126.648 | .710 | . | .978 |
| PartIIIB2.b | 227.43 | 2112.185 | .815 | . | .978 |
| PartIIIB2.c | 227.27 | 2136.340 | .684 | . | .978 |
| PartIIIB3.a | 227.30 | 2115.803 | .797 | . | .978 |
| PartIIIB3.b | 227.30 | 2120.769 | .693 | . | .978 |
| PartIIIB3.c | 227.17 | 2113.316 | .807 | . | .978 |
| PartIIIB3.d | 227.53 | 2098.878 | .871 | . | .977 |
| PartIIIB3.e | 227.27 | 2122.547 | .759 | . | .978 |
| PartIIIB3.f | 227.23 | 2134.047 | .745 | . | .978 |
| PartIIIB4.a | 227.13 | 2156.120 | .416 | . | .978 |
| PartIIIB4.b | 227.10 | 2139.472 | .672 | . | .978 |
| PartIIIB4.c | 227.33 | 2152.506 | .614 | . | .978 |
| PartIIIB4.d | 227.23 | 2122.875 | .653 | . | .978 |
| PartIIIB5.a | 227.33 | 2130.713 | .586 | . | .978 |
| PartIIIB5.b | 227.17 | 2126.557 | .766 | . | .978 |
| PartIIIB6.a | 227.10 | 2121.817 | .743 | . | .978 |

| | | | | | |
|---|---|---|---|---|---|
| PartIIIB6.b | 227.07 | 2133.237 | .729 | . | .978 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| PartIVC1.a | 227.23 | 2115.151 | .774 | . | .978 |
| PartIVC1.b | 227.17 | 2127.661 | .755 | . | .978 |
| PartIVC1.c | 227.30 | 2107.528 | .813 | . | .978 |
| PartIVC1.d | 226.93 | 2151.789 | .630 | . | .978 |
| PartIVC1.e | 227.00 | 2115.793 | .734 | . | .978 |
| PartIVC1.f | 226.93 | 2129.444 | .779 | . | .978 |
| PartIVC1.g | 227.20 | 2135.821 | .586 | . | .978 |
| PartIVC1.h | 227.17 | 2123.040 | .778 | . | .978 |
| PartIVC1.i | 226.93 | 2112.892 | .782 | . | .978 |
| PartIVC2.a | 227.03 | 2118.033 | .827 | . | .978 |
| PartIVC2.b | 227.10 | 2155.541 | .558 | . | .978 |
| PartIVC2.c | 226.93 | 2127.099 | .751 | . | .978 |
| PartIVC2.d | 227.00 | 2139.241 | .718 | . | .978 |
| PartIVC2.e | 227.13 | 2126.671 | .687 | . | .978 |
| PartIVC2.f | 227.13 | 2105.430 | .744 | . | .978 |
| PartIVC2.g | 226.93 | 2140.754 | .651 | . | .978 |
| PartIVC2.h | 227.10 | 2126.231 | .766 | . | .978 |
| PartIVC2.i | 227.17 | 2145.109 | .664 | . | .978 |
| PartIVC3.a | 227.43 | 2124.875 | .580 | . | .978 |
| PartIVC3.b | 227.37 | 2158.861 | .300 | . | .979 |
| PartIVC3.c | 227.47 | 2149.637 | .374 | . | .979 |
| PartIVC3.d | 227.67 | 2135.333 | .495 | . | .978 |
| PartIVC3.e | 227.70 | 2143.252 | .425 | . | .978 |
| PartIVC3.f | 227.17 | 2155.040 | .380 | . | .978 |

| | | | | | |
|---|---|---|---|---|---|
| PartIVC3.g | 227.17 | 2174.902 | .238 | . | .979 |
| PartIVC3.h | 227.53 | 2132.878 | .570 | . | .978 |
| PartIVC3.i | 227.97 | 2144.033 | .412 | . | .978 |
| PartIVC3.j | 227.57 | 2148.668 | .413 | . | .978 |
| PartIVC3.k | 227.37 | 2154.240 | .432 | . | .978 |
| PartIVC3.l | 227.17 | 2148.213 | .488 | . | .978 |

| **Scale Statistics** | | | |
|---|---|---|---|
| Mean | Variance | Std. Deviation | N of Items |
| 231.07 | 2200.340 | 46.908 | 61 |

| **Intraclass Correlation Coefficient** | | | | | | |
|---|---|---|---|---|---|---|
| | Intraclass Correlation[b] | 95% Confidence Interval | | F Test with True Value 0 | | |
| | | Lower Bound | Upper Bound | Value | df1 | df2 |
| Single Measures | .424[a] | .315 | .574 | 45.956 | 29 | 1740 |
| Average Measures | .978[c] | .966 | .988 | 45.956 | 29 | 1740 |

