Discovery Scoping Study: Tina Weaving Community: Assets, Sustainable and Innovative Weaving Practices, Processes and Networks

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Executive Summary

This report presents initial findings and analyses from a scoping research study on the existing assets and weaving practices, processes, and networks of a small Tagbanua's village, the Tina Weaving Community (TWC), located on the Western coast of Aborlan, Palawan, Philippines. The project generally aimed to identify the current assets, vulnerabilities, and opportunities of the TWC in relation to their traditional weaving system and networks, and to identify key potential ways to move forward.

The objectives of this participatory action research programme were attained using a threedimensional framework consisting of Economic, Cultural, and Socio-psychological structures. Further, two additional framework structures, namely Governance and Ecological, were pre-introduced and recommended in the succeeding implementation of the project. This scoping research was guided by four qualitative data collection approaches – Key Informant Interviews (KII), Focused Group Discussion (FGD), observation, and review of existing relevant literature. All the information gathered was assessed in three interrelated perspectives: issue assessment, (i.e., analysis of the current challenges that the TWC is facing across its economic, cultural and socio-psychological dimensions), stakeholder assessment (i.e., identification of involved participants, collaborators, and potential direct or indirect entities, and analysing their roles, influence, and motivations in the industry), and value chain assessment (i.e., evaluation of the supply chain of the product).

The research identified two major types of raw materials used for weaving namely, the palmlike Screw Pine Pandan (*Pandanaceae*) and a species of climbing palm or Rattan (Calamoideae). The former is commonly called pandan by the locals in the community while the latter is locally known as yantok. Both resources are abundantly supplied in hundred of hectares of ancestral domains that are characterised by closed to semi-closed canopy forests, open woodlands, and undergrowth. However, the resources might not be commensurate with access to a productive value chain network (e.g., weavers, buyers, sellers, and their families) leaving the market potential untapped and the community vulnerable to both poverty and erosion of cultural identity. For this instance, recommendation focused primarily on sustainable landscape management (i.e., recognizing their role in ecological conservation and sustainability), product design innovation through workshops, expanding market access and networks, facilitation of research and instructions by integrating both the socio-economic and socio-ecological perspectives of the community, bridging the gap between policy and practice (i.e., forest governance), continuing the community capacity building, and nurturing the community's rich cultural tapestry associated with weaving.

1.0. Introduction

1.1. Dynamics of weaving: a cultural identity

The traditional handicraft has been developed out of basic human necessity [1]. However, beyond this definitive philosophy, traditional craftsmanship is more than just a function of need [2]. The fact that such types of end-products represent the unique symbol and expressions of a community or culture [3]. In developing countries like the Philippines, it is manifested through indigenous craftsmanship and materials. Furthermore, traditional handicraft is a form of human creativity combined with the science of art and work of skills out of multiple ideas with the use of available materials [4]. For example, basketry which is one form of traditional handicraft can be traced back to time immemorial [5]. One of the many skills required to produce handicrafts is weaving and this reflects in culture, community, and tradition [3].

Whilst it is relatively unknown when exactly the practice of weaving within the different tribal communities started in the Philippines, it is believed that it is being practised almost all throughout the archipelago [6]. However, this industry has been known, passing across many generations and forms as a vital component of the Filipino heritage [7]. It is also believed that the first archaeological evidence of weaving culture in the country was found between 1255 to 605 BCE in Cagayan and Palawan. Between 1565 and 1850, the weaving culture in the Philippines was brought to many European countries as an integral part of colonial intervention [7]. Indigenous innovative knowledge, products, culture, and services were embedded in many handwoven products which carried, decoded, and transformed the artistic and cultural values of different tribes in the Philippines [8].

In the local context, weaving production for the indigenous tribe of Tagbanua in Palawan has been reflected in contemporary society by their tribal ancestors [9]. This form of art is depicted in their loincloths. For example, they weave a thin layer of bark tree using the rattan (locally known as *yantok*) to produce waistband clothing for men called *ambalad*. Additionally, the Tagbanua tribes are proficient in basketry production. Such types of handicraft products serve different purposes for them such as receptacles for their farm harvests, called *tingkop* [10], and fishery products or vessels of spiritual entities in various rituals [11]. Given the intricate connection of indigenous handicrafts to cultural enrichment, a venture of unpacking the dynamics of weaving production, especially for the Tagbanua tribe in Palawan, would be beneficial for the continuity of their cultural weaving tradition.

1.2. Weaving: a trading industry, gaps, and challenges

Aside from the cultural, ritualistic, and functional importance of indigenous handicrafts, the products of traditional weaving also play a significant role in the community's sustenance as valuable commodities [7]. Although Filipinos had long-standing trading connections with the rest of the world since before the pre-Spanish era [12], weaving is a cottage industry that has been identified as economically important in the Philippines since the 1970s [12, 13].

Today, most of the traditionally-made hand-woven products have been visibly getting into the mainstream fashion industry. Such collective opportunities provide sustenance for socioeconomic status especially in the far-flung rural areas in the Philippines [7]. Local weavers from the tribes in the southern tip of Palawan, for example, thrive through their ingenious creativity which carves provisions to support their families such as the opportunity to send their children to school [14]. Likewise, weaving, particularly mat making and basketry have become the highest potential income-generated livelihood for central Tagbanua tribes in Palawan, since the sources of the raw materials they use are within their proximity [15].

However, the fast-paced moderniSation brings tides of gaps and challenges to the traditional weaving industry in the Philippines, making it slowly fade through time. The younger generations are now more susceptible to the impacts of technological advancement, realising that there is not much income in this enterprise, and thus, are forced to seek other better local opportunities [16]. Also, as a result of the fall of the market value of woven crafts, there is a significant decline in the number of people engaged in weaving which threatened both their livelihood and cultural preservation. Further, due to the increasing number of migrants in lowland areas and the privatisation of lands and disputed ancestral domains, indigenous people have experienced threats to resources available to them. Hence, some have found themselves participating in illegal logging, cyanide fishing, and swidden agricultural practices to compete with the activities of the new residents [17].

Nevertheless, weaving continues to be a seasonal but important source of livelihood for some indigenous communities, especially those who are settled in areas where an abundant supply of raw materials grows naturally. Against the backdrop of increasing attention by the global research institutions and industries to creative arts and material culture, there are weaving communities that are yet to be explored, enhanced, and protected.

1.3. Research objectives

The current project aims to identify the existing assets, vulnerabilities, and opportunities of the Tina Weaving Community (TWC) in relation to their traditional weaving practices and processes and to identify key potential ways to move forward. While it does not claim to be exhaustive, it endeavours to capture several aspects of the weaving tradition.

Specifically, this research poses questions to scope the extent to which existing assets and weaving practices, processes, and networks serve instrumental (*i.e.*, means for livelihood) and intrinsic purposes (*i.e.*, cultural identity) for the TWC. Gaining a holistic understanding of their assets, vulnerabilities, and opportunities are addressed through the following:

- 1. The identification of the Non-Timber Forest Products (NTFPs) that the TWC relies upon for woven products;
- 2. The ascertainment of the extent to which these resources are available to meet both production and conservation goals;
- 3. The characterization of weaving practices, processes, and networks of the TWC;
- 4. The determination of the community assets (physical, natural, financial, social, human, cultural and knowledge resources), socio-psychological characteristics, and the vulnerabilities, and policies that impact their weaving practices, processes, and networks livelihood;
- The delineation of the community's existing products and design, including potential alternative innovative solutions and ideas on how to improve and diversify their products;
- 6. An understanding of how the existing networks can be linked to wider communities to create a strong market presence for raw and secondary products in the focal landscapes; and
- 7. The exploration of other factors that may potentially contribute to the holistic development of this project and the sustainability of the project's impact on the TWC and the like.

1.4. Research framework

Scoping and mapping the existing assets and weaving practices, processes, and networks of a weaving community in Tina used a three-dimensional framework with two additional framework structures pre-introduced and recommended in the succeeding implementation of the project (see Figure 1).



Figure 1. Five-dimensional research framework.

1.4.1. Cultural

Because weaving embodies the expression of arts, culture, and tradition of the indigenous people, this dimension must be tapped in the context of long-term preservation of the inherited nature of traditional knowledge. Within this framework, the project's ultimate goal is to ensure the passage of weaving knowledge from one generation to the next. This can be done by identifying the cultural values, beliefs, and practices that the Tina weaving community thrives upon, specifically those relevant to their weaving culture.

1.4.2. Economic

Aside from the cultural significance of the products they produce, it is also important to recognize that the weaving industry fills the basic subsistence of every indigenous community. Therefore, this project should continuously look at the economic mechanisms that the indigenous community is currently using, and evaluate the drivers and factors that steer economic results. For example, studying the value chain and market access networks could increase the products' profitability.

1.4.3. Socio-psychological

Empowering the local indigenous community requires not only within the context of cultural and economic perspectives but also within the area of socio-psychological dimension. It is important that this project will understand how an individual's perceptions, ideas, and understanding, affect his decision and relationship with others. This can be obtained through social science research where early career researchers must utilise the gathered data (*i.e.,* through scoping and survey). Gaining trust with the community increases the success of the project and its sustainability in the future.

1.4.4. Ecological

Indigenous people have accumulated valuable traditional knowledge about nature. They play a critical role in the sustainability of ecosystem services through their sustainable practices. However, until today, this knowledge is often not recognized as a valuable tool for environmental protection and resiliency. It is vital that along with the various anthropogenic pressures, natural disturbances, and the risks of climate change, the indigenous communities, especially the TWC have the capability to adapt to these environmental disturbances. Thus, the ecological dimension of this project will remain a significant aspect of the recovery, resiliency, and sustainability of NTFPs in their respective areas.

1.4.5. Governance and Policy

Strengthening an interconnected connection between forestry governance and community actors is the first step to filling the void of translating the environmental rights of the indigenous people at the international level. It is because some indigenous members of the community remain unaware of the existing environmental laws and policies. Tools such as network mapping and innovation history could be useful to alleviate these barriers. These tools enable individual actors to map their understanding of the protection and management of forestry resources (e.g., identification of major drivers and influencers). What matters in this perspective is that the indigenous community should remain active in discussing issues related to the management, protection, and delineation of their ancestral lands.

2.0. Research Methodology

This project involved a qualitative case study approach that describes the weaving tradition of home-based weavers in an upland community with the potential to contribute to the weaving industry in the Philippines. Among other forms of weaving, the use of pandan was chosen in consideration of the team's existing networks and expertise. The project adopted the participatory research methods outlined in different literature [18, 19, 20].

Key Informant Interview (KII), Focus Group Discussion (FGD), participatory workshops, observation, and utilisation of other literature were the methods employed to collect data [21]. The underlying principle of this participatory qualitative research is that the people are co-creators and collaborators rather than research subjects. Through this, the participants' agency and voice were recognized throughout the research process.

2.1. The Tagbanua tribe of Central Palawan

Among the indigenous people groups engaged in weaving in Palawan are the Tagbanua. The Central Tagbanua, as one of the two major geographically-based tribes, are found in the western and eastern coastal areas of Palawan which are mainly concentrated in the outskirt regions of Puerto Princesa City and the municipalities of Aborlan and Quezon [22]. The other cluster of Tagbanua in Palawan can be found in the northern part of the province, particularly in the municipalities of Coron, Busuanga, and El Nido. The Tagbanua are known to be one of the oldest tribes in the world existing 22,000 to 24,000 years ago and is possibly one of the indigenous groups that originally inhabited the Philippines [22]. Their physical features are commonly depicted by brown skin, slim body, and straight hair. For subsistence purposes, the Tagbanua thrive by doing livelihood, livestock, agricultural farming, hunting, fishing, and harvesting honey.

However, Diaz [22] said that handicrafts-making particularly woodworking, mat making, and basketry remained the highest potential source of income for Tagbanua. It was because of the proximity of many Tagbanua communities to the forests which makes raw materials readily available to them.

This scoping research focuses on the Tagbanua weaving community in Sitio Tina, Culandanum, Aborlan (see Figure 2). Tina's relative location is surrounded by the Maslog river in the North, Victoria Peak in the east, centre of barangay Culandanum in the west, and the municipal boundary of Aborlan and Quezon in the south. While Tagbanua residents do not have access to fixed-term jobs, they rely on a range of agricultural, livestock, and handicrafts for subsistence.

Seasonal opportunities include selling woven products, of which only a handful of elder and middle-aged women have mastered the craft and the absence of a clear and viable supply chain limits the potential for a fixed income source. During the scoping period, we only concentrated on the number of pandan weavers between 8-15 women, and rattan (*yantok*) crafts makers with two men.

The Tagbanua weavers and craftsmen in Sitio Tina use different varieties of Screwpine pandan and Rattan as raw materials for making mats, purses, bags, baskets, and other handicraft products.

"Craftsmen first collect pandan leaves, slice them into fine strips then sort for further processing. The whole process, from harvesting of raw materials to create the finished product, is usually a tedious venture as everything is done manually." [23]



While the residents of Sitio Tina have been aware of the weaving practices as culturally inherited from earlier generations, we had identified the key challenges they currently face such as how to sustain their weaving sources for the use of future generations, a dearth of products innovations and how to improve designs, and potential ways to expand opportunities for livelihood and the preservation of their culture.

Interestingly, we had identified at least six additional weaving communities in Western coast Palawan. This merely suggests that the rich culturally-based weaving practices are still paramount in the region (see Figure 2). For this research, we identified the locations within the TWC, of the Tagbanua weavers' raw materials, the community's nearby landmarks, and potential areas for the cultivation of pandan and rattan (see Figure 3).



Figure 3. Map of the Central western portion of the province of Palawan showing the existing nearby home-based weavers and weaving communities in Aborlan and its adjacent municipalities.



Figure 4. Map of the Tina Weaving Community showing the location of nearby landmarks, source areas of raw materials, and existing and proposed plantation areas. AWSC stands for Aborlan Water Service Cooperative.

2.2. Research sample

To identify the key players among the home-based weavers in the community, the study employed purposive sampling. This study aims to investigate the existing assets and the weaving practices, processes, products, and networks of the Tagbanua indigenous tribe in Tina, Aborlan, Palawan. For the TWC, a relatively strong presence of existing livelihood and weaving activities within the geographic area was considered and the selection of respondents was based on their active involvement in weaving. As such, representation from weavers was sought, with heavy consideration for the time constraints on the project. Sampling was also based on the ease of access and pre-existing established connections of the research team. Ten women weavers, two craftsmen, and three tribal leaders served as our respondents. Women weavers were mostly middle to old aged, ranging from 27 to 66 years old (see Annex G). They live with their families and mostly work during their spare time in their own houses.

2.3. Data collection

The primary methods we used for this project were the KII and FGD. The construction of the tools followed the framework discussed in the previous section. The KII and FGD tools are made up of questions and scenarios that explore the economic, cultural, and socio-psychological dimensions of weaving and are tailored to the general sector to which the respondents belong. Additionally, the local ecological knowledge, as well as the existing conservation and governance policy, were collected via grey literature, KII, and FGD. The review of literature also spans across these five dimensions to holistically understand the context and development of weaving.

Measures toward cultural sensitivity were also taken. An informal, semi-structured interview format was used to allow for a more natural, intuitive, and equal researcher-respondent discussion. Translators who are native speakers of the language were also employed for the FGDs so that the weavers may speak more freely and comfortably in their mother tongue. Aside from the KII and FGD, the evaluation of grey literature and stakeholder consultations were also conducted to know the practices, processes, and networks involved with the TWC. Additionally, these methods were considered the intricate complex sources of their traditional knowledge so that each approach will remain culturally sound (*e.g.,* contents of questionnaires).

Prior to the visitation with the local community, the researchers held a series of team discussions to make community situational and needs assessments, for example, new innovative designs and marketing parameters, as a tactical way of assessing gaps and uncertainties. The KII and FGD tools were carefully structured towards cultural sensitivity and executed using an informal bespoke approach to allow the natural and intuitive nature of the capacity-building discussion. The interview materials are presented in the Annex II Section.

