

Purun craftswomen: Restoration, traditions and livelihood capital of peat community in South Sumatera Indonesia



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Abstract Purun weaving is a legacy passed down from generation to generation in the peatland areas of South Sumatra. In addition to preserving culture, this practice benefits the family's income by selling woven products. This activity is inextricably related to the contribution of subsistence capital owned by the Purun crafts community. Human, natural, physical, financial, and social capital strengthened the Purun weaving tradition. The contribution of Purun craftswomen to the economics and family of South Sumatra's peatland communities has not been adequately recognized. Women in the peat community primarily function as housekeepers and mothers for children. This may make it challenging for them to dedicate the same amount of time and energy to establishing their business. This study examined the traditions and livelihood capital of the Purun craftswomen in South Sumatra. Involving quantitative and qualitative data, this study involved 33 households in the weaving community. In-depth interviews with community leaders and representative craftsmen provided qualitative data. The findings of this study indicate that the Purun community possesses livelihood capital, ranked from highest to lowest as social, human, physical, financial, and natural capital. However, natural capital ranks the lowest despite its importance in providing raw materials. This study emphasizes the important but often overlooked role of women in the economic and cultural fabric of peatland communities. Despite their contributions, Purun craftswomen confront gender-specific problems, such as having to balance family and economic duties. Empowering these women by means of targeted educational, market, and financial support may increase their income and productivity. Furthermore, acknowledging and appreciating their dedication might influence public perceptions and promote greater gender equality. Sustainable peatland management, associated with economic incentives for ecologically conscious behaviors, may result in both ecological restoration and economic empowerment.

Keywords: ecological restoration, economic empowerment, peatland management

1. Introduction

Recurring forest fires in Indonesia have emerged as a significant environmental and socioeconomic crisis, particularly affecting peatland ecosystems. In 2015, forest fires in Indonesia devastated 2.6 million hectares of land, with peatland accounting for 34% of the total area affected. In 2019, another forest fire destroyed approximately 1.6 million hectares of land, with 31% of the area comprising the peat ecosystem (Putra et al., 2022). These land fires cause substantial harm to human health and result in economic setback for affected communities (Purnomo et al., 2017) in addition to biodiversity loss (Harrison et al., 2020). Land fires present a socioeconomic issue for those who are dependent on peatlands for their livelihood (Miettinen et al., 2016).

Delays in addressing the issue of peatland fires have led to a spiral of poverty in tropical peatlands, threatening human livelihoods and overall well-being (Bonn, 2016). Medrilzam et al., (2017) argues that poverty represents the most critical social concern in peatland restoration, which might lead local communities to adopt more exploitative subsistence that negatively impacts the ecosystem. To address this issue, the national government, through the Peat and Mangrove Restoration Agency (BRGM), used three approaches for peatland restoration: rewetting, revegetation, and revitalization, known as the 3Rs. The third strategy, aimed at revitalizing local community livelihoods, focuses on community welfare improvement, particularly for those who reside in or near peat ecosystems, by promoting sustainable peat management practices (Yuwati et al., 2021).

A peat ecosystem consists of vegetation, wildlife, and humans who live and interact within it. This environment provides benefits to those living in and near peatlands. South Sumatra's peatlands make up 24.07% of the province's total area in Indonesia. Moreover, Ogan Komering Ilir (OKI) Regency, a region in South Sumatra, has the largest peatland area, covering 1.03 million hectares and accounting for 49.28% of the total area of the peat ecosystem in South Sumatra (BRG, 2019).



South Sumatra has become a priority for peatland restoration because of its Purun plants, which are traditionally used as raw materials for handicrafts that provide a source of income for local inhabitants. Purun is a natural resource that has long supported peat communities. The skills of processing Purun into handicrafts have been passed down through generations. Local residents protect Purun since it serves as a source of income, holding intrinsic and instrumental value for the local community (Robinson et al., 2021).

Women make up the majority of Purun craftspeople, and they have enormous potential in this field. They traditionally dedicate themselves to producing Purun crafts. Every local—male, female, or child—contributes to the maintenance of the culture in their community (Ali et al., 2022; Berkes & Berkes, 2009), assert that every local—male, female, or child—contributes to the maintenance of the culture in their community. However, the people who devote their time to creating Purun crafts are women. Although the women only worked a few hours to pass the time, they adhered to their schedule and worked efficiently and responsibly, resulting in income generation (Jalil et al., 2021). Crafts manufactured from Purun include mats, baskets, bags, caps, sandals, prayer mats, and other accessories.