| **Intraclass Correlation Coefficient** | |
|---|---|
| | F Test with True Value 0[b] |
| | Sig |
| Single Measures | .000[a] |
| Average Measures | .000[c] |

| |
|---|
| Two-way mixed effects model where people effects are random and measures effects are fixed. |
| a. The estimator is the same, whether the interaction effect is present or not. |
| b. Type C intraclass correlation coefficients using a consistency definition-the between-measure variance is excluded from the denominator variance. |
| c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise. |

**Quantitative Result**

| **Identity * Address Crosstabulation** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Count | | | | | | | |
| | | Address | | | | | Total |
| | | Cotabato City | DOS Maguindanao | Sultan Kudarat, MDN | North Cotabato | Datu Piang, MDS | |
| Identity | weavers | 3 | 15 | 35 | 0 | 102 | 155 |
| | retailers | 31 | 2 | 3 | 1 | 1 | 38 |
| | designers | 6 | 0 | 1 | 0 | 0 | 7 |
| Total | | 40 | 17 | 39 | 1 | 103 | 200 |

| **Descriptive Statistics** | | | | | | |
|---|---|---|---|---|---|---|
| | N | Minimum | Maximum | Mean | Std. Deviation | |
| PartIVC3a | 200 | 1.0 | 5.0 | 2.235 | 1.3299 | Low/ Rarely Practiced |
| PartIVC3b | 200 | 1.0 | 5.0 | 3.290 | 1.6245 | Average/ Fairly Practice |
| PartIVC3c | 200 | 1.0 | 5.0 | 2.785 | 1.3705 | Average/ Fairly Practice |
| PartIVC3d | 200 | 1.0 | 5.0 | 3.210 | 1.4890 | Average/ Fairly Practice |
| PartIVC3e | 200 | 1.0 | 5.0 | 2.725 | 1.4421 | Average/ Fairly Practice |
| PartIVC3f | 200 | 1.0 | 5.0 | 3.120 | 1.6026 | Average/ Fairly Practice |
| PartIVC3g | 200 | 1.0 | 5.0 | 3.015 | 1.3945 | Average/ Fairly Practice |
| PartIVC3h | 200 | 1.0 | 5.0 | 3.065 | 1.4145 | Average/ Fairly Practice |
| PartIVC3i | 200 | 1.0 | 5.0 | 2.725 | 1.3633 | Average/ Fairly Practice |
| PartIVC3j | 200 | 1.0 | 5.0 | 2.345 | 1.1413 | Low/ Rarely Practiced |
| PartIVC3k | 200 | 1.0 | 5.0 | 3.835 | 1.1595 | Average/ Fairly Practice |
| PartIVC3l | 200 | 1.0 | 5.0 | 3.890 | 1.1937 | Average/ Fairly Practice |
| Valid N (listwise) | 200 | | | | | |

Industrial Activities

```
RELIABILITY
  /VARIABLES=PartIIIB1a PartIIIB1b PartIIIB1c PartIIIB1d PartIIIB2a PartIIIB2b PartI
IIB2c PartIIIB3a PartIIIB3b PartIIIB3c PartIIIB3d PartIIIB3e PartIIIB3f PartIIIB4a P
artIIIB4b PartIIIB4c PartIIIB4d PartIIIB5a PartIIIB5b PartIIIB6a PartIIIB6b
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

**Reliability**

[DataSet1]

**Scale: ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 200 | 93.0 |
| | Excluded[a] | 15 | 7.0 |
| | Total | 215 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .874 | 21 |

quality

Sustainability

**Reliability**

[DataSet1]

**Scale: ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 200 | 93.0 |
| | Excluded[a] | 15 | 7.0 |
| | Total | 215 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .744 | 30 |

**Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .528[a] | .279 | .272 | .408545601239449 | .279 | 38.163 | 2 | 197 | .000 | 1.300 |

a. Predictors: (Constant), Quality, Industrial_Activities