To tailor the economic dimension of the research framework, we ensured that key actors and players across the value chain – weaving community, local and international enterprise, government institutions and agencies, non-government organisations (NGOs), academe, and designers – were identified. The innovative designs were carefully assessed through in-

depth consultations locally and abroad. The recommended product designs were grouped into different themes. Each theme and pattern were labelled both in English and Filipino.

The researchers have collaborated with design consultants to discover different weaving patterns and possible motifs for their woven crafts. In this part, participatory visual methods proposed by Richard [24] were employed. This method allows weavers to try the actual designs themselves, from which enhancement and innovation could be made to meet market quality standards without compromising their cultural identity.

2.3.1. Community capacity building through participatory workshops

Two-phase workshops were facilitated within this scoping. The first one was the "Design and Innovation", aiming at identifying the current products of the TWC and recommending alternative craft patterns and motifs to cater the demand and competition in the market whilst increasing their inner potential as naturally creative individuals.

The second phase of the workshop involved the "Landscape Management and Market Access Expansion". This workshop aimed to determine the existing landscape management initiatives, market access, networks, and assistance. Through this scheme, the challenges, risks, and potential barriers were picked out and recommended ways to attain sustainable land management while also creating a product value chain network. We ensured that the proposed designs shall cohesively represent their cultural diversity, and their association with their ecological nature and that will cater to their inner knowledge skills. This approach is depicted in a separate framework as shown in Figure 5.

Further, another focal point of these workshops was to bridge the knowledge gap for more inclusive engagement with one of Palawan's original inhabitants. Their intricate connection with their culture and nature ushers non-native visitors to reflect and inspire commitment toward the Tagbanua weaving culture. In this sense, the key outcomes of the workshops also include pro-activity in applying their cultural practices through weaving while at the same time gaining momentum of trust and long-term collaborations.

As shown in Figure 5, the framework highlights the dimensions of connecting the seasonal and ecological story of NTFPs Yantok and Pandan materials to the cultural identity and developed knowledge of the community. Together this can harvest not only product potential but foremost building relations and a stronger identity sense. Essentially, it is the stories that give life to the products and carry on cultural identity. The existing woven products and material applications can be innovated by connecting them to the roots and narratives of the community. This will increase the story of the goods created and bring out a clearer voice and culture with the works.



2.4. Data analysis

Within the structures of the framework of this research, three types of assessments were employed to further analyse the data. These are issue, stakeholder, and value chain analyses. Within this context, the situational and hazard analyses were also carefully aligned with our research framework to ensure that all the dimensions stated in the previous sections are sufficiently addressed.

Specifically, the analyses involved: (a) an assessment of the existing situations including production and marketing problems and constraints; (b) an identification of marketing goals for new products vis-a-vis the development objectives of TWC; (c) and recommendations for sustainable sourcing of the NTFPs, new products and designs, and possible business models that will ensure equitable benefit for all parties involved including partnership structure and roles of collaborators involved, and ways to ensure effective engagement with hard-to-reach communities with limited digital connectivity.

Comprehensively, an issues assessment delineates the challenges that the TWC is currently facing and deals with an initial identification of the root causes. This serves as a pragmatic technique that could save viable resources instead of dealing with the symptoms of the problem. In this perspective, the analysis passes through the economic, cultural, and socio-psychological dimensions of the subject. It also touches on issues relevant to governance and ecological resource management either within the smaller region of interest or the entire province of Palawan. If there have been existing interventions in the community, this tool tries to bridge the gaps that are exhausted in the community. Ultimately, this approach aimed to develop a shared understanding of the issues in the community, that are related to their weaving culture, and to determine the aspects that are most amenable to intervention.

Following these interferences, the collected information underwent thematic valuation based on the transcribed data. We sifted the issues raised by our respondents and carefully drew our responses. However, we had set a few limitations along this process such as weighing our expertise in handling the issues, the capacity and experiences against the complexity of the issues identified, and if the possible/recommended solution is timely attainable, economically viable, and resources-friendly.

A stakeholder analysis, on the other hand, involves three-level processes namely identification, assessment, and prioritisation. At the identification level, we enumerated the individuals and groups who may influence or be influenced by this project. In this case, all the identified stakeholders are recognized and duly considered by understanding their roles, motivations, expectations, needs, and interests. The assessment stage explores the interactions among the identified stakeholders, thus, uncovering the potential risks, vulnerabilities, and issues that may help or disrupt the project and the industry. Of all these circumstances, we consider the level of prioritising which area of interest/issue requires immediate intervention since we are aware that not all stakeholders require the same amount of attention. Lastly, the stakeholder analysis helps us in the decision-making period to which sort of communication is the most useful. It enabled us to become efficient in minimising the negative perceptions of the identified stakeholders, amplifying positive impacts, and delivering solutions and potential interventions against the conflicts or issues identified.

The value chain analysis not only assesses the supply chain of the products from the TWC but also recognizes which areas and products are most valuable to the community and this project, and which ones could be improved to provide a competitive advantage in the market. This means that our analysis aimed to identify their products' advantages and disadvantages. Moreover, through this process, we carefully delineated the processes involved in creating the products and in performing selling or service. Fundamentally, we meant to understand, through this analysis, where opportunities for improvement lie.

By combining all the assessments stated above, we were able to conduct a hazard analysis that is inclusive for TWC. We used the widely acceptable Hazard Identification and Risk Assessment (HIRA) method to identify undesirable events that can lead to different unenviable consequences. Through the analysis of undesirable events, we have the advantage to estimate the extent, magnitude, and likelihood of harmful effects on the community as a whole. Our HIRA tool adapted four key processes including (1) hazard identification, (2) risk assessment, (3) risk analysis, and (4) monitoring and reviewing.

Once the hazards/risks have been identified, the risk assessment and analysis were divided into different components. Generally, we assess the hazards/risks to people, assets and production, and the environment. The known hazards were listed and checked within the risk matrix to determine the magnitude of the importance of the risk. Conventionally, we used the Factor rating from 0.5 to 10 where 0.5 entails that the risk/hazard is very rarely occurring (probably less than one every year) and 10 means the occurrence is continuous in nature.

The Severity rating, on the other hand, assesses the level of seriousness and impact. The Probability rating assesses the likelihood of the identified hazards/risks happening in the future. Finally, the tagged hazards/risks were reviewed and preventive measures were employed to either prevent, alleviate, or reduce the impacts. A detailed rating matrix of HIRA is presented in Table 1.

Factor Rating	Severity Rating	Probability Rating	
 Frequency of risk occurrence 0.5 - Very Rarely (less than one per year) 1 - Rarely (few times per year) 2- Sometimes (12 times per year) 3 - Now and then (one per week) 6 - Frequently (daily) 10 - Continuous (more than two times per day) 	 The apparent effect indicates the seriousness of the arising situation 1 - Minor (injury without time/work restriction) 4 - Major (injury with time/work restriction) 7 - Serious (irreversible effect handicap) 15 - Critical (single fatality immediately or afterwards) 40- Disaster (multiple fatality immediately or afterwards) 	 The likelihood of all incident outcomes 0.2 - Virtually impossible (>20 years, once in a lifetime, only theoretical case) 0.5 - Conceivable but improbable (once in a career (1/20 years) 1 - Improbable / borderline case, (1/10 years) 3 - Unusual (one can think of an unusual scenario of at least 1/3 years) 6 - Possible (once every 6 months) 10 - To be expected (once per week) 	
Risk Rating Risk = Exposure x Severity x Probability Risk Mitigation and/or Preventive Action Score Priority INTERPRETATION			
>204VML: Very limited risk – acceptable20-693TAM: Take additional measure to mitigate the risk level close to priority70-1992IMR: Immediate measures required>=2001STM: Stop work until measures are taken			

Table 1. The identified Risk Rating Matrix in the HIRA process.

2.5. Ethical considerations

Furthermore, we recognize that the research process has to consider the participants' privacy and confidentiality. Hence, informed consent to participate including audio/video recording of the activities was obtained via consent forms written in Filipino and verbally. Their identities were anonymized and informed that they have the right to withdraw at any point of the research process. Purposively, ethical approval and discussion with the local tribal leader of the TWC were generally carried out. This included the introduction of researchers and supporting organisation of the study including the project's objectives. We went through the Free Prior and Informed Consent (FPIC) process, with written consent from the IP Community, in accordance with the IPRA law and NCIP Administrative Order No. 3 on the Revised Guidelines on the FPIC.

2.6. Data quality and accessibility

To ensure the sufficiency and appropriateness of the collected data, we conducted a series of secondary data acquisitions available from the government agencies such as the Department of Social Works and Development (DSWD), the Department of Science and Technology (DOST), the Department of Interior and Local Government Unit (DILG), the Department of Trade and Industry (DTI), the Department of Environment and Natural Resources (DENR), the Department of Education (DepEd), the Palawan Council for Sustainable Development (PCSD), the Local Government Unit (LGU) of Aborlan, the Municipal Planning and Development Office (MPDO) of Aborlan, the Provincial Government of Palawan, and the Puerto Princesa City Environment and Natural Resources Office (CENRO).

We ensured the adherence of our research protocols with the local government's standard and the British Council. After we gathered all the data, the documentation was converted electronically and kept in cloud storage for the next five years for safekeeping and easy accessibility.

3.0. Literature review

Previous studies on weaving traditions in the Philippines have focused on handloom weaving and in other geographic areas. This rapid literature review aims to understand the landscape using the British Council research framework exploring three dimensions: an economic, cultural, and psychological analysis.

British Council [25] provides a framework for analysing handloom weaving, its pressing issues, and power relations amongst the weaving community and stakeholders using three dimensions: economic, cultural, and psychological.

While this is viable, weaving crafts have not been included. Considering its viability and contribution, this paper aims to situate a local case of an indigenous weaving community to the wider weaving and craft industry in the Philippines and how it is connected to or relates to the global community. Specifically, the objective is to gain an understanding of the context of weaving in a local community through the following:

- 1. Their products, weaving processes, and networks
- 2. The crucial social, political, and economic movements in the past that have directly shaped their practices;
- 3. The cultural significance of the craft; and
- 4. Current policies and programs that seek to support the industry.

Two published studies in Indonesia have focused on varieties of pandan products and marketing strategies for home-based woven products [26]. Several varieties of pandan are common in Southeast Asia [27]. They form part of the forestry economy, particularly non-timber forest products to meet the demands or needs for food, energy, and NTFPs that have become input as well as direct income for meeting the needs of many households and communities around the world. Meanwhile, the home business of *Purun* woven products has market opportunities, but on the other hand, there are several internal constraints or weaknesses; namely: (a) establishing financial institutions such as cooperatives and strengthening capital, promotion, and customer networks; and (b) utilisation of government facilities to improve technology and innovation, including coaching and training programs on business quality, product innovation, capital, and marketing.

In the Philippines, three published papers are relevant to the present study. The Philippine Commission on Women's GREAT Women Project [28] employs a case study of an association of women pandan weavers in Baybay, Leyte. The study features pandan handicrafts making in the locality and describes the processes involved in pandan handicrafts making, the challenges faced by its weavers, and potential areas that can be supported by various service providers. Among the challenges identified is the need to capacitate 36 member-weavers in marketing to target consumers and buyers, especially in the higher-end market. On the other hand, the positive linkage of the women to production and marketing organisations and DTI's One Town, One Product (OTOP), which enabled the organisation of production and marketing of pandan products, was deemed in need of assistance.

Moreover, there are a few more constraints identified such as the lack of capital, matching between design, low production volume, need for product development and production technology to fulfil current product demand, lack of price structure studies on different market segments, no identified "*pang-masa*" product, and no product inventory and financing, as well as operational and managerial constraints. However, perhaps the greatest threat identified was the depletion of pandan plants in the area.

Using a gender-responsive value chain analysis, the time utilisation assessment showed that women involved in pandan-based handicrafts in this area work almost twice as long as men. Additionally, women, in the processing side of straightening pandan strips or *hagud*,exert greater physical strength that in the long run could affect their health or slow down the business process. For this instance, they have to pay a sizable margin of their income if they commission this role to men.

The study, however, suggestively enumerated that the weaving members must consider the following initiatives. : (a) Intensive Design Clinic Series to explore higher-end markets for bags, hats and pandan-strip accessories among local and foreign tourists; (b) women weavers and their groups are able to organise a federation-type marketing enterprise, co-owned by the Baybay OTOP Centre. The Baybay OTOP Centre can develop institutional linkages with successful handicraft display centres, exporters, and specialty traders in Cebu City and Metro Manila; (c) training from DOST on technical dyeing using indigenous materials; (d) improved colour and design of handicrafts and textile products which enabled UPWARD to actively participate in trade fairs and exhibition; (e) training on values formation and marketing and, gained access to local loans; and (f) pandan planting program to sustain raw materials.

Another study by Limson & Luces [29] explores the use of *bariw* (*Pandanus copelandii*) leaves for handicrafts. They developed a manually operated pandan leaves slitter-presser as an alternative low cost leaf slitting and pressing device. The main objective of this simple machinery is to flatten *bariw* leaves evenly to create a quality pounded and softened leaf-end product.

The raw material they used for weaving comes from the non-edible species of pandan. This species contributes significantly to the traditional handicrafts industry as it is versatile enough to be woven into a wide range of quality products such as mats, baskets, hats, wallets and even fancy items among others. This plant species can be found in the municipality of Louisiana in Laguna, Baybay City in Leyte, and in different municipalities in the Bicol Region. However, the interventions failed to captivate the true essence of productivity and efficiency of the machinery. It is said that this failure was attributed to several factors such as poor production and management system, poor marketing system, inadequate knowledge and technical skills on the adoption of new technology, weak linkages with government agencies and private entities, and inadequate technical, institutional and financial support.

Lastly, Nestor and Razon [30] have focused on woven basket products, particularly the forms, style, usage and economic relevance of the different indigenous baskets. They noted that indigenous baskets transcend cultural identity. This means that the raw materials, usage, and function of baskets depend of indigenous groups on which it originates. In relation to the present study, they noted the rattan (*yantok*), pandan, *tikog*, *buri*, *nito*, bamboo and bark as raw materials commonly used in Palawan basketry.

There are several baskets that use combined raw materials. The different functions can be clustered into carrying agricultural products, storage, ritual use, food and paraphernalia containers, and auxiliary household functions. The weaving patterns depend on the raw materials used, design and style of the indigenous groups and function of the basket. The common weaving patterns utilised were chequered weave, twill weave, wicker weave, twine weave, and coiled weaves. However, the study was not able to determine the cultural connection of basket weaving to specific indigenous groups.

This proves the British Council's claims that the weaving sector exists in silos. While such a part has been studied, no study has been published to date regarding the supplemental livelihood source for women in TWC, which has the potential to grow into an enterprise. We

think that the women in this community need to organise themselves into an association that could address the concerns of individual weaver members in terms of production and marketing. Similar to Leyte, an OTOP concept would be appropriate in Palawan where pandan handicrafts-making shifted into becoming an organised business enterprise with larger-scale production.

4.0. Research findings

The study emphasises the Regenerative framework which involves building a regenerative community (sustaining ecologies), building livelihoods for the land and human (sustainable enterprise), and living with the land and connecting generations (lifelong learning). This scoping research integrates situational analysis where baseline information about the physical, natural, human, cultural, social, and economic assets of the TWC were extensively extracted through a series of FGDs, KIIs, and workshops as well within the context of available information from different government agencies and literature.