Women are agents of change who make significant contributions to many aspects of life, including social and economic development. Women frequently play a significant role in families and communities. The women who work as Purun craftsmen are a group of women who play a vital role in society. Traditional women craftsmen upheld cultural traditions while also contributing to their families' income. Women's groups are driven by a genuine desire to support their household by providing an additional source of income to improve overall well-being (Jalil et al., 2021).

Nevertheless, the recognition of the contribution made by Purun craftswomen to the economy and family of South Sumatra's peat communities remains inadequate. In the peat community, women are typically viewed as housekeepers and child caretakers. This can make it harder for them to devote as much time and effort to growing their business. This role eventually makes it difficult for women to share the capital required to run their business.

Women in peatlands have been the subject of previous studies, particularly those focused on their involvement in family, fire control, social capital, family economics, and peatland livelihood strategies (Herawati et al., 2019; Indirastuti, 2020; Jalil et al., 2021; Marlina et al., 2021; Nurlia et al., 2021). Furthermore, a number of studies on peatland-related subjects have recently been published, including those on female researchers working in peatlands (Thornton et al., 2019), gender power inequalities (Safitri 2020), and legal protection for the indigenous wisdom of the Kalimantan traditional community (Septarina et al., 2022). In addition, other studies focused specifically on Purun craftswomen and discussed the challenges or expansion of Purun business, design, the scientific context, and the Purun revival effort as well as women's struggle against capitalists (Goib et al., 2019; Maslahah, 2020; Suprpto & Yudha, 2019; Syihab et al., 2020; Turang & Turang, 2021).

While the challenges faced by Purun craftswomen have been documented, there is a lack of in-depth analysis regarding the broader socioeconomic implications of their work and the influence of external market forces on their traditional practices. This study attempts to fill this gap by exploring the subsistence capital held by the families of craftswomen. It investigated the tradition of Purun weaving and the types of livelihood capital that enable craftswomen to keep out their activities. Additionally, we examined whether the restoration and preservation of indigenous peatland plants, particularly women, could improve the welfare of the peatland community. The study aims to explore the subsistence capital possessed by families of craftswomen, investigate the tradition of Purun weaving and the livelihood capital that sustains these craftswomen's activities, and examine whether the restoration and preservation of indigenous peatland plants by women can improve the welfare of the peatland community.

2. Materials and methods

This study was conducted in Menang Raya Village, Ogan Komering Ilir Regency, South Sumatra Province. The Pedamaran subdistrict covers 1,755 hectares, including this settlement. Menang Raya Village is directly bordered by some villages, such as Pedamaran VI Village to the north, Suka Pulih Village to the south, Sri Guna Village to the west, and Pedamaran V Village to the east. The survival of peat conservation is critical to the livelihoods of Menang Raya village residents, who work as farmers and fishermen. In addition, purple plants are used for making handicrafts. For years, Purun craft has served as an alternative source of income for the Menang Raya Village population. Handicrafts include mats, bags, tanjak, and other items of economic worth.

Employing a case study, this study examines the tradition of Purun weaving and the sorts of livelihood capital that enable craftswomen to continue their business. The information collected in this study includes qualitative and quantitative data. In-depth interviews were used to collect qualitative data from community leaders and Purun craftswomen. Key informants were selected on the basis of their expertise, as well as their capacity to recommend more informants needed for the study. The information acquired from key informants serves as the foundation for identifying additional figures or informants to provide further information.

The snowball sampling method was used to identify informants, taking into account their relevance to the research purposes. The information was collected until it reached saturation, at which point no new insights were obtained, leading to repetition. Observations were made to supplement the data from the interviews. The quantitative data were used to support the qualitative data. It was collected via the random sampling method from a population of 125 Purun craftswomen. Using the

Slovin formula with a 15% standard error, a sample of 33 Purun craftswomen was collected in Menang Raya Village, Pedamaran District, Ogan Komering Ilir Region. The validity and reliability tests indicated that the questionnaire was valid and reliable.