b. Dependent Variable: Sustainability

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 12.740 | 2 | 6.370 | 38.163 | .000[b] |
| | Residual | 32.881 | 197 | .167 | | |
| | Total | 45.621 | 199 | | | |

a. Dependent Variable: Sustainability

b. Predictors: (Constant), Quality, Industrial_Activities

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Correlations | | | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part | Tolerance | VIF |
| 1 | (Constant) | 2.446 | .138 | | 17.676 | .000 | | | | | |
| | Industrial_Activities | .159 | .033 | .392 | 4.785 | .000 | .512 | .323 | .289 | .545 | 1.835 |
| | Quality | .114 | .053 | .178 | 2.168 | .031 | .442 | .153 | .131 | .545 | 1.835 |

a. Dependent Variable: Sustainability

**Collinearity Diagnostics[a]**

| Model | Dimension | Eigenvalue | Condition Index | Variance Proportions | | |
|---|---|---|---|---|---|---|
| | | | | (Constant) | Industrial_Activities | Quality |
| 1 | 1 | 2.921 | 1.000 | .00 | .01 | .00 |
| | 2 | .063 | 6.816 | .29 | .60 | .00 |
| | 3 | .016 | 13.617 | .71 | .39 | .99 |

a. Dependent Variable: Sustainability

**Casewise Diagnostics[a]**

| Case Number | Std. Residual | Sustainability | Predicted Value | Residual |
|---|---|---|---|---|
| 81 | -3.047 | 2.5333333333334330 | 3.778011969520893 | -1.244678636187560 |

a. Dependent Variable: Sustainability

**Residuals Statistics[a]**

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | 2.827570438385110 | 3.810607671737771 | 3.347333333333433 | .253018231476881 | 200 |
| Residual | -1.244678616523843 | .958533346653085 | .000000000000102 | .406487423909652 | 200 |
| Std. Predicted Value | -2.054 | 1.831 | .000 | 1.000 | 200 |
| Std. Residual | -3.047 | 2.346 | .000 | .995 | 200 |

a. Dependent Variable: Sustainability

**Regression**

[DataSet1]

**GROUP = .00**

**Variables Entered/Removed[a,b]**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | Quality, Industrial_Activities[c] | . | Enter |

a. GROUP = .00
b. Dependent Variable: Sustainability
c. All requested variables entered.

**Model Summary[a]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .523[b] | .274 | .259 | .4309632858 |

a. GROUP = .00
b. Predictors: (Constant), Quality, Industrial_Activities

**ANOVA[a,b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 6.797 | 2 | 3.398 | 18.298 | .000[c] |
| | Residual | 18.016 | 97 | .186 | | |
| | Total | 24.813 | 99 | | | |

a. GROUP = .00
b. Dependent Variable: Sustainability
c. Predictors: (Constant), Quality, Industrial_Activities

**Coefficients[a,b]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2.527 | .196 | | 12.891 | .000 |
| | Industrial_Activities | .199 | .053 | .456 | 3.749 | .000 |
| | Quality | .057 | .078 | .090 | .736 | .464 |

a. GROUP = .00
b. Dependent Variable: Sustainability

**GROUP = 1.00**

**Variables Entered/Removed[a,b]**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | Quality, Industrial_Activities[c] | . | Enter |

a. GROUP = 1.00
b. Dependent Variable: Sustainability
c. All requested variables entered.