4.1 Mapping of existing community capital assets for a Community-based Weaving Enterprise: Physical, Natural, Human, Financial, Social, Culture and Knowledge

The capital assets were categorised according to cultural, natural, social and financial aspects which reveal the strength of the community, and how these can be harnessed to transition the community from home-based weaving into a sustainable weaving enterprise. Below are the identified capital assets from the key informant interviews, focus group discussions, workshops, and Tina's 2017 Ancestral Domain Sustainable Development and Protection Plan (ADSDPP) [31]. The ADSDPP provides the TWC with 5,800 ha Ancestral Domain and opportunities to ensure sustainable land use for environment, enterprise and culture.

4.1.1 Physical assets

Barangay Culandanum covers a total land area of 19,896 hectares. According to the Comprehensive Land Use Plan of the Municipality of Aborlan (MCLUP) for the calendar year 2021 to 2022, a large portion of Culandanum, including Sitio Tina, is within the ECAN's Core Zone (CZ) and Buffer Zone (BZ; see Table 2 and Figure 6). Specifically, a large portion in the south and southeast region which extends across the boundaries of its adjacent Barangay Apurawan in the north and Barangay Berong in the south is bounded within the CZ where most of the areas are characterised by virgin forest and old-growth timberland. Extending across adjacent areas near the west coast boundary of Culandanum, on the other hand, are within the BZ where minimal extraction of resources and strictly-controlled human activities are allowed. This surrounds the CZ where indigenous people who originally inhabited the area employ traditional agricultural practices and utilisation of the resources. Tina's ADSDPP delineates the collective agreement on land usage according to the ECAN Zoning (see Table 2 and Figure 6).

Zone	Land Use
Core (Red)	 Preserve as the main source of livelihood for Tagbanuas (dugos, almaciga, yantok, medicinal plants, wild boar, food, water, wood) For protection and preservation For watershed All projects needs FPIC (Free prior and informed consent)
Buffer (Green)	 Slash and burn (kaingin) area For agriculture - potential site for plantation of pandan Individual land ownership - cannot be sold to non-Tagbanuas; quarrying,

Table 2. Land Use classification in	Tina's Ancestral Domair	based on the ECAN	Zoning project for
the entire province of Palawan.			

	mining, and big projects need FPIC
Source: TINA A	DSDPP (2017) [31; 32] which are validated by the community members.

A large part of TWC is within the BCZ. This extends across the further landward regions in the east with mountainous terrain. The BZ for TWC includes the adjacent flat areas along the foothills, including an area for reforestation (Purple, see Figure 6). This is where the elementary school and residential community are located (see Figure 4).



Figure 6. Jurisdictional boundaries of Tina based from the 2017 ADSDPP [31].

North-South Road networks provide accessibility to transport products. The village of Tina is located approximately 90.9 kilometres away from Puerto Princesa City, which provides the most accessible route via Napsan-Apurawan national roads. Local residents who venture in and out of Culandanum to travel to Puerto Princesa City have to take the shuttle van as the main public long-distance transport. The minimum one-way fare from the proper town of Culandanum to Puerto Princesa City is about Php 400.00 (£6).

From Aborlan-Quezon National Highway to the TWC. Puerto Princesa City to Culandanum can be travelled through concrete roads. However, the remaining distance from Culandanum to the TWC is one of the hardest to navigate in terms of accessibility. It is only accessible (after getting into the downtown Culandanum area) either via foot, manual motorcycle, or 4x4 vehicle. From the Aborlan-Quezon national highway, it takes a distance of 3.84 miles (6.171 kilometres) and an elevation of 1.74 feet (529 metres) to reach *sitio* Tina. The local access route is consistently steep throughout time and includes several river crossings. It is not concreted and is covered with a lot of boulders that range in size from very small to one foot in length, breadth, or height, making travel extremely difficult and slippery, especially during the rainy season. The forest, which is still unexploited, provides the entire region with humidity. During the rainy season, from June to November, an average rainfall of 659 millimetre per year makes travel to TWC extremely difficult and dangerous.

From TWC to the Rattan Harvest Area. The distance between the weaving centre and the closest rattan or *yantok* harvest area is about 1,737 feet (529 metres) at a height of 133 feet (40.5 metres). At least more than three rivers have to be crossed before reaching the main harvest area (see Figure 3). Surprisingly, this region, which extends into several hectares, is massive in size. The access route is extremely difficult to travel on foot because the further it gets from the community, the path becomes steeper, narrower, and mostly obstructed, especially while hauling equipment and harvesting goods. Non-fruit-bearing plants and lumber trees are also abundant in this area. Additionally, there are many wild crawling creatures and insects in the region which make staying there for a longer period inconvenient. Specifically, the *yantok* harvest area is located at 658 feet (201 metres) above sea level.

Water facilities are already installed, however, there is still no electricity provider in the area. The TWC is situated next to one of the main river systems in Aborlan, the Culandanum River. The water catchment (as shown in 2 blue lines in Figure 7) is connected to the Culandanum River, but is approximately more than three kilometres away from the TWC. The water catchment map influences the agricultural production in Aborlan. The Culandanum River is still in pristine condition and serves as one of the main sources of water for the locals.

Very few of the households from TWC benefit from Aborlan Water Service Cooperative (AWSC) which also serves as the major water provider in bigger communities of Aborlan. Similar to other basic service providers, people have to make monthly payments for this service. One of the Water District Stations in Culandanum is located approximately 500 metre south of TWC. Alternatively, a few of the TWC and nearby villages get their water from the Community Water Refilling Station (RTN-CWRS) which is funded by the Rio Tuba Nickel Mining Corporation (RTN). This RTN's Social Development and Management Program has been initiated to help alleviate the higher number of diarrhoea cases in Barangay Culandanum and increase potable water access, including the TWC. However, at least less than one percent of the total households in TWC can afford the water from RTN-CWRS because it is quite expensive than the service given by AWSC.



Figure 7. Water catchment map of Aborlan, Palawan highlighting the Culandanum River as one of the main water sources for TWC [34].

The main provider of 24-hour electricity for the entire municipality of Aborlan, including the Barangay Culandanum, is the National Power Corporation's (NAPOCOR's) Palawan Backbone Transmission Line through the Palawan Electric Cooperative (PALECO). However, due to the remoteness of barangays Apurawan and Culandanum, the PALECO's service is currently unavailable in the community. Alternatively, in most west coast barangays in Aborlan, electricity is being provided by Solar Home Systems (SHS) for only about 4-6 hours. However, locals in TWC said that they do not have enough monetary resources to either apply for a PALECO power connection or get solar panels.

Communication networks through SMART have also been installed and working. The only available mobile network provider in Tina is the SMART telecommunication company. A summary detail of physical and basic facilities in Culandanum and Tina is presented in Table 3.

Item	Culandanum	Apurawan	Berong
Location	Second barangay in the northwest, next to Apurawan	First barangay in the northwest, after Napsan, Puerto Princesa City	First barangay of Quezon, Palawan from the northwest
Land area Distance from Puerto Princesa City (km)	19,896 hectares 82.8	317,000 hectares 75.1	16,872 hectares 97.2
Number of sitios Terrain Road type	5 Flat, mountainous Concrete (main road)	7 Flat, mountainous Concrete (main road)	7 Flat, mountainous Concrete (main road)
Infrastructure & services Transport	Van, private car, motorcycle, tricycle	Van, private car, motorcycle, tricycle	Van, private car, motorcycle, tricycle
Electric power supply	Solar, generator sets, kerosene lamps	Solar, generator sets, kerosene lamps	Solar, generator sets, kerosene lamps
Water source	Community Water Refilling Station (RTN-CWRS)		
Communication Health Barangay plaza Barangay cemetery Police outpost Village market	SMART tower 1 1 1 1 1	SMART tower 1 1 1 1 1	SMART tower 1 1 1 1 1
Source: [35]; KIIs			

Table 3. Summary of physical and basic facilities for Barangay Culandanum including Sitio Tina in comparison with nearby barangays

4.1.2 Natural Assets

The natural resources of the TWC are identified and protected through the ADSDPP; the Tina Ancestral Domain provides the community and weaver the natural resources they need for their livelihood. Barangay Culandanum is richly endowed with diverse plants and animals. A wide range of forest products is identified in the area sustaining both home consumption and the market needs of the residents. These include timber and NTFPs. Since the area is protected by ECAN laws, commercial harvests of timber are prohibited. Meanwhile, NTFPs provide significant possible opportunities for income generation to the community within the buffer zone of Barangay Culandanum¹ (see Figure 6). Among the NTFPs, pandan, rattan

¹ PCSD Resolution No. 05-250 accounts land usage in the province between Core zone and Buffer zone under the Environmental Critical Areas Network (ECAN). Core zones are areas of maximum protection, where any kind of development is prohibited in these areas. These sites are under full protection and free from human disruption except for gathering of forest species for ceremonial religious activities of IPs. Meanwhile, Buffer zones are the surrounding protective layer to Core zones with less strict regulation and allow activities under three categories: Restricted Use Area, Controlled Use Area, and Traditional Use Area [33]

(yantok), and honey are the most important ones. Even though almaciga resins have declined through the years and rattan has not yet been collected in commercial qNevertheless, Tina's ADSDPP laid out the use of these resources within the context of forest conservation.

Climate and soil type are ideal for plantation and weaving enterprises. The TWC has a type I climate. This is typical in the western side of Aborlan wherein there are pronounced dry (from November to April) and wet (the rest of the year) seasons. Generally, the soil in TWC can be classified into rough mountain soil type which is suitable for forest growth and preservation purposes. This makes up the entire 57% of the total land area of Aborlan. Additionally, clay loam which is suitable for agriculture is very typical for the western-end region of Aborlan where TWC is located. The topography ranges from a flat near the shore of the western part to rugged mountainous in the central and southwestern portion.

Pandan and Yantok as the primary raw materials for weaving. The most promising livelihood in the community is crafting. Of the women members of the TWC, most indulged in weaving practices that mainly utilise different types of pandan leaves. On one hand, Pandan is mostly associated with women in the community because they are accessible for harvest from the wild. Pandan grows by densely thick forest, mountains, hills, and slopes with damp and fertile grounds. On the other hand, or locally known as *yantok* is a palm tree that belongs to the subfamily Calamoideae. Rattan has a vine-like characteristic since it scrambles through and over other vegetation. In Southeast Asian countries, like the Philippines, this species thrives in the open- to closed-canopy old-growth tropical forests [36]. In Sitio Tina, rattan is commonly found near the riverbanks and plays the role of proactive covering for the forest, source of water, and maintaining soil moisture. There are several varieties of pandan and rattan present in the area (see Table 4).

Local name	Estimated Abundance (individual)
Pandan by stream Bankuang Barasan Abuan Tikog Pandan by the sea Seman Pandan Sina	3,000 3,000 - - 3,000 1,000
Rattan Aret'et / siksi (Calamus cuminglanus) Arurog Bugtong (C. subinermis) Dagket Marwa Labsikan (Daemonorops longipes) Palapag Palasan (C. merrillii) Pitpit Rimuran Sambulagan / abuhan (C. diepenhorstii) Saruringan Seka (C. linnaeus) Yasyas	400,000 2,000 200,000 400,000 500,000 200,000 200,000 300,000 300,000 500,000 300,000 200 300,000

Table 4. Different varieties of pandan and rattan that are present in the area including their estimated abundance.

Source: 2017 Tina ADSDPP [31]

Tina Ancestral Domain is the source of other NTFPs providing livelihood to the community. The NTFPs are also very apparent in the houses of every member of TWC. Their houses are characterised as native which refers to the light forest materials they got from the forests. These resources are temporary yet because of their proximity to the main sources, they can be readily available for future repairs. Their perspective is to ensure the sustainability of these resources. Thus, they only harvest what they need. Usually, their houses are made of exclusively non-timber materials such as bamboo (*Bambusa spp., Schizostachyum spp.*), *nipa* (*Nypa fruticans*), *anibong* (*Oncosperma gracilipes*) and *rattan*. At least more than 90% of the houses in TWC are either made completely of NTFPs or built partly with NTFPs, with other materials such as lumber. They made their home by themselves and most of them do not have the money to buy building materials which left them no choice but to use the NTFPs (see Table 5).

Local Name (Common Name)	Scientific Name	Local Uses	Conservation Status
Yantok (All ratans)	Calamanus spp.	Crafts, Furniture, Food	Stable
Bagtik (Pine)	Agathis celebica	Resin (fuel)	-
Almaciga (sahing)	Agathis philippinensis	Resin (fuel)	Declining
Nipa (Palm)	Nypa sp.	House Roofing, Mat Weaving	-
Pandan, Buri (Screwpalm)	Pandanus sp.	Weaving bags, wallet, mats	Stable
Pulot (Honey bee)	Apis indica	Food	-
Kawayan (Bamboo)	Garcinia sp.	Housing Material	-
Kawayan (Bamboo)	Bambusa spp.	Housing Material	-
Bikal (Bamboo)	Dinocholoa scandens	Water source in the forest	-
Buho (Bamboo)	Schizostachyum Iumampao	Home Fencing	Stable
Tikog, buri	-	Crafting: Weaving bags, wallet, mats	-
Pandan (All pandans)	Pandanus spp.	Crafting: Weaving bags, wallet, mats	Stable
Wild orchids (dapo)	-	Ornaments	Available but prohibited for harvest
Source: 2017 Tina ADSDPP [31; 37] which are validated through KIIs			

Table 5. Available NTFPs in TWC with existing local conservation status.

Alternatively, aside from weaving and handicraft, people in TWC are used in tapping resin from an almaciga tree. In fact, long before crafting, collecting almaciga resin was the oldest job they inherited from their ancestors. However, doing this type of job is only in season (usually during the dry season) because the locations where these trees are found have treacherous terrain and require long journeys. Aside from that, the journey going back to the village after they got the resin makes it even more dangerous since they have to carry with them at least 30 to 50 kilos of harvested almaciga. Today, they sell the harvested almaciga at only Php16.00 per kilo (\pounds 0.24). These are the reasons why not many of the members of the community do not operate this business regularly.

Agricultural and forest produce. The main agricultural crops in TWC are corn, rice (*kaingin*), and banana. They also grow varieties of fruits and vegetables in their backyards such as squash, pawpaw, pineapple, eggplant, manioc, string beans, bitter gourd, and okra (see Table 6). However, since they are quite far from the nearest coastal community, they usually exchange their local produce for fish and other available marine products. This is only possible when some local vendors from the coastal areas venture into their community. Most of them do not have enough money to buy fishery products which is why they usually barter with their agricultural products instead.