As part of the qualitative data analysis process, the Purun weaving culture and peat restoration activities in Menang Raya village were explored. Moreover, the quantitative data analysis described the characteristics of the craftswomen and their ownership of household capital in relation to local potential. The data are presented in the table. Livelihood capital includes human, natural, physical, financial, and social capital. To determine the total score, all questions about livelihood capital are scored. The score of each variable was summed to obtain an average score, which was then calculated on the basis of the level of income capital ownership, ranging from highest to lowest.

3. Results and Discussion

3.1. Purun craftspeople characteristics

Individual characteristics refer to the inherent traits of a person, which are closely related to their level of life and environment. The purun craftsmen and craftswomen in the present study were categorized on the basis of age, educational level, family status, and family responsibilities. The details are shown in Table 1.

Table 1 Sample distribution on the basis of individual characteristics of Purun craftsmen and craftswomen.

Individual characteristic	Category	Number (person)	Percentage (%)
Age	Young or early adulthood (18 – 37 years)	8	24.2
	Middle-adulthood (38-56 years)	22	66.7
	Old age (57-75 years)	3	9.1
Educational level	No Formal Education	11	33.3
	Elementary School	15	45.5
	Junior High School	4	12.1
	Senior High School	3	9.1
Family status	Head of family	8	24.2
	Family member	25	75.8
Family responsibilities	None (0)	1	3.0
	Low (1-3 persons)	18	54.5
	Medium (4– 6 persons)	13	39.5
	High (7-9 persons)	1	3.0

The individual productivity level is closely related to age. Senior purun craftswomen tend to have more experience and skills. However, owing to their low durability, the productivity level is also low. In this study, respondent age varied, ranging from 18-75 years. The middle-aged group made up the majority, accounting for 66.7% of the sample. Indicating that the age of Purun craft people falls within the productivity level. According to the Indonesia Ministry of Health (2017), the productivity age ranges from 15-64 years, and most of the Purun craftswomen are in the productivity age.

The level of formal education is one of the factors that influences individuals’ ability to think more rationally. It also determines the acceptance of an innovation. The largest proportion of the respondents in this study, 45.5%, had completed only elementary school, whereas 33.3% had never attended any school. The low educational attainment in the present study can be attributed to the affluent financial situation. Another reason for the low educational level is the community's disregard of the value of education as well as the distance between schools and residential areas.

All respondents in this study were female. Data concerning the respondent's status are necessary to determine the respondent's role in the household. A total of 75.8% of the respondents were family members, indicating that many craftswomen are housewives whose activities primarily involve assisting the head of the family in increasing the family income. Moreover, 24.2% of the respondents reported that the head of household replaced their husband, who had died. Weaving activities were their main source of income in the family.

The large number of family-dependent individuals influences household needs. It also impacts craftswoman activities. In this study, the number of dependents is defined as the number of household members who live in the same house as the respondent. Household members who work and live separately from the respondent's household were not included as the respondent's dependents. In the present study, the number of dependent Purun was dominated (54.5%) by families with 1 to 3 dependent individuals. It is followed by families with 4 to 6 dependents (39.4%). Three percent of the craftswomen are not dependent. They live alone since their children have lived in separate houses.

3.2. Purun tradition in South Sumatera

Weaving crafts are creative activities that combine the creation, production, and distribution of products made by local village craftsmen. It begins from the initial design and continues to finish using Purun raw materials throughout. Purun crafts are generally produced in small quantities. They are closely related to culture and local wisdom. This activity is a unique form of art in which weaving techniques maintain the preservation of ecological balance. Weaving Purun has been a daily activity of



women in several areas in South Sumatra. The skill has been passed down through generations. In recent years, the government has made efforts to promote and conserve Purun weaving skills through various programs. The experienced Purun craftsmen play an important role in handing down the skills of the next generations as a legacy.

The Pedamaran area is characterized by wetlands (peatlands), where peat deposits are widespread throughout the area. One of the important plants in this peatland is Purun Danau (*Lepironia articulata*). Purun Danau has been used to support community life. Purun weaving has become part of daily life. Mats are popular Purun crafts in Pedamaran District and are often referred to as the "City of Mats". It is also regarded as a cultural icon of the local community. Woven Purun mats are commonly used for important celebrations, such as wrapping the placenta of a newborn baby, providing a mat for the first night of newlyweds, and covering dead bodies during funeral ceremonies.