**Model Summary[a]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .545[b] | .298 | .283 | .3881769304 |

a. GROUP = 1.00
b. Predictors: (Constant), Quality, Industrial_Activities

**ANOVA[a,b]**

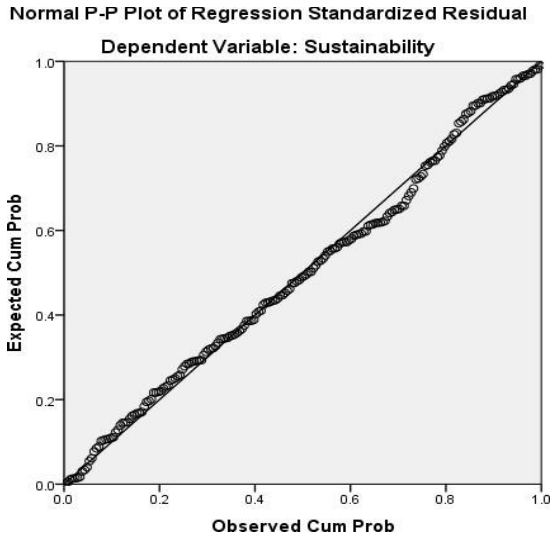
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 6.192 | 2 | 3.096 | 20.545 | .000[c] |
| | Residual | 14.616 | 97 | .151 | | |
| | Total | 20.808 | 99 | | | |

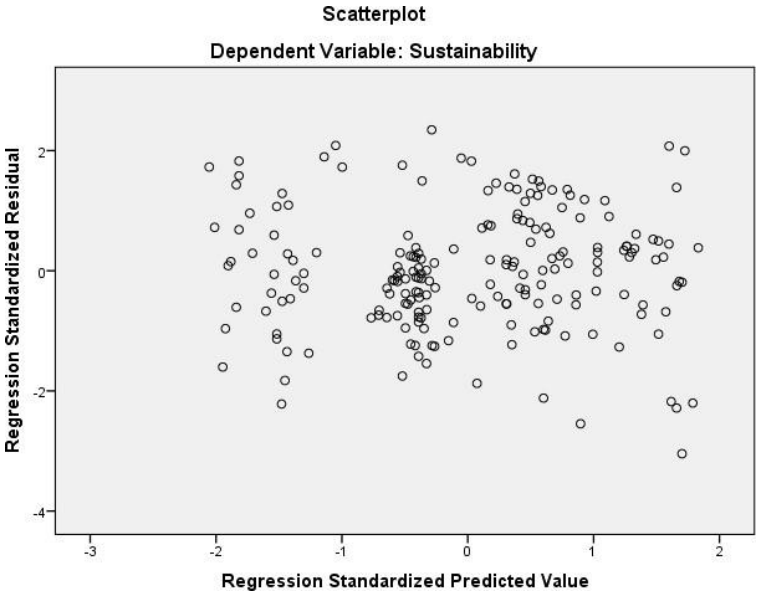
a. GROUP = 1.00
b. Dependent Variable: Sustainability
c. Predictors: (Constant), Quality, Industrial_Activities

**Coefficients[a,b]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2.345 | .197 | | 11.905 | .000 |
| | Industrial_Activities | .128 | .042 | .339 | 3.038 | .003 |
| | Quality | .168 | .072 | .261 | 2.339 | .021 |

a. GROUP = 1.00
b. Dependent Variable: Sustainability



Interpretation:

**1. Multicollinearity**

**Socio sustainability model**

- Multicollinearity was assessed using **Tolerance** and **Variance Inflation Factor (VIF)** values.
- The tolerance values ranged from **0.399 to 0.567**, all above the minimum threshold of **0.10**.
- The VIF values ranged from **1.763 to 2.504**, which are below the critical value of **10**.
- These results indicate that the independent variables are not highly correlated.
- **Thus, the multicollinearity assumption was satisfied.**

**Economic sustainability model**

- Tolerance values ranged from **0.399 to 0.567**, exceeding the acceptable limit of 0.10.
- VIF values ranged from **1.763 to 2.504**, indicating low collinearity.
- **Therefore, no multicollinearity problem was observed.**

**Environmental sustainability model**

- Tolerance values ranged from **0.399 to 0.567** and VIF values ranged from **1.763 to 2.504**.
- All values fall within acceptable limits.
- **Hence, the multicollinearity assumption was met.**

**2. Autocorrelation**

**Socio sustainability model**

- The Durbin–Watson statistic was **1.689**.
- This falls within the acceptable range of **1.5–2.5**, indicating independence of residuals.
- **Thus, no autocorrelation was detected.**

**Economic sustainability model**

- The Durbin–Watson value of **1.593** indicates residual independence.
- **Therefore, the autocorrelation assumption was satisfied.**

**Environmental sustainability model**

- The obtained Durbin–Watson value was **1.728**, which lies within the acceptable range.
- **Hence, no autocorrelation problem exists.**

**3. Heteroscedasticity**

*(Based on your note "Charts" → ZPRED vs ZRESID scatterplots)*

**Socio sustainability model**

- Visual inspection of the scatterplot of standardized residuals and predicted values showed a **random dispersion of points**.