Description	Forest Produce
Forest fruits and edible produce	Manti, balisangkad, pao, pasi, kandis, bunog, pupuan, nato, alalandog, bago, keliat, aromaay, anopol, uyong-uyong, alanday, lakers, tugong, sarungapanaki, lumpataki, batbat, butuan, lipsu, puyas, mantawyang, bandi-bandi, imbubsok, pipiyasoton, agusip, talisay, pesa-pesa, langba, batu'tay, maranggoob, uway- uway, pali, yusong-yusong, udok-udok, bunsikag, kudot, anibong, burot, abagan,
Vines	<u>Vines</u> - available in the forest but are not being used to make any products <u>Different types:</u> <u>For eating</u> : nito, tabo, lumo-lumot, kelyat, pasungan, tambilikan, kulagbaw, patitit, bandi-bandi, aromaay, mantwayang, pa'lao, siyang-siyang, barubarukan, buyo- talon, sarimara, iyuk, lagayday <u>Sturdy types</u> : lumpigid, uwag, wakag it limokon, kandis-kandis, sambot it babalyan at yantok <u>For bathing</u> : kulagbaw, balogo <u>Medicinal type</u> : uwag, buyo talon, pangter, mantawyang, tabo, pal'ao, sambot it babalyan, derengnan, kamlampinayu, begna, bulanglangan, kalakalait, barubarukan, buyangyang, nanga, tabangan, olagak, kalamayo, panala at manunggal <u>For handicrafts/decoration</u> : pasungan, lumpigid, uway, nito <u>Others</u> : sapinit, dangingi, Taytay bising, buyo't-gukguk, bulikaw, and maragawa (panlili'go)
Medicinal plants	kogon, makahiva, baho-baho, nito, sambong, lagundi, seresas, bayabas Kalamansi, kamyas, kapok, pinya, bananato, atis, langkawas, Bawang abokado akapulko, bawing, tanglad, buko, Guyabano, Pakpak-lawin, Bunga, Apatot, Saging Sili, Balogo, Kakawati, Sepa, Ola gak, kamoteng baging, Ta'misan, Makasla, Uwag, Buyo, Talon, Pangter, mantawyang, tabo, palao, sambot it babalyan, derengnan, kalampinayu, begna, bulanglangan, Kalakalait, Barubarukan, buyangyang, rimbangon, kilala, ipil-ipil, Narra, Mahogany, Gumamela, Bagtik, Batbat, Dalu'pang, Kunit, Hagonoy, Malunggay, Lalid, Dapo, Papaya, Rimbangon, Samsap, Kastila, Tawa-tawa, Oregano, Ganda Luyang, Kusor
Bagtik	Pitpitan, Garo, Masleg, Limembaw, Mainggar, Senep, Kabulikawan, Matungolonon, Marungkang, Kakalabasaan, Sarak e't tagbayoso, Kaba

Table 6. Forest produce available in TWC.

	kabangkalan, Ma'te, Inungsudan
Source: 2017 Tina ADSDPP [31; 37] which are validated through KIIs	

When there is plenty of rain, during the wet season (May to October), they plant rice thru kaingin for household consumption. On some occasions, they sell kaingin rice to the nearest market or barter it for other food products. When it comes to other agricultural crops, such as rice in irrigated paddies, they admit that they have not been trained. They do not also know which crops are suitable to their area's soil and weather conditions, except for those traditionally planted such as sweet potatoes, wild yam, and eggplant (see Table 7).

Local Name (Common Name)	Scientific Name	Local Uses	Conservation Status
Ipil-ipil (Lead tree)	Intsia bijuga	Housing Material	Declining
Niyog (Coconut)	Cocos nucifera	Food, Oil, Housing Material	Cultivated
Halowihaw	Dracontomelum edule	Food, Housing Material	-
Pako (Edible fern)	Diplazium esculentum	Food	-
Bago (Belinjau)	Gnetum gnemon	Food	-
Gabi	Collocasia esculenta	Food	Cultivated
Hagnaya (Edible fern)	Stenochlaena palustris	Food	-
Kandis (Batuan)	Garcinia binucao	Food	-
Rambutan (Pulasan)	Nephelium ramboutan-ake	Food	-
Langka (Jackfruit)	Artocarpus heterophyllus	Food	Cultivated
Duhat (Malabar plum)	Syzgium cumini	Food	Ciliated
Santol	Sandoricum koetjape	Food	Cultivated
Santol (Wild)	Sandoricum sp.	Food, Housing Material	Declining
Saging (Banana)	Musa spp.	Food	Cultivated
Mangga (Mango)	Mangifera spp.	Food	Cultivated
Kamote (Cassava)	lpomoea batatas	Food	-
Mais (Corn)	Zea spp.	Food	Cultivated

Table 7. Fruits and vegetables that are available in TWC with existing local conservation status.

Palay (Rice)	Oryza spp.	Food	Cultivated		
Durian (Wild durian)	Durio zibethinus	Food	Declining		
Kalamansi (Calamansi)	Artocarpus communis	Food	Cultivated		
Albutra	Arcangelisia flava	Medicine	-		
Dita	Alstonia secholaris	Medicine	Threatened		
Supa	Sindura sapa	Medicine	-		
Parina (Ginseng)	Schefflera sp.	Medicine	-		
Luya (Ginger)	Zingiber officinale	Food, Medicine	Cultivated		
Lankawas (Ginger)	Zingiber sp.	Food, Medicine	-		
Batbat (Mallow)	Colona serratifolia	Rope	-		
Batbat (Palm)	Caryota sp.	House roofing, Broom, Food (Shoot)	-		
Banga (Palm)	Orania paraguanensis	Food for pig	-		
Dapo (Orchid)	Phalaenopsis sp.	Ornamental	-		
Pakpak lawin (Orchid)	Aspenium nidus	Ornamental	-		
Source: 2017 Tina ADSDPP [31; 37] which are validated through KIIs					

When they did crop cultivation, some of the villagers much preferred swidden farming. According to the locals, this is not only tied to their subsistence purposes but also has cultural and ecological importance. Since the local government regarded them as traditional inhabitants in the area, they are allowed to manage the production of land use within the protected forest areas. This is in support of the government in the subsistence and cultural beliefs of the Tagbanua people [38].

Value of medicinal plants present in the area. Other direct social services such as housing, healthcare, legal services, and general wellbeing care are hardly accessible to the people. The nearest satellite healthcare facility is approximately 10 km away from TWC, this is in the Barangay Culandanum area. In most cases, due to extreme and dangerous trekking, especially during rainy seasons, people tend to self-medicate or use available traditional medicines (*i.e.*, those sourced from the forests) instead of seeking medical professionals.

In addition to NTFPs and flora, the TWC is surrounded by rich fauna. Tagbanuas in Tina also hunt wild boar, common water monitor lizard, bear cat, and long-tailed macaque (see Table 8). However, they also raise native chicken and swine in their backyards. For them, it is a source of income while waiting for their harvest. They usually sell native chicken

and pigs during flea markets in the lowland. However, less than one percent of the population only afford this type of alternative livelihood due to a lack of capital.

Local Name (Common Name)	Scientific Name	Local Uses	Conservation Status		
Manok (Junglefowl, Wild chicken)	Gallus gallus	Food, Game	-		
Baboy ramo (Wild boar)	Sus philippensis	Food	-		
(Common water monitor lizard)	Varanus salvator	Food, Game	Declining		
Kiyaw (Hill myna)	Gracula religiosa	Pet, Souvenir	Declining		
(Palawan porcupine)	Hystrix pumila	Food	Stable		
Binturong (Bear cat)	Arctictis binturong	Game	-		
Unggoy (Long-tailed macaque)	Macaca fascicularis	Food, Game	Stable		
Source: Aborlan 2010 Yearbook [37; 39] which are validated through KIIs;					

Table 8. Animals that are available in TWC with existing local conservation status.

Finally, potential sites for tourism and honey production are identified in the ADSPP.

There are several natural spots in Tina, which includes: Kalayagen river, Mt. Mande'gen, *Ma'te* River, Mt. *Ruso-Ruso*, Mt. *Tiyuring*, Mt. *Kadakay*, Mt. *Tina*, *Tagkiwa* Creek, and *Maslog* River. While these are potential tourist spots, the TWC places high respect for them as sacred places. Nevertheless, the areas near Tina are tourist hotspots in Palawan West Coast. Honey production is also a potential enterprise in Tina. Harvesting honey is practised in a particular season in a year ('maglebet'). There are two types of honey being identified by the community. These are locally called '*salibongbong*' and '*mantapang/omili*.' The locals consider honey as one of the valuable commodities in their village.

4.1.3. Human assets

Adult women juggle roles between household and livelihood; weaving promises additional income for the TWC.

In 2015, the TWC comprised 114 households. This represents the total of 284 households for Barangay Culandanum in 2015. In 2020, the village population reached 1,772 people for Barangay Culandanum. Of this number, about 45% are female against the male population.

The younger population of Tagbanuas is getting schooled, hopefully more learning; whilst the adult population have some form of formal education. While abundance can be found in the natural resources of Culandanum, this does not necessarily reflect the human condition of the TWC, especially in terms of formal education for both adult and young ones The KII revealed that among its households, none from the tribe has graduated from college yet (see Table 9). While the rising cost of education and maintenance can be attributed as the main reason, these two individuals stopped schooling because they were married early. However, it is positive to note that the younger generations are now formally enrolled in school, especially since we have observed an elementary school built in the

community. Those at the elementary level do the at ease journey to this nearby public school whilst those who are in the secondary level need to walk seven kilometres downtown to reach the nearest school.

Description	Male	Female	Total		
Number of adults	69	42	111		
Highest educational attainment Elementary Grade 1 Grade 2 Grade 3 Grade 4 Grade 5 Grade 6 First Year HS HS graduate Did not study	1 5 9 21 9 11 4 2 1 4	0 4 5 8 9 0 2 4 2 3	1 9 14 29 18 11 5 6 3 7		
Number of young people in school	61	45	106		
Education level Day Care - Kindergarten Grade 1 Grade 2 Grade 3 Grade 4 Grade 5 Grade 5 Grade 6 Grade 7 Grade 8 Grade 9 Grade 10 Grade 11 Grade 12 College	8 10 5 7 5 6 8 7 3 0 0 0 0 0 2 0	6 0 1 8 4 4 4 8 3 0 1 2 4 0 0	14 10 6 15 9 10 12 15 6 0 1 2 4 2 0		
Source: generated by author from Tina census [31]					

Table 9. Educational profile of adults in 2017

TWC is situated near other weaving communities; networks of weavers (cluster weaving for cross pollination of design and ideas) can be organised. There are different ethnic groups that thrive in Barangay Culandanum and Sitio Tina. However, for the former, the Tagbanua, Cuyunon, and Visaya are the major ethnic groups in the area. For the latter, the local elders do not allow non-native Tagbanua to live in the TWC (see Table 10; Figure 3).

Table 10. Comparison of the socioeconomic condition of Barangay Culandanum to its two neighboring villages, the Barangay Apurawan, Aborlan in the north and the Barangay Berong, Quezon in the south in 2020.

ltem	Culandanum	Apurawan	Berong	
Total population (2020) Annual growth rate (%) Number of households (2015)	1,772 3 284 (Tina: 114)	4,496 5 751	3,735 1 947	
Male	968	2,416	1,962	
Female	804	2,080	1,773	
DSWD 4Ps	156	418	216	
Ethnicity/IPs	Tagbanua, Cuyunon, Visaya	Tagbanua	Tagbanua, Cuyunon	
Livelihood Major income sources	Farming, fishing, daily wage employment	Farming, fishing, employment, daily wage employment	Farming, fishing, daily wage employment, mining	
Cottage & small industries	pandan/buri/tikog weaving rattan/bamboo craft Shingles making almaciga resin/honey gathering	Pandan weaving rattan/bamboo craft Shingles making Almaciga resin/honey gathering coco leaves/nipa shingles making	pandan/buri weaving rattan/bamboo craft shingles making almaciga resin/honey gathering coco leaves/nipa shingles making	
Source: [35]				

4.1.4. Financial assets

Dependent on Ancestral Domain in terms of livelihood and income source. The natural resources surrounding the community are abundant owing to the vast areas of ancestral lands that are still covered in thick forest and undergrowth vegetation. However, the available resources for livelihood are limited only to the tribe's daily maintenance and consumption. Where they need money to purchase basic necessities, they would have to hunt or gather, slash and burn, plant root crops, and sell products that are either sourced from the forests or handcrafted. Seasonal manual labour opportunities are available depending on their skills. The lack of job opportunities in the area coupled with the lack of formal education has adversely impacted their social status. *"Walang regular na trabaho, minsan may arawan (There is no regular job available, sometimes, we find only daily jobs)."*

According to the ADSDPP data in 2017, adult men residents in TWC earned more than adult women. The income range for male adults varied from Php 218,400.00 (£3,222.48) to Php
323,100.00 (4,767.61) while the female adult population only earned from 43,750 (£649.00) to Php 60,150.00 (£887.50; see Table 11). Expectedly, the major source of income for TWC since 2017 are slash and burn (swidden) cultivation, collecting almaciga and honey, weaving and crafting, and hunting wild animals (see Table 11).

Description	Male	Female	Total	
Number of working adults	69	42	111	
Common livelihood	Daily wage - grass cutting, clearning, slash and burn, collecting bagtik, yantok, honey, pag-kopras,	Daily wage work - grass cutting, vegetable growing; mat and nipa shingle weaving; slash & burn; collecting 'sahing', bagtik, yantok and honey; plain housewife		
Lowest Income	Php 218,400	Php 43,750	Php 262,150	
Highest Income	Php 323,100	Php 60,150	Php 383,250	
Major income sources	Farming, fishing, daily wage en			
Cottage & small industries	pandan/buri/tikog weaving rattan/bamboo craft Shingles making almaciga resin/honey gathering			
Other sources of incomeConditional Cash Transfer through DSWD 4Ps: Php6,000 per year (Php500 monthly) per householda Php3,000 for one school year per childb (with a maximum of three children per household)				
	LGU / Other government agencies			
Source: 2017 Tina ADSDPP [31]; Aborlan 2010 Yearbook [39] ^a per diem salary basis for different chores ^b for educational expenses				

Table 11. Main sources of livelihood amongst adults in TWC in 2017.

Other income sources. Alternatively, benefits come from the conditional cash transfer government's social assistance program of DSWD known as *Pantawid Pamilyang Pilipino Program* or 4Ps (Bridging Program for the Filipino Family). Under this, cash assistance (conditional cash transfers) is given to support their needs. As of 2020, the DSWD currently identified at least 156 4Ps beneficiaries for Culandanum (see Table 4). In TWC, some families receive the benefits of the DSWD 4Ps [35]. At least Php 6,000.00 (£ 89.16) is given to each household beneficiary every year. There is also an allocation for education of elementary and secondary students to which every child in each household receives at least Php3,000.00 (£ 44.58; see Table 11).

4.1.5. Social assets

Community organisations. There are existing organisations in the barangay and they represent various sectors such as farmers, water users, women, religious, fishermen, and handicraft makers. Considering the importance of the Certificate of Ancestral Domain Claims (CADC) and/or Certificate of Ancestral Domain Title (CADT), the people's organisations such as the Culandanum Tribal Council under the *Nagkakaisang Tribu ng Palawan* (NATRIPAL) have been actively supporting the activities of members for socio-economic upliftment and cultural preservation highlighted in designing the ADSDPP. Additionally, there is the People Organization's *Nagkakaisang Tribu ng Tina* (NATRITI), which was founded in 2010. The main reason for NATRITI's creation is to facilitate the development of ADSDPP in 2017 and the CADT application. Hence, this indicates that the tribal leaders and community members are aware of their Ancestral Domain rights and jurisdiction. Finally, the TWC has a very small network when it comes to livelihood and marketing their products; these are mostly government agencies including DSWD, DTI, DOST, and LGU municipal/barangay units.

	Existing network
	NATRIPAL, NATRITI
Supplier	Supplier of weaving tools (i.e., knife) from Aramaywan, Quezon
Buyers	Culandanum Centre, Puerto Princesa's NCCC Mall & Pasalubong Centre, Government employees
GOs, NGOs and Academic institutions	NATRIPAL, NCIP DSWD, DA, DOST-MIMAROPA, Local Government Units of Aborlan, Puerto Princesa City, and Palawan

4.1.6. Governance and policy assets

Forest governance and management: Existing Governmental Policies. Several established and existing governmental policies in the Philippines that are applicable for the entire jurisdiction of Aborlan. These include: The Indigenous Peoples' Rights Act of 1997 (R.A. 8371); Strategic Environmental Plan for Palawan (SEP) under Republic Act 7611; and rules and policies agreed by the Tagbanuas in Tina as specified in the Tina Ancestral Domains Sustainable Development and Protection Plan (ADSDPP).

Ancestral Domain natural resources and forest management practices, issues, and protection. Other than sustainable forest resource management and practice laid down in Tina CADT and ADSDPP [31, 41, 42], the utilisation of natural resources in the entire area of TWC is being controlled by the local government through the PCSD. The Strategic Environmental Plan for Palawan Law (SEP Law) serves as the legal basis for the management, protection, and preservation of the natural resources found within this community. Under the ECAN Zoning project, the terrestrial components of TWC cover mountains, ecologically important lowhills, and lowland areas. Typically, ECAN Zoning is subdivided into smaller management components, which include core zone, buffer zone (further divided into Restricted Use Area [RUA], Controlled Use Area [CUA], and Traditional Use Area [TUA]), and Multiple Use Zone (MUZ) for more efficient supervision. Certain land uses are assigned to each zone with full protection in the core zone [38]. Sitio Tina is situated between the core zones and buffer zone, particularly under the RUA, CUA, and TUA (see Figure 8).