Purun cultivation serves ecological, socioeconomic, and cultural purposes. From the perspective of the environment, purun cultivation maintains the original conditions of peat swamp forests, thus preserving the hydrological function of the peat as well as the flora, fauna, and microbes. From a socioeconomic point of view, people's livelihoods are significantly impacted by purun plants, particularly those that reside close to their native habitat. It serves as a means of subsistence, employment, enterprise, community empowerment, economic diversification, skill development, and preservation of regional culture and identity. Improving the well-being of individuals involved in home-based businesses, such as purun crafts, can help them generate additional revenue. Moreover, from an aesthetic point of view, purun crafts is an endeavor to maintain the culture that has been passed down from generation to generation through weaving crafts of high cultural value (Hakim & Margasetha, 2017).

In terms of its cultural function, Purun is not just a plant but also a rich and diverse cultural heritage. The skills possessed by the community for centuries reflect the history and identity inherent in society. It forms values within society. As a cultural heritage, weaving purun is a traditional skill that has been carried out from generation to generation and is the identity of local communities. Purun has been used in traditional activities and religious rites. It has artistic value and the creativity of local communities, preserving local knowledge to preserve cultural heritage. Robinson et al., (2021) confirmed that protecting local custom rights would conserve traditional ecological best practices and restore knowledge, language, biodiversity and ecological function. In addition, peatland restoration should function as a socioecological effort to embrace the diverse ecology and culture of local communities.

At this stage, the local community focused on growing Purun in its natural state rather than actively cultivating it. Purun conservation was performed by leaving a few clumps behind each time they harvested Purun, enabling the plant to grow again. The debris is harvested once it reaches a height of 1.5 m or greater. The conservation of Purun is driven by the local community's responsibility to live in harmony with its environment, promoting mutual respect for protection and sustainability (Buergelt et al., 2017).

A few generations ago, each craftsman family would search for purun in the peatland. However, the purun has been declining as companies take over peatland for palm oil plantations. The company constructed drainage systems, causing the land to dry out during the dry season. Previous studies confirmed that the impact of peatland conversion was the aridity of land (Rhebergen et al., 2020; Taufik et al., 2022; Thorburn & Kull, 2014).

"Peat subsidence arises with the expansion of oil palm plantations. Moreover, expansion was more dominant in peatlands where Purun grows. It results in the loss of more Purun," (Head of Menang Raya Village, 2022).

Another form of peat subsidence is caused by forest fires, which occur frequently during the dry season. The last forest fire in Lebak Purun village took place in September 2023. Three hundred hectares of peatland were destroyed in Pampangan District. The head of Menang Raya village reported the following:

"Just now, a fire occurred in the remaining 300 hectares of Lebak Purun; everything was burned down. As a result, the people who harvest Purun took a break from weaving for a while" (Head of Menang Raya Village, 2023).

Peat subsidence has led to difficulty in finding areas near residential areas. Most puruns are found in Lebak Purun, which is about a two-hour small motorboat ride from the craftsman community. Thus, purchasing raw materials from the Purun harvester is preferable. Purun crafters usually buy a bundle of Purun for 10,000 rupiah. Three mats can be manufactured from this bundle of Purun. The mat is normally sold for 10,000 rupiah each.

Purun processing begins with drying the purun, followed by cleaning and flattening it with wood. The Purun were dyed according to the motif and design intended. Previously, the process used natural dyeing before the craftswomen became accustomed to using textile dyes. The natural dye is called *kesumbo* (*sumbo*), which is derived from plant juice or fruit peel. Its processing method involves an exceptional degree of precision and expertise. However, the process has become a simple operation for villagers since it has been carried out daily.

Purun mats are crafted traditionally by hand. The patterns are primarily geometric in shape, with a variety of shapes highlighted by various colors. The typical patterns created are the monk pattern, the double horizontal pattern, the two diagonal patterns, and the single pattern (Suprpto & Yudha, 2019). This study revealed two main patterns known as Sisik Salak and Pejalur. The themes were derived from the technique and color.