- No funnel or systematic pattern was observed.
- **Thus, the homoscedasticity assumption was met.**

**Economic sustainability model**

- The scatterplot demonstrated randomly scattered residuals with constant spread.
- **Therefore, heteroscedasticity was not present.**

**Environmental sustainability model**

- The residual plot indicated an evenly distributed pattern without noticeable clustering.
- **Hence, the homoscedasticity assumption was satisfied.**

**Appendix F**

**Certification from Statistician**

**CERTIFICATION**

This is to certify that **MARJANAH B. ANTOK** engaged my professional services as a **Statistician** for her undergraduate/graduate thesis entitled:

**"INDUSTRY ACTIVITIES, QUALITY OF INAUL WEAVING AND ITS SUSTAINABILITY IN THE BARMM: AN EXPLANATORY SEQUENTIAL DESIGN."**

I was officially hired last year to provide statistical consultation, data analysis, and technical guidance relevant to the quantitative and mixed-methods components of the study. My responsibilities included, but were not limited to, advising on research design, validating instruments, and assisting in the appropriate statistical treatment and interpretation of data.

This certification is issued upon the request of the above-named individual for whatever legal and academic purpose it may serve.

Issued this 12th day of January 2026 at Cotabato City.

**ADONIS C. ASTILLERO, MST-Math**
Statistician
**Part-time Professor**
**Notre Dame University**

**Appendix G**

**Notre Dame University**
**Graduate School**

**August 18, 2025**

**DR. MARIA ARACELI C. JULIANO**
**Graduate School Dean**

**Dear Dr. Juliano:**

I hope this message finds you in good health and high spirits.

I am writing to formally inform your esteemed office that the ethics approval process have been successfully completed. The ethics clearance was granted by the CRMC Research Ethics Committee, signed and approved by Jhoana Marie J. Zambrano, MD, FPARM.

In light of this, I respectfully seek your approval and endorsement to commence data gathering, having fulfilled all the required documentation. The data collection aims to explore the sustainability of raw materials acquisition and investigate the future of Inaul weaving in the context of changing consumer preferences and production of Inaul in BARMM Region. The research will involve the use of surveys, in-depth interviews, and focus group discussions. I assure you that all research activities will strictly adhere to ethical standards, and participants' confidentiality will be fully safeguarded.

All data collected will be used solely for academic purposes and managed in accordance with the university's research guidelines and data protection policies. I would be sincerely grateful for your approval to proceed with this phase of the study. Should there be any further requirements or clarifications needed, I am more than willing to comply.

Thank you for considering my request and for your continued support of the Graduate School.

Sincerely yours,

**MARJANAH B. ANTOK**
DBA Candidate

Noted by:

**DR. CATLYN O. PONGOT**
Adviser

Approved.

MARIA ARACELI C. JULIANO, EdD 8/26/2025

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

**Permission Letter for Data Gathering**

## Appendix H

## Ethics Certification

Cotabato Regional and Medical Center

VERSION NO: 6
EFFECTIVE DATE: 07/20/2025

Form 2.7

**CERTIFICATE OF APPROVAL**

This is to certify that the following protocol and related documents have been granted approval by the Cotabato Regional and Medical Center Research Ethics Committee for implementation.