Figure 8. Land-use zoning in a portion of Aborlan, particularly in Barangay Culandanum, based on the ECAN Zonation project [31; 33]

A large part of TWC is situated next to the rugged mountainous areas that are characterised primarily by old-growth forests (see Figure 10). These areas are suitable locations for the Tagbanua to harvest the almaciga resin. However, migrants or non-native people used to go to these areas and practise improper almaciga resin tapping which according to the PCSD is the only destructive activity in these regions. Accordingly, this decreases the number of almaciga. The lower elevated portion of the old-growth forests is the residual forest which is located around the eastern portion of the TWC. It is where timber extraction has usually taken place. Although swidden farming practices by the locals are permitted, there are incidents where migrants are illegally clearing some portions of the land [40]. It resulted from hundreds of hectares of secondary growth forest cut despite the current in-place protection under the ECAN Zoning project.

In TWC, the community leaders do not allow non-native people or migrants to build houses and settle in their community. However, in nearby villages, migrants are allowed to buy a portion of land and establish land ownership. Although not all these migrants are directly consuming the forestry resources in this region, the locals in TWC revealed that some of these migrants venture into the forest areas where they also used to go and compete with the indigenous people in the utilisation of these resources. In some instances, despite the strict implementation of current policies and laws in the area, some migrants still manage to make illegal interventions and practices in the forests.

For example, in 2022, the government just discovered that a large patch of old-growth forests in Culandanum near the TWC has been illegally slashed and burned. This resulted in at least hundreds of hectares cut down timbers. According to the locals, they are aware that

this type of activity is prohibited and must be stopped. Moreover, they account that these practices displace animals and plants, change the landscape and land components of the forest, and affect the complex bee production which eventually affects their entire community. Illegal cutting of timber products to make charcoal products is another conservation issue that must be addressed in the nearby regions of TWC. The locals practise sustainable utilisation of resources and the extraction of charcoal is mainly for household consumption. However, migrants are illegally cutting trees to make charcoal for commercial purposes and this is very alarming for the locals. During FGD, the tribal leaders raise concerns about this and fear that when the roads are concreted, illegal loggers can easily escape. In most cases, they think that the poor environmental monitoring actions and sometimes the absence of forest rangers in their areas causes the undetected interventions of migrants in these regions.

Despite all the reports about illegal logging, poaching, and extraction of forest products, within the nearby areas of TWC, the locals lack the confidence to stand against the culprits due to a lack of monetary capital to mobilise the legal process. For example, as much as they want to file a legal case against the illegal logger, they cannot make it happen because they think this will exhaust their monetary resources. Furthermore, they feel that the government's support, in terms of intense monitoring and conservation management, is enough or evident in their locality. And although they highly valued the preservation of forest resources, many members of the community have no formal education to dwell in formal and legal complaints against the perpetrators.

4.1.7 Cultural asset: The Tagbanua cultural identity

The Tagbanua culture serves as the cornerstone for *building a regenerative*

community. For the land, nature and people to thrive, the traditional approaches of the TWC rooted in the Tagbanua culture helps preserve the forest resources. For instance, the weavers emphasised that they 'harvest only what is needed' and 'allow to re-grow'. Such deep respect for the environment is connected to some of their rituals including pagdidiwata or pagbabaylan and paglambay. Further, these practices are protected by their justice system and customary laws. The tribe elders and leaders (*Bagerar* or *Ginuo*) ensure that these are upheld by the people in the community. The *Satya* or tribe leader, *Ginoo* Cenon Ongot, affirms that the role of the leaders extends beyond maintaining peace and order in the community. They also serve as vanguards of the natural resources which is the primary source of their livelihood and of their culture, which is their collective identity as a people.

The Tagbanua culture serves as a catalyst for building livelihoods for the land and

humans. The cultural rights, heritage, diversity, and creativity of the Tagbanua in TWC is the basis for sustainable source of livelihood. For instance, weaving as a valuable skill embedded in the culture is passed on from one generation to another for a number of reasons. One, the products out of weaving serve functional and practical purposes in their day to day lives. Another, the weavers are keen that woven products can be a potential source of additional income. However, the transition from household weaving into a sustainable weaving enterprise entails a balancing act. The economic benefits of weaving should be achieved within the context of upholding their cultural identity and protecting the environment.

Culture provides the stories to tell in their products. The TWC has rich oral stories, songs and dances, and rituals. The tribe elders mostly enunciated the popularity of these two great indigenous stories namely, an epic *Tandul* and *Short Stories of Amaloy*, as culturally embedded in their heritage (see Figure 7). Additionally, *Oiman* and *Dagoy* are the two most prominent indigenous songs that they have told. Complementing the rich Tagbanua rituals and social gatherings in the past was an assortment of musical instruments

such as *gimbal* or snare drum, whose skin was made from the skin of a monitor lizard or *bayawak*. The *babandil* is a brass instrument where the shallow representative *agong* came from. According to their narrative stories, their dances are associated with rituals (see Table 12). For example, the *kendar* represents an occupation dance ritual that involves harvesting the cassava or *kamote* by digging its roots and putting them in the *tingkop* (harvest basket made of rattan/bamboo). One of the most dramatic Tagbanua rituals is the *runsay*. It is observed only once a year, at night, on the fourth day after the full moon of December. According to them, it usually takes place on the beach near the mount of the river in Aborlan. Its main purpose is to ask for protection against an epidemic. But perhaps the most significant and popular ritual dance of the Tagbanua is the *pagdiwata*. At the heart of the *pagdiwata* ritual is the priestess called *babaylan* who is being possessed by and plays the role of the deity to whom the offerings are being made. Only the *babalyan* can summon the deities. This ritual invites the deities to partake in a lavish feast of ceremonial *tabad*, cooked rice, rice cakes, jewellery, music, and other offerings.

Literary (oral stories)	Epic of <i>Tandul</i> , <i>Tultol</i> (<i>e.g., Amaloy</i> and other stories about values, imagination, and characterisation; intellectual exchange between characters in stories) <i>Awit</i> (<i>uyman, dagoy, dalapen, diyikan</i> , etc.) <i>Igem</i> (riddles)
Musical instruments	Babandil, agong, and others not found in TWC: gimbal, kulintangan, pa'gang, beberek, aruding, and kudyapi
Illustration	Gagal, ukir
Written/oral language	Tagbanua script
Rituals	Pagdidiwata or pagbabaylan - includes singing and dancing Pamilang - summoning call but no singing or dancing Paglambay - for healing Pagtabad - making of Tagbanua wine Pagbetang - festivities Runsay - a ritual performed at the beach
Source: KIIs; 2017 Tina	a ADSDPP [31].

Table 13. Some of the elements of the cultural identity of Tagbanuas in TWC.

We also tapped the type of language for Tagbanua as we know that they have their own unique way of writing. Very few studies in Palawan dealt with the investigation of the language of Tagbanua [40] and the rise of unparalleled influence of modernization potentially endangers their language towards extinction. In Figure 9, the Tagbanua script is presented.

ba qua Isinulat ni Pangandelan Vernon D. Danglong - Pob. Quezon, Palawan, Dec. 3, 2010 Figure 9. Language script of Tagbanua excerpt from 2017 Tina ADSDPP [31].

The Tagbanua culture sets the values for living with the land and connecting generations Cultural Values and Preservation. The TWC is fully aware of their role in the preservation of their cultural values. Similarly, passing their indigenous knowledge to the next generation is of great importance for the sustainability of their traditional weaving practices. Although the Tagbanua in TWC value the need to transfer their cultural heritage to their children, the younger generations are yet to be fully concluded of its ultimate significance. Especially in modern society where technologies now reach even the remote areas of their village. As a result, some of the weaver respondents fear diminishing their traditional knowledge in weaving or even their culture.

Cultural values, traditions and rituals form the basis for sustainable forest

management practices. Tagbanua are also well knowledgeable of their surroundings and treat every place as sacred ground. According to them, a significant part of their Indigenous knowledge system is 'sacred'. This means they treat every aspect of their community as sacred places, time, visitation and use of places, harvesting forest products and produce. They respect and follow these, and acknowledge their accountability and responsibility for the protection of the forest. They live within their principle of 'Take what you need or for most of the NTFPs, collecting only what you need. The tribal leaders and weavers also reveal the importance of following their forest management practices and protection, most of which are identified in the ADSDPP. Hence, it can be said that they have awareness of the importance of forest management in their region. Ideally, the Tagbanua's ancestral domain serves a great significance in their lives. For example, what they usually do in their daily lives reflects ritualistic (Lambay) importance. In this case, both are traditional or customary practices that encompass agriculture, agro-forestry, and other economic activities. There are two types of rituals or lambay performed by a priest/priestess called manigdiwata as the chosen individual leader to perform the ritual. This ritualistic event depicts two main purposes such as *lambay* for weather, typically for planting and harvest, and *lambay* for healing. The rituals tie with their belief in the interconnectedness of the realm of spirit and the physical world.

Potential opportunities to connect weaving enterprises with potential eco-tourist spots in Tina and existing tourist spots in neighbouring barangays. Culandanum's geophysical characteristics feature natural rivers and creeks, however, most are considered sacred places. In addition, adjacent barangays Aporawan, Aborlan in the north and Berong, Quezon in the south are classified to have high-quality eco-tourism hotspots. The following are indicative of this industry)beach resorts such as Berong beach camp, Caliagon beach resort, Aguho beach, Katwa-an beach resort, and Culandanum beach. While the community may benefit in a variety of ways (employment), opportunities to enhance the culture and craft of the TWC and nearby communities could be explored by utilising and providing greater value to available local forest resources.

4.1.8 Knowledge and Practices related to Community-based Enterprise

In terms of their manner of transferring Indigenous Knowledge Systems and Practices (IKSPs) through generations - The community elders are aware of their responsibility to transfer IKSP to their children. For example, parents directly model values and aspects of their culture to their children from childhood to adulthood. Also, the community transfers their practices through collective activities such as *sebat* or *bayanihan* (cooperative work/endeavour) during *pagkakaingin* (swidden farming).

Their traditional practices are always tied to their ultimate goal for the forest, to sustainably manage their forest while generating livelihood opportunities. We identified various crafts skills of the locals in TWC. Since, pandan and rattan are the weaving material resources that are very familiar to the weavers and crafts maker, we opted to focus on these two in relation to community-based enterprise development.

4.1.6.1 Pandan: weaving practices and processes

Pandan is a palm-like, thorny, and wild plant with a variety of uses. It belongs to one of the five genera of Pandanaceae – Pandanus [43]. This type of shrub has immense cultural, health, and economic significance, especially in the Asian-Pacific regions. It can be easily cultivated because it can withstand drought, strong winds, and salt spray [44]. These types of environmental parameters are commonly known in the Philippines. For the Tagbanua tribe in Sitio Tina, this species serves as raw material for their woven products such as sleeping or table mats, bags, wallets, containers, etc. Alternatively, they sell the dried pandan strips for P50/bundle.

The estimated aggregate plantation size of pandan spans thousands of hectares – as they grow naturally (wildly) and sporadically around Tina and its surrounding mountain ranges. The five key stages of pandan preparation being practised by the Tina weaving community include – harvesting and cleaning, sun or air drying, stripping, dyeing, and weaving. The following weaving practices and processes were excerpted from a series of FGDs and observations.

Step 1: Harvest / gathering of pandan. In practice, the TWC collection rate for pandan is within the volume requirement specified in the ADSPP; this is because there is no strong demand in commercial quantities for pandan. Harvesting and processing of raw materials usually take place whole year round, especially when there is demand and local weather is conducive for gathering. Suitable young pandan leaves are first cut off from the shaft of the pandan plant (see Figure 10 & Figure 11). The harvester, mostly women, uses guess estimation to gather the raw materials needed to finish a certain product. They take what they need to use, and leave the shoot for the growth of new buds. A sharp knife is used to



remove the leaves from the shaft as well as de-thorn (see Figure 12). The process from cutting of leaves until ready for weaving or selling as raw materials takes 1 to 3 full days.

Figure 10. A woman harvests pandan leaves in the forests where different species of pandan grow naturally and are still abundant in supply.



Figure 11. The harvested pandan leaves where the thistles are still visible.



Figure 12. Initial cleaning preparation of the pandan leaves by removing some of the thistles.

Step 2: Drying. The harvested leaves are then dried under the sun until its colour turns light green or brown. On a usual sunny day in the village, it would take a half or a whole day to dry up the leaves (see Figure 13). By midday, the pandan should be dry and ready for weaving, otherwise it will be burnt or blacked when left out. Sometimes when the weather is not sunny, it can take about 2 days to dry the leaves. One sustainable practice that the weavers do is they only harvest as much as they need and they avoid stocking up materials. If they do so, the stock would only mould, for which they do not know the reason. The leaves are also ensured to be appropriately dried especially when they stock it for a few days, moulds begin to grow.



Figure 13. A woman prepares the cleaned pandan leaves to dry under the sun for 2 days. If the weather does not permit, the pandan leaves are alternatively dried indoors.

Step 3: Cutting and Stripping (*Paglilas***).** The leaves are then flattened, smoothened and then cut into even sizes in a process called *lilas* using a cutting tool with 3 sharp blades called *diyangat* (see Figure 14). A sharp blade is glided over the leaves several times until it is smooth enough to be cut into strips. Each strip should be smooth and equal in length; the uneven ones are usually rejected. The blades are very sharp so that it could bend the leaf. In the absence of a proper diyangat, a tin can is used to strip the pandan.



Figure 14. Stripping the dried pandan by cutting each leaf evenly.

Step 4: Dyeing. Once the panda leaves are stripped, the next step is to colour or dye in bundles using synthetic *jobos*. The colour schemes common to the weavers are blue, violet, magenta, and yellow. The dyeing process begins by boiling the *jobos* in a pot and then soaking the leaves for five (5) minutes. Once the strips have absorbed the dye evenly, they are then dried under the sun or into open air. It takes another half day to dry the strips fully. The weavers are cautious because overexposing the dyed pandan leaves directly under the sun can cause discoloration. When that happens, the strips can no longer be used. While the use of *jobos* is convenient and cheap, the colours do not usually last longer than a year. An area that can therefore be explored is the use of natural dyes, which the women admit they no longer practise because it usually takes longer. The use of jobos was introduced to them via a DOST training on dyeing.

Step 5: Weaving. The dyed pandan strips are then woven into different weaving patterns and designs depending on the product and the knowledge and skills of the weaver. They usually perform the weaving during night time because pandan is flexible when the atmosphere or temperature is moist or damp. Otherwise, the material is very dry and tends to break. Depending on the product design, size, and the complexity of the weaving pattern used, it normally takes 1-3 days to finish one product (see Figure 15).

Once the product is finished, traders come to pick them up and sell them in the marketplace at higher prices and end customers buy directly from them. Either way, the buyer checks the quality and usually decides for the cost. The buyer also decides which product is considered a reject, but still purchases it at a lower price. Unlike the other weaving communities such as Baybay, Leyte [28] where they do torching of rough edges, waxing or polishing, and attaching handles in the finished products, the TWC do not do those techniques due to their lack of skills, technology and finance.



4.1.6.2 Rattan (Yantok): Production practices and processes

Similar to pandan, the raw product preparation for *yantok* begins at harvesting the materials. However, since gathering raw materials requires more hard work, men usually do this laborious task (see Figure 16). The following weaving practices and processes were also excerpted from a series of FGDs, KIIs and observations.