Weaving has its own culture; craftswomen frequently weave together while telling stories and taking care of their children. The process of weaving mats together is known as "berambak". In the past, weaving was performed while "incang-

incang", a form of spoken literature with lyrics and intonation, typically performed joyfully and playfully. Throughout the weaving process, there is dialog between craftswomen. A public forum was created to accommodate concerns or share information. The activities have become local wisdom in the community. It has become part of social interactions. Local wisdom is an integral part of culture that cannot be separated from society. The values of local wisdom in Indonesia have been proven to play a role in the progress of society. Previous research supports the claim that most of the unwritten local wisdoms were passed through generation from word of mouth (Mundy & Compton, 1995). The head of Menang Raya village described:

"In the afternoon, the craftswomen "berambak" weave mats together while reading stories or taking care of the children. They sing for their children; we call it "ndoi-ndoi yadeng" or prayer for the child to be a capable individual. Aside from that, there is "incang-incang," spoken literature with lyrics or intonation, which is still present today but is rarely used because the Purun people have abandoned it. However, we still do it in Menang Raya Village" (Head of Menang Raya Village, 2022).

Purun marketing occurs in local markets by village dealers, through networks with larger dealers in the city, or through exhibitions organized by agencies. However, not all Purun crafts are in demand. Therefore, many of them are kept at home and wait for a buyer. This is a concern for BRGM, and the R3 (revitalization) program offers help by initiating a program focusing on community empowerment and environmental preservation. Community empowerment seeks to develop the abilities of Purun craftswomen by providing training and workshops for innovative weaving techniques. It also promotes environmental preservation by socializing the importance of conserving the natural habitat of Purun and protecting it from the threats of fire during the dry season. Training for marketing and promotion was performed by introducing products at exhibitions and festivals for wider market access. In addition, the program offered assistance and financing in the form of business capital and equipment and raw materials. In collaboration with other parties, this program involves cooperation with local governments to develop environmentally friendly products.

The findings of this study revealed five Purun marketing problems in Menang Raya village. The first is the lack of market access. Craftsmen rely on local markets in the village. There is no permanent market outside the village to sell craft products. This problem could be addressed by encouraging the use of e-commerce platforms. However, the craftswomen are not familiar with technology. They are more willing to make direct sales of handmade goods. The second is the lack of knowledge on marketing. Craftswomen are not used to promoting their products. Third, Purun products compete with manufactured products that are more readily available and less expensive. Crafts cannot compete with manufactured products that are mass produced via advanced technology. Craftsmen can highlight the uniqueness and cultural significance of purchasing items while promoting eco-friendly products to create a sustainable lifestyle. Fourth, the market for Purun items is unpredictable and seasonal, with market demand typically spiking during exhibitions. The final problem is the absence of a quality standard. Quality standards have not been established, resulting in varied levels of product quality. A craftswoman explained:

"One bundle of Purun raw material can be made into three mats. If you make bags or other crafts, you can get around ten crafts. However, there is less demand for other items; we prefer to make mats because they are easy to produce and sell. We only make bags or other crafts by orders or for exhibitions".

Although various items, such as bags and accessories, have been crafted, the market is not as good as that of purun mats. Therefore, purun craftswomen focused on producing a purun mat. Purun craftswomen play a significant role in preserving traditions passed down from generation to generation. To guarantee that this legacy continues, they teach this skill to their young generations. Purun craftswomen in South Sumatra are excellent examples of women who contribute to family income while preserving local traditions amid environmental and social challenges.

3.3. Purun subsistence capital

Rural communities rely on five types of capital to improve their household welfare: human capital, natural capital, physical capital, financial capital, and social capital (Ellis, 2000). Each household of Purun craftswomen owns different amounts of subsistence capital. A household may have all five subsistence capitals. The level of household capital of Purun craftswomen is presented in Table 2.

Table 2 Level of ownership of household capital for Purun craftsmen.

No.	Capital	Average Score*	Level of ownership of subsistence capital
1	Human Capital	2.12	2
2	Natural Capital	1.21	5
3	Physical Capital	1.75	3
4	Financial Capital	1.52	4
5	Social Capital	2.34	1

Note: * 1.00–1.66 = low, 1.67–2.33 = medium, and 2.34–3.00 = high.