| | | | |
|---|---|---|---|
| REC Protocol No. | 2025:015 | Sponsor Protocol No. | None |
| Principal Investigator/s | Marjanah B. Antok | Sponsor | None |
| Title | Industry Activities, Quality of Inaul Weaving and Its Sustainability in the BARMM: An Explanatory Sequential Design | | |
| Protocol Version No. | 2 | Version Date: | July 24, 2025 |
| ICF Version No. | 2 | Version Date: | July 24, 2025 |
| Members of the research team | None | | |
| Study Sites | Sultan Kudarat, Datu Odin Sinsuat, and Cotabato City | | |
| Approved Sample Size (if applicable) | None | | |

| | | |
|---|---|---|
| Type of Review | ● Expedited | Duration of Approval From (Date) To |
| | ○ Full Board | August 8, 2025 To August 8, 2026 |

| Meeting date: | Frequency of continuing review: |
|---|---|
| None | Annual:<br><br>Form 3.1 Protocol Amendment Application Date Submission Until: August 8, 2026,<br><br>Form 3.2 Progress Report, Date Submissions: February 8, 2026, and August 8, 2026<br><br>Form 3.3 Closure/Final Report Form, Date Submission Until August 8, 2026,<br><br>Form 3.10 Application for Continuing Review, Date Submission: August 8, 2026 |

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

Cotabato Regional and Medical Center

VERSION NO: 6
EFFECTIVE DATE: 07/20/2025

| REC Chair Person | Name | Signature | Date |
|---|---|---|---|
| Vice-Chair | Jhoana Marie J. Zambrano, MD, FPARM | | 08/12/25 |

Investigator Responsibilities after Approval:

- Submit document amendments for REC approval before implementing them
- Submit SAE and SUSAR reports to the REC within 7 days
- Submit progress report every 6 months
- Submit final report after completion of protocol procedures at the study site
- Report protocol deviation/violation
- Comply with all relevant international and national guidelines and regulations
- Abide by the principles of good clinical practice and ethical research

| Received by: | | | |
|---|---|---|---|
| Name: | | | |
| Signature: | | Date: | 08/12/25 |

**Appendix I**

**Respondents Profile**

Table 1: Age of the Respondents

| **Age** | **Total** |
|---|---|
| Less than 18 | 16 |
| 18 to 24 | 47 |
| 25 to 34 | 42 |
| 35 to 44 | 40 |
| 45 to 54 | 32 |
| 55 to 64 | 16 |
| 65 and above | 7 |
| **TOTAL** | **200** |

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

Table 2: Address of the Respondents

| **Address** | **Total** |
|---|---|
| Cotabato City | 40 |
| D.O.S, Maguindanao | 17 |
| Sultan Kudarat, Maguindanao | 39 |
| North Cotabato | 1 |
| Datu Piang, Maguindanao Del Sur | 103 |
| **TOTAL** | **200** |

Table 3: Number of Years in the Industry

| **Number of Years in the Industry** | **Total** |
|---|---|
| 0 to 4 | 76 |
| 5 to 9 | 36 |
| 10 to 14 | 36 |
| 15 to 19 | 16 |
| 20 to 24 | 19 |
| 25 to 29 | 8 |
| 30 to 34 | 2 |
| 35 and above | 7 |
| **TOTAL** | **200** |

Table 4: Position in the Industry

| **Position in the Industry** | **Total** |
|---|---|
| Weaver | 155 |
| Retailer | 38 |
| Inaul Dress Designer | 7 |
| **TOTAL** | **200** |

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

**Appendix J**

**Photo Documentation**

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue III March 2026

**Curriculum Vitae**

## CONTACT

09358858445
antokmarjanah@gmail.com
Tamontaka 1, Cotabato City

## TRAININGS

**Integrating Artificial Intelligence (AI) into Teaching Learning Practices In-Service Training Program**
*December 10-12, 2024*

**Strategic Performance Management System**
*July 27, 2023*

**2nd International Conference on Responsive Education and Socio Economic Transformation**
*January 17-18, 2020*

## SKILL

- Management Skills
- Digital Marketing
- Financial Management

## AWARD/S

International Research Enthusiast Society
**Best in Oral Presentation**
January 2020

# MARJANAH BANTAS ANTOK

RESEARCHER

## EDUCATION

**Notre Dame University**
***Doctor in Business Administration***
*2019 – Present*

**Mindanao State University- General Santos City**
***Master in Business Management***
*Graduated - 2017*

**Notre Dame University**
***Bachelor of Science in Business Administration major in Financial Management***
*Graduated - 2013*

## WORK EXPERIENCE

**Cotabato State University**
**Instructor**
*2024 – Present*

**Maguindanao Del Norte -Local Government Unit**
**Administrative Officer**
*2023-2024*

**Mindanao State University-Maguindanao**
**Instructor**
*2017 – 2022*

**Dar Al-Uloom Wal Hikmah**
**Finance Officer**
*2013 – 2017*

## REFERENCES

**NASRUDIN T. BUISAN**
MOST-BARMM
**Phone:** 0945-852-7155

**VENANCIA N. NUR, MPA**
MSU-MAGUINDANAO
**Phone:** 0975-866-1808