Figure 16. Open forest area in Sitio Tina where yantok abundantly grows.

Step 1: Harvest and Gathering. From the community's centre, all surrounding areas to the mountains are a hundred hectares of ancestral land where yantok grow naturally (see Figure 4). According to one respondent,

"When I worked for the Katala Foundation, I had the chance to reach the peak where the town of Narra could be seen. From here to that point, there is still an abundant supply of yantok. It would be difficult to consume everything."

They tried planting *yantok* in nearby areas since the locations where they gather and harvest are sometimes hard to access due to the thickness of the surrounding vegetation. The growth of *yantok* is relatively quick. According to the locals, when *yantok* fruits fall into the ground, they easily grow, normally from the shoot.

There are plenty of varieties of *yantok* in the forest of Aborlan. And although the locals do not know the scientific or English names of these varieties, each variety is known by the locals through traditional knowledge (*i.e.*, by differentiating their leaves and their stems). Since they are familiar with them already, they can easily identify which ones to use for a particular product, even if they have already been cut into pieces. There is also no specific time to harvest *yantok*, at least only if there are demands.

Usually, they leave their houses as early as 7 in the morning, or depending on the time they need to be back. According to them, it is better to harvest *yantok* when it is not raining (see Figure 17).



Figure 17. Initial preparation of the harvested yantok before transporting them back to the village.

Step 2: Post-harvest Processing. The cutting process for *yantok* is known as *pagbuoyaken* and the cleaning process is called *pagbaros* or *pag-agos*. In *pagbuoyaken*, they cut or strip the *yantok* according to the desired product (*i.e., basket*). After which, cleaning or smoothening the surface parts follows (see Figure 18). In *pagbaros*, the Tagbanua uses *pisaw* as the main tool for cleaning *yantok*. *Pisaw* appears like a small knife that is usually sharpened through stones. To date, *pisaw* is the only tool they could identify that perfectly fits in crafting. One of the locals recalls: *"Yes, our generation only uses pisaw."* Once the *yantok* is clean and thinner, it is now ready for use.



Figure 18. Cleaned newly harvested rattan posting with some locals and members of the Life College team.

Step 3: Crafting (Pag-rarong). After all the preliminary processes, the final part is to shape or craft the *rarong* (see Figure 19). *Rarong* literally means a carrier of harvested produce. It is measured uniquely according to the owner's height and body size. While the traditional way of making it is to estimate the user's body, there are, however, some standard sizes now.

In making the standard-size *rarong*, 10 pieces of *yantok* are needed – four pieces for the back part of the *rarong* and three pieces for each of the two sides of the product. For the *pangtali* (knot/lock), a one meter of *yantok* is needed. For the whole *rarong*, about two sets of 3 to 4-meter-length, four sets of 3-meter-length, and 10 sets of 6-meter-length of *yantok* are needed. The craftsman starts by making the back/rear part of the *rarong*. The standard size takes about two days to finish. The main tool they also use for this is the *pisaw*.

"I am using a pisaw (small sharp knife) which I bought from BISAYA (non-Tagbanua in Aramayawan, Quezon", one of the locals said.

To sharpen the *pisaw*, a stone called *karborandom* is being used. This comes from a nearby river in their village. According to the locals, the most challenging in making *rarong* is when you create the frame, because this needs to be the sturdiest. This part is called the *balayan*. After the *balayan* has been made, the *beriyan* follows. In this process, the cleaned yantok are being weaved through the frame. For the smaller *rarong* model, a certain type of *yantok* variety is used. This process is called *saru-uringan*. For the *rarong*, the locals use a *yantok* variety called *lagsikan* or *bogtong*. However, craftsmen prefer to use the smaller ones because they are pliable or easy to bend.

As the process progresses, the craftsmen ensure that the knots are tightly secured. They even used another piece of *yantok* to tie or bind the finished *rarong*. This tying process is called *pagbedbed*. For a smaller *rarong* model, this would take around two hours to finish. The locals find the whole process tediously time-consuming and that requires hard-work. But once all the materials have been collected and prepared, the crafting process would be easier since they are just basically assembling the materials. The final touch of *rarong* is the installation of a lid. The material they use for this part is made out of the bark of a tree known to them as *sayapo*.



Figure 19. One of the locals crafting rarong while the researchers are doing both direct observation (plain and direct attention to the subject) and mediated observation (recording information through the available technologies).

4.1.6.3 Existing products for enterprise development

In this section, we present the hand-woven products of the TWC in Aborlan, Palawan, and the potential innovation. Using the information gathered through the developed KII and FGD tools, each of the products was described.

Pandan woven products. Below is an inventory of pandan woven products.

Banig or Mats. This beautiful hand-woven mat craft is usually produced in different sizes. They called this *banig* and mainly made of pandan leaves from a variety of screwpine, known as *bangkuan* or *abuan*. The *Banig* created by Tagbanua from TWC is made special by its intricate patterns and bright colours (see Figure 20 a, b). They are commonly used as bedding or a mat for sitting on the floor. However, over the years, its purpose has expanded into several others such as placemats and home and wall decorations. The market retail price of *banig* is Php100.00 per one span, locally called as '*dangkal*' (approximately 5 inches).

Tingkop. Baskets or *tingkop* are commonly found in every Tagbanua household. Typically, they are made of woven pandan leaves or *yantok,* framed as storage of agricultural products

and other goods. The sizes of *tingkop* made by the TWC vary from small, medium, and large. Usually, a double layer of pandan leaves is used to strengthen and ensure the durability of the product. Baskets made of *yantok* are also used as plant baskets sold from Php40.00 to Php60.00 depending on its size (see Figure 20 c,d).

Bayong. Colloquially referred to as *bayong*, these bags that are made of pandan leaves are carefully woven by women weavers in the community. *Bayong* has been traditionally used as receptacles to carry small market products such as fruits, vegetables, crops, meat, and marine shellfish products. Nowadays, *bayong* produced by Tina weavers is slowly gaining attention in the fashion and tourism industry. These products have great potential to be recognized in the bigger market industry once their quality and designs have been improved (see Figure 20e).

Pitaka. One of the simplest and easiest products to produce and sell, from the Tina Weaving Community, is the coin purse. This small woven wallet made of pandan leaves, locally known as pitaka, could be finished in less than an hour. For many consumers, pitaka serves as personal stuff and gifts in different events (because of their patterns and beautiful colours). Pitaka are handy and formed by creating two pieces of woven pouch put together to enclose the purse (see Figure 20f).





Figure 20. Hand-woven pandan products. Banig (mats) that come in big and small sizes (Figure20 a,b); tingkop (Figure 20c, d); bayong (Figure 20e); and pitaka (Figure 20f).

Rattan (yantok) product.

Rarong is a traditional carrier primarily used to carry light to heavy-weight harvested agricultural products. On some occasions, *rarong* is also used to carry a child because of its sturdy build. It is mainly made of *yantok*. It is carried on the back using straps sourced from a bark of a *sayapo* tree that is also found abundantly in their area. To complete the product, *a* sackcloth is placed inside a finished *rarong* for the safekeeping of goods in the carrier. At times, sackcloth is likewise used as a strap depending on the preference of the buyer. A typical *rarong* can last between 5 and 15 years, as long as it is kept properly and not constantly exposed to the rain (See Figure 25).



Figure 21. Hand-woven small-scaled rarong made of rattan or yantok.

4.2. Market and micro market analysis

This section presents key marketing and enterprise issues faced by the weavers in relation to their crafts-based livelihood. While it is primarily economic, the analysis is situated in the broader context of weaving as an ecological and cultural activity. Specifically, the situation analysis covers the actors in the value chain, the market value chain, and vulnerabilities and opportunities.

4.2.1. Actors in the value chain

The TWC shifts between selling raw materials and producing crafts. Generally speaking, the NTFP marketing system consists of two groups: (a) the raw materials group (RMG), and (b) the finished products group (FPG). The RMG includes the collectors, traders, and processes of raw materials; while the FPG group is composed of weavers/crafts makers, buyers, sellers, and users of the finished/usable products [49]. For pandan and rattan products, the TWC belongs to both RMG and FPG. They collect the raw materials, make this into a local craft, and then sell or use it at home. Through the engagement with the community, we have been able to identify 10 active pandan weavers who are making products at home. Only 2 men were identified as collectors and crafters of rattan products (i.e., baskets and *rarong*).

The TWC practises responsible and sustainable collection of NTFPs and raw materials for their crafts; but may need to allocate plantation area when demand for both raw materials and their products increase. The allowable amount of NTFPs that they can collect has already been provided in their CADT and ADSDPP. The community leaders have confirmed they have a high awareness of their legal access and responsibility to the resources in the area. For example, the ADSDPP outlines the allowable amount of pandan and yantok that can be harvested annually and the measures for violators. Additionally, it emphasises the importance of sustainable practices such as harvesting only what is needed, replanting, and avoiding pandan areas during kaingin season.

While some traders facilitate marketing of their products, the TWC can explore to become a Community-based Non- timber forest product Enterprise (CBNE). The trader serves as a broker of raw materials and finished products to local establishments in PPC such as Pasalubong centres, to trade fairs organised by the city (Barakalan) and provincial (Baragatan), while raw materials are supplied to handicraft makers. Through the course of the FGDs, three traders are identified who seasonally visit the community, place orders, and collect the finished products. However, engagement of the weavers indicates that their experience with one of the traders was not relatively good. Hence, with access to limited trading partners and vulnerability to exploitation, the TWC can explore becoming a trading group. However, the TWC currently serves as a producer group rather than as a trading group. Doing so entails organising themselves formally into an association that can eventually allow them to engage legally and translate business operations into sustainable benefits for its members and other women handicrafts producers.

There are still a number of traders which the TWC has not been able to establish linkage and networks. Table 13 presents the list of handicraft operators in Aborlan and PPC registered with DTI, excluding the unregistered ones. These operators are potential market outlets and networks for TWC raw materials and woven products. In an informal interview, the owner of Binuatan Creation reveals that it has once sourced Tikog amounting to Php 300,000 among different suppliers in Palawan. Such sourcing indicates, along with the existing number of handicraft operators, that there is a thriving market locally, and the TWC can potentially benefit from it. The market is, in fact, not limited to handicraft and woven products such as mats made from pandan and baskets from rattan, but also other NTFPs such as tikog, buri, bamboo, and honey.

Product	Name of store/operator	Location
Handicraft and woven products	 Vanielyn Handicrafts Manufacturing Jls Handicrafts Manufacturing Ruben Jian Handicrafts Manufacturing Zaldjen Handicrafts Manufacturing Francisco Handicrafts Manufacturing Happy Weaves Handmade Artisan Handicrafts Palmoni Handicrafts Manufacturing Ronilda Handicrafts Manufacturing Ronilda Handicraft Products Wholesaling Stacom Handicrafts Trading Josephine Amboc Handicrafts Store Rosie Petilla Handicrafts Trading Lupadit Handicrafts Store Chaiz Handicrafts Shop Palawentas Native Handicraft Logro Handicrafts Merchandising Josie Balacday Handicrafts Shawn Handicrafts Non Stop Art Handicrafts Wow Handicraft & Trading Wow Handicraft & Trading 	Ramon Magsaysay, Aborlan Ramon Magsaysay, Aborlan Ramon Magsaysay, Aborlan Ramon Magsaysay, Aborlan Cabigaan, Aborlan San Pedro, PPC San Manuel, PPC San Jose, PPC San Jose, PPC Tanglaw (Pob.), PPC San Jose, PPC Tagumpay (Pob.), PPC San Miguel, PPC Tagumpay (Pob.), PPC San Jose, PPC
	23. Rrr Handicrafts And Souvenirs 24. Binuatan Creation	
Rattan and bamboo furniture	 Benedict Forms Rattan Furniture Manufacturing Ghie Handicraft & Souvenir Shop Michelle Driftwoods Handicrafts & Furniture Shop Rodel Manggad Bamboo Rattan Furniture Jerwin Bamboo And Rattan Furniture Ardais Bamboo And Rattan Furniture Ligayalozada Bamboo And Rattan Furniture AFMB Valeza Rattan Furniture And Fixture Trading 	Bagong Sikat, PPC Irawan, PPC Bancao-Bancao, PPC Mangingisda, PPC Plaridel, Aborlan Plaridel, Aborlan Plaridel, Aborlan San Miguel, PPC
Honey	 Bee Made Honeybee Trading Alvien's Wild Honey Retailing Sylvia's Honey Collection 	Tiniguiban, PPC San Jose, PPC San Manuel, PPC
Source: [45]		·

Table 14. Handicraft operators in Aborlan and Puerto Princesa City (PPC) registered with

 the Department of Trade and Industry

End Customers are limited to those who know about the existence of the TWC. Due to the remoteness of the community, the end customers who purchase their products directly are limited to the residents of barangay Culandanum. Since the purchases are in small quantities and usually for home use, their type of entrepreneurship is mainly for self-subsistence. The weavers recall that they received an unusually large demand for their

products last 2020, when government employees bought their products as gifts during the Christmas season, and LifeChurch Apurawan leaders allowed them to sell their products during camps. Thus far, these are one of the very few instances that they received bulk orders.

There is no identified linkage to Designer or Retailer to help the TWC market and connect to End Customers. Designers and retailers are untapped actors in the supply chain. They have the potential to facilitate the design and product development, including the transfer of skills set to enhance both the quality and artistry of their products. Connecting the TWC to designers and design agencies may help them access the mainstream market. Furthermore, the designers can provide inputs on the utilisation of "smarter materials" that are naturally and culturally sound (*i.e.*, promoting the use of natural dye over the existing practice using *jobos* or other commercialised dyes).

4.2.2. Market value chain

Through the FGDs and KIIs with leaders and weavers, the micro market value chain for the TWC is identified, which details the processes from harvesting to marketing.

The weaving process from harvesting to crafting products is a tedious manual process. The process begins from harvesting the raw materials to finishing the woven products (see subsection 4.3.2. Weaving practice and process). In each stage of the weaving process, we also collated the continuing factors in the chain including the required tasks, the temporal variations associated with them, the main drivers in the chain, and the different stakeholders that act as the chain's network enablers. The value chain map is presented in Table 14.

Process	Harvesting / Gathering of Materials	Preparation of Materials	Weaving / Assembly	Finishing the product	Selling and Marketing
Tasks	Gathering (Tina Ancestral Domain) 1. cutting 2. de-thorning 3. stripping 4. sun/air drying 5. straightening	Raw materials processing (Tina – weavers' houses) 1. quick sun drying 2. dyeing 3. air drying 4. straightening	Weaving / Assembly (Tina – weavers' houses) 1. weaving (bag, mats, purse, <i>rarong</i> , etc.)	Finished products (Tina to city centre) 1. coating 2. quality control 3. costing 4. product sorting 5. bundling 6. packing	Local markets 1. pick-up/ delivery to buyer (middleman) 2. from buyer to shipping & distribution to market outlets: - local consumers - consignment in Display centre and souvenir shops
Temporal variations	20 leaves: 1 working day @ 4 hours/day	1-2 working days @ 8 hours/day	1-3 working days @ 8 hours/day depending on	4 hours per production cycle	1 day delivery; delay in payments

Table 15. The TWC's Product Value Chain Map.

			the product & size		
Actors	TWC collects pandan/yantok when there are purchase orders	TWC works with their family members	TWC	TWC	Traders Retailers
Network enablers	Community weavers Traders/End customer of raw materials	Supplier Trainers from DTI, LGU	Supplier Trainers from DTI, LGU	Traders Retailers Trainers from DTI, LGU	Traders Retailers End customer

Methods of Selling - Despite the presence of People's Organisations (POs) such as NATRITI, there is no association or cooperative that handles the enterprise venture of the TWC including a collective marketing of their woven products. The common selling practice is on an individual basis to end customers and traders who are responsible for distribution to market outlets, local consumers, and consignment in display centres and souvenir shops.