Subsistence capital was sorted from the highest to the lowest level. The resulting order is social capital, human capital, physical capital, financial capital and natural capital. Social capital ranks the highest since relationships among community members remain strong and supportive. Human capital indicates that all households have weaving skills. The community's



skills are supported by their physical capital. The craftswomen own physical capital, particularly the equipment required to make weaving crafts. Unfortunately, households have limited financial and natural capital.

In addition to the loss of natural capital, craftswomen lack financial capital. Many craftswomen are forced to borrow money to meet their financial capital for weaving. Previous research has shown that money is vital capital for craftswomen to purchase and store raw materials. The loans obtained from loan sharks. We can deduce that peatland destruction has altered and damaged the economic situation of women in peat villages (Maslahah, 2020).

The present research focuses on the level of social capital ownership on the basis of the size of the network and the number of organizations that participate with purun craftsmen households. Social capital involves kinship relationships and extensive networks that can help Purun craftsmen perform activities. The data indicate that 60.6% of purun craftsmen households have high social capital, 27.3% of households fall into the middle category, and 12.1% have low social capital. The first factor that influences the level of social capital ownership is extensive networks and good relationships with communities and the government. A high level of participation in organizations, such as social organizations, is another determining factor that leads to a high level of ownership. The craftswomen are involved in religious, professional, and youth groups, and the network will support them when they need help. Craftswomen should make a strategy for improving their household income (Chuong, 2023; Zikri et al., 2024) since low social capital would disadvantage the craftswomen (Yulmardi et al., 2020). Previous studies have shown that social capital is in the highest rank of capital living (Xiao et al., 2016; Guo et al., 2023; Zikri et al., 2024). Social capital plays an important role since it affects other types of capital (Chuong, 2023).

Human capital was measured on the basis of formal education, the number of family members who work, and the skills of family members. Only 30.3% of the Purun craftsmen households have a high level of human capital, while 39.4% are at a medium level, and the remaining 30.3% have low levels of human capital. The data revealed that only 6.1% of the respondents had graduated from high school. The majority, 60.6%, graduated from elementary or junior high school. Additionally, 33.3% of the respondents had a low level of education (did not complete elementary school).

Previous research has demonstrated that they not only rely on the family head for income but also involve wives or productive-age children for earning in living. The average number of working family members in each household is two to three. In addition to weaving talent, families possess additional skills such as fishing, trade, sewing, construction, factory, cooking, workshops, and other skills as capital for labor. According to the research findings, on average, each household possesses four skills that can be employed as capital to earn a living. Formal education is not the sole way to improve learning capacity and productivity in businesses. Income can be improved according to the family's beliefs and skills (Adriani, 2019). Therefore, purun craftsman families rely on their skills and individual principles to make a living, believing that being a purun craftsman is a heritage that must be preserved.

In the present study, physical capital refers to the degree to which Purun craftsmen households own physical goods to carry out their activities. Physical capital is measured by the ownership of tools used to earn a living, vehicles, gold, and electronic equipment. The data suggest that 60.6% of households have high ownership, 33.3% meet the medium criteria, and 6.1% fall into the low criteria. Every household has purun crafting tools, such as an antan (Purun pounding tool), a knife for cutting the purun, scissors for neatening the purun fibers, a large pot for boiling the purun during the dyeing process, and a hanger for drying the purun after coloring. The ownership of these tools is essential for producing Purun craft products. The manufacturing process is also known as the process of processing raw materials and auxiliary materials with equipment to produce products that are more valuable than the initial components (Hilary & Wibowo, 2021).

Vehicle ownership is another aspect that helps people earn a living. Motorbikes are owned by up to 93.9% of Purun households. A total of 42.4% of them own bicycles. They only own two-wheeled vehicles for mat trading. Among the Purun craftsmen, 54.5% own gold, mostly in the form of jewelry, since it is easy to sell. Cellphones, televisions, and refrigerators are the most often owned technological devices in Purun craftsmen's families. The data also show that 96.9% own cellphones, 81.8% have television, and 57.5% own a refrigerator. These devices may function as capital for households to participate in a variety of livelihood activities, including Purun crafts.

Financial capital refers to the ownership of financial resources that households can utilize for their needs. It is in the form of cash, savings, or access and loans. In this study, financial capital was measured on the basis of factors such as ownership of home savings, bank savings, ownership of debt or credit, and emergency funding sources, without considering the amount of financial capital held by Purun respondents.

The data show that 75.7% of respondents have home savings and that the remaining 15.1% save their money at the bank. Purun Saving money at home was considered easier for them. They did not know how to deposit their money in the bank. They also expressed their distrust of banks. The data also revealed that 63.6% of the respondents had debt or credit from mobile credit, food stalls, relatives, and neighbors, which were used for business capital and daily needs. A total of 75.7% of the respondents had emergency funds, including selling jewelry and electronic equipment and borrowing from loan sharks, family, neighbors or friends. There are many Purun craftsmen whose capital was generated from debts. This indicates that they are experiencing serious problems in obtaining business capital.

In this study, natural capital was measured by the level of agricultural land and livestock ownership and access to resources such as forests, rivers, and peatlands. The research findings revealed that only 6.1% of the respondents had high

natural capital, 27.3% had moderate natural capital, and the majority (66.6%) had poor natural capital. Only 12.1% of the total respondents own agricultural land due to environmental conditions. Despite being a rural area, there is no land available for agriculture. They do not carry out agricultural activities on peatlands, as they can damage the peatland ecosystem. These plants avoid destroying the habitat of Purun plants.

Another natural capital owned by craftsmen's families is cattle, which accounts for 24.2%. Respondents' own poultry, specifically chickens. Chicken farming is performed just for personal consumption, not for sale or purchase. Farming is still modest, with flocks of five to fifteen chickens. The data show that 39.4% of Purun craftsman households access shared resources. This indicates that their access to local village natural resources is still relatively low, despite the use of Purun plants from peatlands. The location of "Lebak Purun" is far from people's homes, making it costly and time-consuming. Craftswomen prefer to purchase 10,000 raw materials per bunch. A total of 27.2% of households access peatlands to collect firewood. The wood is used in the Purun dyeing process. Typically, wood is utilized alone in the coloring process to purchase raw materials or sold. Craftsmen's families also use peat land to catch fish. It was accessed by only 27.2% of all respondents. The fish serves to fulfill the protein requirements of the craftsman's family. The findings of the study confirm the findings of previous studies that women in peat villages face life-threatening challenges due to reduced access to and damage to natural resources (Guo et al., 2023; Maslahah, 2020; Molla et al., 2024; Xiao et al., 2016).

4. Conclusions

This study identifies five types of livelihood capital among Purun craftswomen: social capital, human capital, physical capital, financial capital, and natural capital. Social capital emerged as the most significant factor, highlighting the strong community networks and mutual support systems that sustain the practice of Purun weaving. Human capital, characterized by weaving skills and knowledge, further underscores the importance of intergenerational knowledge transfer. Physical capital and financial capital, while essential, were found to be less robust, suggesting areas in which external support could be beneficial. Surprisingly, natural capital ranked lowest, which is concerning, given the dependency of Purun weaving on the peatland ecosystem. This suggests a potential vulnerability in the sustainability of Purun practices, particularly in light of environmental degradation and peatland exploitation.

Peatland restoration, which is crucial for maintaining ecological balance and supporting Purun craftswomen's livelihoods, faces significant challenges. Peatland damage due to industrial activities such as palm oil plantations poses a direct threat to the availability of Purun. The involvement of Purun craftswomen in these efforts is critical, as their traditional ecological knowledge and vested interest in the sustainability of peatlands are invaluable.

This study highlights the significant yet often undervalued role of women in the economic and cultural fabric of peatland communities. Despite their contributions, Purun craftswomen face gender-specific challenges, including the dual burden of domestic responsibilities and economic activities. Empowering these women through targeted support in education, access to markets, and financial resources can increase their productivity and income. Moreover, recognizing and valuing their work can shift societal perceptions and foster greater gender equality.

Future studies should focus on policy and interventions to strengthen community livelihood capital, particularly natural and financial capital. Sustainable peatland management, combined with economic incentives for eco-friendly practices, can achieve both ecological restoration and economic empowerment. Additionally, involving Purun craftswomen in broader economic development programs can increase their market access and income potential. Future research should explore the long-term impacts of peatland restoration on the weaving community of Purun and investigate innovative approaches to bolster the economic resilience of these communities.

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Ethical considerations

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