Modes of Pricing and Payment. Setting prices is challenging for the TWC since they are not aware of standard market prices to benchmark their products. Usually, the traders set the prices based on the quality of each product. Traders also determine products to be accepted or rejected, which can be bought at a lower price. The TWC has very limited bargaining power in the setting prices. Most often, they set prices for direct and endcustomers. In terms of payment methods, end customers or direct buyers would normally pay in cash. For concessionaires and consignment agreements with traders, they receive payments only when the products are sold. This could take several months before payments are given. Sometimes, in absence of a written agreement or contract, they do not receive any payment at all.

4.2.3 TWC Enterprise issues, vulnerabilities, challenges, opportunities and threats

The weavers have identified key vulnerabilities and challenges that can be addressed in the light of establishing themselves as a Sustainable Weaving Enterprise. These include sustainable sourcing of raw materials, enterprise operations and management, and marketing of products, pricing, promotion and people (using the tool Flower Map). Below is the discussion of the challenges faced by the TWC.

4.2.3.1 Establishing formally a weavers' association for leadership, enterprise operation and management

Weavers can establish themselves as a weaving enterprise and appoint leaders. Currently, the TWC operates in silos and produces woven products seasonally as demands arise. Although the community is governed by indigenous laws implemented by NATRITI, there is a lack of leadership in terms of entrepreneurial and marketing activities. In the many weaving communities in the Philippines, clear and strong leadership provides a competitive advantage. Compared with those that do not have organised community groups, the former were able to grow their weaving enterprise. The women have articulated the need for leadership for the enterprise to start and succeed. They think that enterprise leaders can impact the entire dimensions of weaving enterprises. For example, enterprise leaders can unite the weavers under a clear common goal and direction. Communities without such leaders were unable to clearly answer questions regarding business and had fewer selfinitiated solutions in place. This may add to the growing dependence of such communities on external interventions. The leaders are able to bring business into the group, which positively affects the other weavers. Conversely, the power to appoint these leaders also resides in the other members of the group as well.

It is an advantage to upskill the TWC women with enterprise management and

operational skills. While there is strong support from tribal leadership to venture the TWC into an enterprise, they are aware that there is a stock of lacking skills when it comes to business management, leadership, and entrepreneurship. This includes skills in terms of setting fair market pricing, storage or preservation of finished products, traders-suppliers negotiation, etc. The lack of skills results in the community being unable to harness market opportunities especially in terms of generating commercial volume sales contracts that can stabilise production and facilitate improvements in product design and technology. Currently, without the acquisition of a sales contract on a sustained basis, the TWC will be unable to upscale itself as an enterprise and economically benefit its members.

4.2.3.2 Gaps in 4Ps of Marketing

Product	Promotion	Price	People
 Need for clearly defined quality standard Need for product differentiation Inconsistent practice in weaving/ dyeing, limited to a few weavers Undefined place/positioning in market 	 No clear promotion strategy Access to telecommunication not maximised for promotion and networking Remote location High cost of transport No packaging and labelling No weaving and display centre 	 No clear cut price and pricing strategy Need to establish standard pricing procedure 	 Lack of confidence Language barrier and psychological barriers Passing on culture and traditional knowledge

Table 16.	Overview	of Gaps in	Marketing
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Marketing: Products

Establishing quality standards of the woven products and consistency in production processes. Improving quality can add economic value to the products. This can be achieved by setting minimum standards for quality from the raw materials to production processes. Local craft entrepreneurs are consulted with a few sample products from the TWC. Although their indigenous skills in weaving are highly valued, establishing standards of good weaving practice is needed for the TWC products to be fully appreciated in the market. The TWC lacks consistency of good practices present in established weaving communities, especially when it comes to choosing high quality dried materials, using natural and synthetic dyes, and varying design patterns. Their products can also be characterised as having uneven sizes and colours, discoloration or dye fading easily, formation of moulds, and loosened weave or improper joining.

Dyeing is limited to the use of commercialised jobos; other natural sources may be explored. In order to improve the aesthetic and durability of their woven products, the TWC practices the use of synthetic dyes such as *jobos*. The weavers recall that DTI - Palawan

has conducted a formal training in barangay Culandanum last January 2021. The training includes application of dyeing materials to ensure evenness, techniques for dye mixing and durability, and mensuration/measurement. Unfortunately, because of limited finances they cannot purchase consistently, the chemical ingredients used to make dyes more permanent and large pots/containers for the raw materials. One of the ways the TWC can explore is the use of natural dyes. They are not explicit about use of natural dyeing processes despite its great potential to increase the economic value and preservation properties. While other weavers still use natural dyeing agents available in their areas, they would opt to use synthetic ones because it is cheap and convenient to purchase.

Exploration and use of production tools and technology to enhance product quality.

Because advanced types of machinery are not available in the community, there is a long process in weaving the raw materials before reaching the end-users. On top of that, production can take longer as they ensure that their creation demands reflection and each piece captures a vibrant representation of their culture and imagination. Limson & Luces [29] developed a manually operated Pandanus leaves slitter and presser, which is an alternative low-cost leaf slitting and pressing device. This tool can help ensure the evenness of each strip of pandan. Another tool that can be explored are large containers and an area for dyeing, which is currently not available. Currently, the pots for cooking are also used for dyeing *jobos*, which is not a very safe practice for the TWC. Finally, a dry storage area for raw materials is limited at home. Although they do not prefer not to keep raw materials for a longer period of time since these materials are easily broken down by other environmental factors (i.e., moulds), they may eventually find a need to store materials especially during rainy seasons when drying pandan can be difficult.

Product development and differentiation is a key priority for Enterprise development.

The baseline crafts that the TWC is skilled to produce include sleeping/table mats, bags, wallets, containers and rarong (see Section 4.4). However, product types and design availability are usually limited, which is perhaps the reason for low product demand, low production volume, and hence low profits. Re/introducing products that combine practicality, functionality, and aesthetics in the market can be beneficial to the TWC. The envisioned products can include baskets, hampers, housewares, decors, storage boxes, and planters.

Tagbanua culture and Ecological Heritage of TWC as central to brand identity for product positioning. The comparative advantage of the TWC is the integration of the Tagbanua culture to their brand and product identity, which is connected to achieving a balance between economic benefits and ecological preservation. Satya Cenon Ongot reflects on the transitions that his community is undergoing due to recent developments in road and telecommunication networks. According to him, such progress is not only putting natural resources at risk, but also their cultural heritage. It is his desire to be able to see his community flourish as a people alongside their culture and economy. It is an important aspect in their enterprise development.

Marketing: Promotion

Adaptive marketing and promotion strategy is limited due to limited network and skills. As a remote community, the only means to market their woven products is through word of mouth. They cannot recall any experience which relates to promotion, including being invited to trade fairs to display and sell their products, except for a few cases where traders ask to consign their products. This is because they lack access to market information to advertise, and they do not have financial capacity for promotion especially via traditional print, radio or television media. A tangible and strong marketing and promotional strategy will encourage customers to purchase products; this includes identification of potential direct users and buyers to expand the market, and enhancing the TWC's capacities in digital

marketing to target consumers and buyers, even those in higher-end markets. Adaptive marketing such as digital marketing tools and use of social media and online shopping apps.

Access to telecommunication is not maximised for promotion and networking. The availability SMART/Talk and Text provider including PLDT Fibr posts installed in barangay Culandanum has connected the rural and upland community to the rest of the globe via the Internet for as low as Php 15 a day. Among the weavers and other members of the community, there is a growing number of individuals who own mobile phones and have facebook and messenger accounts. The primary purpose of facebook and messenger accounts is to connect and communicate with family and friends; and the TWC has not been able to use the social media tool for business and promotion of their products. To capitalise the use of technology and the internet to promote their products, the TWC needs to build skills on using digital marketing tools.

Remote location of TWC and the cost of transportation is relatively expensive. The remote distance of the TWC from retail markets in PPC and Aborlan town proper is a key marketing and enterprise challenge. For one, it limits the direct market access to traders, end customers, retailers, handicrafts display centre owners, etc. As an enterprise challenge, it may require the TWC to invest on bigger vehicles (e.g., four-wheel drive, mini or big trucks) in the long term, which can transport either raw materials or finished products from Tina down to barangay Culandanum proper or directly to PPC and Aborlan marketplaces. Due to risky rough roads, access to Tina is limited to manual motorcycles, four-wheel drives, and trucks. Transporting products from the TWC can therefore be expensive, which costs about Php 400.00; otherwise, direct buyers of raw materials and traders of finished products may come for pick-up and delivery to the city.

A weaving and display centre in Tina can help boost promotion of the TWC, especially when it is linked to eco-tourism. Putting up a weaving and display centre in Tina is a step in pinning the community, their culture and market existence in the map of Palawan. The centre could serve as a landmark that promotes the culture and collection of works of indigenous artisans. The cultural story, rich flora and fauna of Tina can also be introduced through the centre. The combination of weaving that is intimately connected to the culture and ecotourism has huge potential in encouraging tourism growth for the TWC and culture awareness for those outside the community. Establishing a display centre is also important because lack of proper place to house and display the products, is a major cause in fast deterioration in the quality of finished products that makes them no longer suitable for sale.

Marketing: Pricing

Establishing a standard pricing and pricing procedure strategy is a key challenge. The weavers are selling their products based on the perceived value of the product rather than computing the labour cost, cost of materials, production cost, and branding cost. Without systematic pricing procedures, the TWC will continue to experience unfair pricing practices where their products are undervalued by traders and buyers. One weaver laments the disparity between price they sold their products to traders versus the price the traders sold it in the marketplace (see Table 17). For instance, for every 'dangkal' (about 9 inches) of plainwoven mat, they are paid P100.00 (£1.5). For a 10x10 mat, a weaver may sell it for P1,000.00 (£15) to traders who in turn can sell it at P 7,000.00 in the marketplace. She adds that since a weaver can finish a minimum of two mats in a month, she may only earn P2,000 per month. Since they are aware that traders gain more in the process, they perceive having direct access to the market as a quick solution.

 Table 17. Prices of select products from weavers to trader to market based on a series of FGDs.

Products Selling	orice - weaver to Selli	ing price - Price difference	
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	trader	trader to market	
Mat (plain, 90" x 90 <i>"</i>)	Php1,000	Php5,000	Php 4,000
Mat (w/ colors, 90" x 90")	Php1,000	Php7,000	Php 4,000
Small bayong (bag) Big bayong (bag)	Php35 per piece Php75 per piece	Php 150 Php 300	
Rarong	Php500	Php2,500	Php 2,000

Marketing: People

TWC may have to organise an association for its legal entity. Although the collection and crafting of pandan and rattan (*yantok*) have been identified as one of the main sources of livelihood in TWC, there is no existing association or multi-purpose cooperative established by the TWC to cater both their enterprise development and marketing. The organisation will lead collective action pertaining to their livelihood activities and marketing their products. However, the association would need the support of its members. A lack of support will be both a cause and consequence of an apparent failure in improving members' welfare.

Lack of confidence in dealing with traders and end customers. The weavers feel that they lack confidence in dealing with customers, especially in negotiating orders and bargaining for prices. Moreover, they are modest in dealing with traders and end customers because they feel that the raw materials are free despite them having legal access and control over the resources, their only capital cost is their labour, and the quality of their products may be low. As a result, they lack confidence to markup the price, so they are ready to settle for less when it comes to pricing. Additionally, there are times when they cannot assert their own cultural identity or creativity over the products, so they would have to yield to customer preference. Traders and buyers have a greater influence on their motivations and ideas. This situation may potentially impact the choices the TWC has to make to either choose the route of cultural preservation regardless of its economic contribution and vice versa or take both scenarios. Communication and managerial skills improvement can empower themselves in dealing with traders and end customers confidently.

Inadequate entrepreneurial and marketing skills to run a small-medium enterprise effectively. The only training that the TWC consistently mentioned is with regard to the dyeing process, initiated by DTI Palawan. Through the course of FGD, we note that they need upskilling in the following marketing aspects: (1) product development, product differentiation, and pricing; (2) standardisation of measures and appropriate cultural identity in product design; (3) packaging and labelling including heritage tag or label; and values articulation rooted on their cultural and ecological heritage to gain access to local loans which can help them start a CBNE.

Language and Psychological barriers. Although TWC is able to speak Tagalog, the dialect widely used in the province and is the default language in the marketplace, Tagalog is not the primary language spoken by them. This affects their confidence in their dealings and asserting their side of the bargain when selling their crafts. This is evident by the usual practice by TWC of engaging with a middleman instead of taking a more active role in communicating with direct buyers. On some occasions that they have to deal with buyers directly, the transaction is impeded by the language challenges and inadequate tools of

communication. These have led to errors in specifics of the order and expectations that are not met eventually.

Need to strengthen appreciation for one's own culture and traditional knowledge amongst young people. One key challenge they face is the transmission of their culture and traditional knowledge, especially as more young people acquire formal education not in their mother tongue, and are exposed to diverse cultures. They might find that the traditional works, weaving included, available to the older generations are no longer appealing to them. Take for example the case of weaving, younger people are disinterested in the craft. This poses challenges to the transmission of their weaving tradition. In case demand for the products increase in the future, the small workforce cannot keep up when demands increase.

4.2.3.3 SWOT analysis and Hazards and Risk assessment

During the course of interviews with the weavers and the owner of Binuatan Creation, there are identified Strength, Weakness, Opportunity and Threat (SWOT) that the TWC faces and the weaving industry in Palawan, in general. The strengths can be found in the over abundance of NTFPs/raw materials protected in their ADSDPP and the rich cultural heritage of people rooted in their indigenous identities. However, the potential of both natural and cultural resources are not fully maximised for economic gains because of the lack of knowledge, skills and experiences to operate an enterprise and market products. The lack of a leader or dedicated team who can effectively organise the community for entrepreneurial activities and take advantage of market opportunities remains a weakness. Without such leadership, the weavers will remain operating individually, and the TWC will fail to capitalise on the revitalising tourism market of Palawan and the growing demand for quality indigenous materials and products, both locally and abroad. In addition, the lack of legal and product identity can hinder them from participating fully in high-end markets. Lastly, the main threat that TWC faces is passing on their culture and knowledge to the younger generation, especially that present weavers are getting older. Table 18 below summarises the SWOT from different sources.

Strength	Weakness	Opportunity	Threat
Ancestral Domain ADSDPP NTFPs Weavers Weaving patterns and design Indigenou culture Willingness and openness to learn Supportive tribal leadership Internet connectivity Facebook Account & Messenger Roads (City- Culandanum)	Lack of market information Lack of startup capital No one to lead the enterprise No experience running an enterprise No business/other legal permits to engage in high-end markets Product sizes, quality, and prices not standardised Connected to very few networks Lack of partners (designers/retailers) Lack of capacity to sell/deliver raw	West Coast Tourist spots Oral Tradition - epics, stories Social media marketing Online selling School of Living tradition Creative Hubs Pandan/Rattan plantation Products from other NTFPs (Tikog, Buri) Cluster weaving Apiary/Wild Honey farming	Products not connected to Tagbanua cultural identity Weaving can only be done in the evenings No standards for design and quality No legal entity to engage in business Dyeing is not consistent Availability of higher paying jobs Not able to transfer culture/skills to younger generation

Table 18. Strength, Weakness, Opportunity and Threat

materials/finished products No technology for finished products Not prepared for bulk orders	

The hazard and risk assessment below (Table 19) indicates that for most of the weaving related tasks, the risks are very low. This includes natural and physical hazards, which are manageable and can be mitigated by ensuring safety precautions, safe practices, and training for providing First Aid, which can be coordinated to Philippine Red Cross or barangay Health Unit for the TWC. For areas identified as TAM or Take additional measures to mitigate the risk level, it includes harvesting yantok in deep forest and being exposed to wild animals, and potential risk of exposure to mining operations from nearby barangays. Similarly, Safe Harvesting Measures must be put in place to mitigate the danger of harvesting yantok or other NFTPs beyond 1KM radius from the TWC. The plan to provide plantation areas for pandan and yantok will also mitigate this risk.

Activities/tasks/jobs where injury can occur	Hazard/Risk	Risk Factor			Descrip	
		Exposure (Frequency)	Severity Rating	Probability Rating	Risk rating	tion
A. Gathering or harvesting of raw materials						
Gathering within KM1 radius	natural hazard	3	1	0.2	4.2	VLR
Gathering beyond KM1, potential threat/danger from forest topography, lose from track	natural hazard	3	7	0.5	10.5	VLR
Deep forest: danger from forest topography, losing from track, and exposure to wild animals	natural hazard	3	15	1	19	ТАМ
Exposure to wild animal	natural hazard	3	15	1	19	TAM
Working at steep, rocky heights	natural hazard	3	7	1	11	VLR

 Table 19. Hazard Indicators and Risk Assessment Report

Slippery surfaces	natural hazard	3	4	1	8	VLR
Lifting heavy materials for large orders	natural hazard	3	4	1	8	VLR
Raw materials are thorny	natural hazard	3	1	0.5	4.5	VLR
B. Drying, dyeing and	preparation of raw	materials for	weaving			
Cutting and cleaning (paglilas, pagbuoyaken)	skin cuts, abrasion or wound	3	4	0.5	7.5	VLR
Exposure to boiling water	skin cuts, abrasion or wound	3	4	0.5	7.5	VLR
Exposure to chemicals from dye	skin cuts, abrasion or wound	3	1	0.5	4.5	VLR
C. Weaving			-			-
Exposure to sharp objects (e.g., knives) due to manual pressing	skin cuts, abrasion or wound	3	1	3	7	VLR
repetitive work	physical and mental exhaustion	3	4	3	10	VLR
weaving at night time with only a lamp	fire	3	4	3	10	VLR
D. Selling/delivery of product						
travel by motorcycle through unpaved and rocky roads from Tina to Culandanum	natural hazards, causing serious injury or death t	3	4	3	10	VLR
road is slippery and impassable during rainy season	natural hazards, motorcycle accident causing serious injury or death	3	7	3	13	VLR
travel by motorcycle with heavy products	natural hazards, motorcycle accident causing serious injury or death	3	7	3	13	VLR
travel from Culandanum to	natural hazards, vehicular accident	3	7	3	13	VLR

Puerto Princesa City () for product delivery	causing serious injury or death					
Community-related hazard						
mining operations in nearby communities (e.g., Berong, Apurawan)	accident causing serious injury or death	1	15	3	19	ТАМ

Legend: The frequency of exposure indicates how often a dangerous situation can arise. It could be an exposure to natural or toxic chemicals or working and handling of a dangerous machine.

5.0. WAYS FORWARD

5.1 Aspirations for Good Life

I want my children's lives to get better; but the mountains must remain. - Jolino Pugad, Sr. craftsmaker

The Tagbanuas of Tina believe that culture, nature and land give positive emotions. However, caught in the transition of their society brought by access to better roads and telecommunication networks and the economic benefits it promises, they feel a sense of fear and excitement. Fear, in the sense of losing their rich culture and tradition, which holds together their identity and aspirations as a people. Excitement, for the prospect of expanding economic opportunities given that life has been difficult for some of them. Either way, the TWC maintains positive outlooks which are important determinants of positive effect, internal aspiration, and external motivation for their lives (see Figure 22). This is evident in the way they treat and welcome *Bisaya* (non-native people) to their community, which depicts their optimism and grace. We also documented their aspirations in life through colourful hand drawings. These tell us how nature shaped their minds, capabilities, and functioning.







The Landscape of Care. Within the period of scoping for this research, we have witnessed how intimate the relationship of Tagbanua to their nature is. Their intricate connection with their environment is even depicted in their dreams and aspirations. For instance, they harvest raw materials for weaving and other forest products only as needed and are embedded in their memories which come from generations after generations. Since they have this inner attribute, the communities themselves respect land nature. It is because they believe that their foods and likelihoods are sourced from there, and their cultural ways and heritage are totally dependent on the environment. Along the series of FGDs and workshops, we managed to document their interesting perspectives on ecological protection (see Figure 23).





Figure 23. Landscape of Care. A hand-woven piece of nature that comes from onsang tree has a cultural significance for the Tagbanua (Figure 23a); Even the thorny leaves of pandan may become a good piece of mattress or banig (Figure 23b); A culturally-important native earthen jar called bangga comes from palay or raw rice and boho or bamboo (Figure 23c); Pandan and several pandan grasses have overtaken the mountains (Figure 23d, 23f); Some pandan variety which grows along the sea coast. Tina is situated between the mountainous region of Palawan and the West Philippine Sea (Figure 23e); The onsang tree and the pandan tree with purple thorny stems have overtaken the mountains in bright green, brown, yellow, and orange hues (Figure 23g).

Cultural Appropriation as appreciation and sustaining their culture. The TWC think about embedding their musical instruments as design for their handwoven products. No matter how complex these designs are, they are culturally inspired in the sense that someday they will be able to integrate these patterns in their products (see Figure 24). Aspects of their culture is central to the creating their brand and identity, as well as in positioning their products in the market.



Figure 24. Colours and patterns. As diverse as nature's provision of raw materials, so as the Tagbanua's creativity. Here, the agong brass instrument is drawn as a design in a bag (Figure 24a); The colorful designs of bags or bayong depict their stories and tradition. Whether as receptacles for their produced or wedding accouterment, nature (like flowers) serves as their inspiration (Figure 24b).

Towards indigenous enterprise identity and brand: Community-based non- timber

forest product enterprise (CBNE). NTFP-EP defines CBNE as forest economic units or small businesses based on NTFPs that are owned and managed by indigenous peoples and local communities (IPLC) resulting in increased income, improved community well-being and enhanced forest ecosystem management. The establishment of the enterprise and linking it to existing entrepreneurial ecosystems in the Philippines is a realisation of the TWC dreams and aspirations embedded in their ADSDPP, in which they recognised the commercial value and uses of both pandan and rattan.

The following are their plans for pandan:

- 1. Create program for planting pandan to increase production;
- 2. Allocate budget for pandan products and handicrafts
- 3. Create an honourable livelihood and sell products from pandan;
- 4. Conduct skills training for high class and high quality pandan products;
- 5. Set up production areas and a display store for handicrafts and woven products;
- 6. Conduct skills training for managing and marketing the products;
- 7. Profits gained from production and store will be added into the CADT; and
- 8. The weavers' association will report financial status to the leaders.

The following are their plans for rattan crafts development:

- 1. Designate area and allocate fund for planting/re-planting of all types of yantok;
- 2. Allocate fund for permits to ensure the continuity of yantok buying;
- 3. Each sitio should have a buyer;
- 4. Search for fund or capital for production of different types of products made from yantok, and allocate production area in the Ancestral Domain;
- 5. Conduct research and development for production of high quality yantok products, where Tagbanuas from the Ancestral Domain are key participants;

- 6. Designate a committee to be responsible for managing the production and marketing of yantok products; and
- 7. The committee reports to CADT leadership all production, finances, and activities relevant to yantok products.

5.2 Recommendations for sustainable sourcing of NTFPs

The TWC transition from household weaving into a Community-Based Weaving Enterprise business model entails sustainable sourcing of NTFPS, especially when the entrepreneurial and market system for their products have been established. Central to increasing their livelihood and income should be enhanced forest ecosystem management. Below are some permaculture principles and recommendations for sustainable sourcing of their raw materials.

Sustainable weaving enterprise blends with culture and forest protection. It is recommended to do new production and material development from a permaculture perspective. This means the need to develop a workspace based on a healthy ecological cycle that maintains balance and proportionality. In regard to the social and psychological capacity of the community, meeting realistic economic needs like equipment needed to develop or improve their existing works and skills. Giving more platforms to the weaving community would be crucial for its thriving and future-proof developments. focused on how the story of the land is not only present in the product but also in how the land is managed. What can we learn from their ancestors to think about the future, and what can they pass forward as current knowledge?

Regenerative and sustainable landscape management are culturally embedded. The group was introduced to what can be learned from ancient methods and knowledge. The Three Sisters method that focuses on plants strengthening the thriving of all parts can be explored. The Three Sister Method connects 3 crops that, when grown together, strengthen each other. The story developed from Iroquois legend, North American indigenous people who are teaching the gift of agriculture and nourishment. The Three Sisters are about a symbiotic relationship, they care for each other. They teach that: 1 Everyone has something to offer. 2 Everyone brings something different to the table. 3 There is strength in diversity. Through permaculture principles, the land could be understood as a partnership based on stable and productive systems that provide for human and nature needs and make use of small solutions, biodiversity and integrate how nature and humans live together. The community has long been part of the mountain landscape and living with this, yet, in times of pushing for economic growth, it's important to come together as a community to speak and make this more explicit.

Tina ADSDPP outlines sustainable practices for harvesting pandan and rattan; need to strengthen monitoring & evaluation. The TWC follows thumb rules in sustainable harvesting practices. For pandan, cutting the mother tree is prohibited as well as *kaingin* in areas where pandan thrive. For rattan, there is an allocated allowable harvest annually. For example, for 60 people who are engaged in *'pangungurti'* or craftsmaking, only 500 poles/person/year is allowed. The total allowable rattan harvest in each year is 30,000 poles.

Plantation for Pandan as identified in the ADSDPP can be achieved by lobbying support from different GOs and NGOs. With the aid of the Department of Agriculture PhilFIDA, Department of Environment and Natural Resources, and barangay LGU, a pandan planting program to sustain raw materials can be implemented. This includes the plantation of pandan seedlings in Sitio Tina. Organisations such as FFP and NTFP-EP can provide financial and technical support for setting up the plantation area. As an example, NTFP-EP supported the purchase of different pandanus seedlings and replanting on pocket lands as part of sustainable use of forest resources in one community [48]. NTF-EPs work revolves around tenure and governance, community-based conservation and resource management, community-based livelihoods and enterprise development, and safeguarding culture.

ASEAN Working Group on Social Forestry and NTFP-EP Sustainable harvesting and resource management protocol for NTFPs set the Standards and procedures for sustainable rattan harvesting and management. This may be adopted from existing ones, such as the ROLES Rotan Lestari Indonesia or (Sustainable Rattan in the Indonesian language). ROLES is a byproduct of NTFP-EP Indonesia and rattan stakeholders meetings to produce a Participatory Guarantee Systems (PGS) for rattan. Its primary focus is on quality assurance systems and certification of producers. The standards criteria includes legality, production sustainability, ecological sustainability, socio-cultural factors, and traceability.

Table 20. Standards and procedures for sustainable rattan harvesting and management.

Thumb consist	rules for rattan may differ per species and habitat in each country, although they generally of the following:
1.	Respect local customs and rituals related to rattan harvesting
2.	Do not cut support trees; if needed, climb or use other tools to cut and pull the rattan
3.	After harvesting rattan, clean the leaf litter, twigs, or grass that cover the shoots so that these can be exposed to sunlight and are able to grow well
4.	Rattan clumps are important for breeding, they should not be damaged. After harvest, leaves and sheaths should be chopped and put on clumps
5.	Do not damage seedlings
6.	Do not harvest rattan canes that are fruiting in low density areas
7.	Rattan harvesting is recommended in the summer, so that stems dry quickly.If rattan is harvested during the rainy season, longer drying time is required to avoid being attacked by rattan-damaging organisms. If the rainy season is longer than six months, however, often harvesting is done in the middle of the rainy season (Indonesia)
8.	Use appropriate tools and observe safety
9.	Rattan is cut 1 to 1.5 meters from the ground and stems are left bent down to prevent fungus from damaging other stems (although in some countries, rattan is cut 20 cm from the ground: practices differ depending on the species)
10.	Select rattan that is mature enough i.e. at least 75% of the leaf sheath is dry and peeling
11.	Length indicator depends on the market demand and according to the standard (Indonesia)
12.	Observe proper and sustainable processing and treatment methods for rattan
13.	There should be transparency in supply chain information
14.	Presence of national associations, community rules, and regulations are important in rattan harvesting and management
15.	Advocate for supportive policies
16.	Local groups or people's organizations ensure proper resource management and monitoring
Source	: [46]

5.3. Recommendations for marketing, new products/design and collaborative partnership towards small-scale Sustainable Weaving Enterprise business model

This section provides discussion on key marketing goals and strategies, explores the business model for the TWC as a CBNE, and identifies potential networks of stakeholders, collaborators and their roles to ensure equitable benefit for all parties.
5.3.1. Key marketing ideas and strategies

5.3.1.1 Ecological Heritage Marketing - Inputs from Judith Van Den Boom

"We can not meaningfully proceed with restoration and connection, without 're-story-ation'. In other words, until we hear stories being told again, our relationship with the land cannot evolve and grow. Who will tell these stories, and how are they passed on?" – Gary Nabhan, in Braiding Sweetgrass, Robin Wall Kimmerer

Connecting people, land and livelihood through weaving narratives by design brings empowerment. The TWC has a depth of knowledge when it comes to material handling and handicraft expertise. The weavers know their material and knowledge on harvesting, processing and developing into products has been handed down through generations. The products made have been in relation to functional daily usable products or feasible seasonal tourist products. During the workshop the link was developed that the TWC community can develop a deeper understanding of how products and their cultural stories are interwoven. Connecting the craft skills to the narratives of the community can bring empowerment and entrepreneurial opportunities.

The values and stories of the communities build agency in the work and bring potential to new developments. The ideation processes, when repeated and explored can lead to new development of colours and pattern use, as also new shape and construction (see Appendix D). Throughout the workshops, the connection to the land became evident, showcasing the relations with flora and fauna around them. Many participants referred to their strong ties with how the plants live in the mountains, the harvest and the skills that transform harvest into products. Also, the relation to the landscape was evident, and the role of the mountains and sea in the stories. These elements can draw out new patterns, use of colour and application of form in the products.

Craft clusters within TWC and nearby weaving communities for cross-pollination. The workshop provided a set away so they could share as a group and as individuals. These basic steps could be worked through into workshops building more leadership and creativity to extend and build better networks and more clear ideas on innovation and application. Creating time throughout the year for the community to come together and develop a design/market brainstorm would help to further ideas and experiments. These meetings could have during the seasons harvesting and production is less intensive, and reflective community time could be built. This could be connected either with other weaving communities, or craft practices to transfer knowledge on skills, production and markets. The traditions of the communities exist in order to support one another through the exchange so livelihood can be secured. This could be developed by a stronger regional connection and exchange. An example to this is the pandanus weaving shared craft between the Orang Asli of Malaysia and Palaw'an of Brooke's Point in Palawan. The NTFP-TF crafts programme allowed them to work and learn together through Pandanus Master Workshop in Bidor. Perak, Malaysia on 4-6 June 2007 [47]. For TWC, this could be embedded in developing a core group in the community who would lead the weavers. Building confidence and leadership in the community to steer new product ideation, and translate form and colour development into marketing new products.

5.3.1.2 Branding, Logo/Label Design - Inputs from Irah Lillen Rosete

The following are branding logo and label design recommendations.



Figure 25. TWC Karubwaten it Tina (handwoven/crafted products of Tina) branding

	ADSDPP 2017	Inputs from Judith van Den Boom & Engr. Eva Valledor	Workshops/ Interviews
Product	 Consign non-timber products Develop new products from pandan & rattan 	 New products: Yoga mat/beach mats sold @ Php 200-300 pesos Baskets, hampers, wall decors, trays, storage boxes, laptop bag 	 Designer Bags and accessories (upskilling TWC on sewing, installing zipper, etc.) Explore other NTFP products (honey, woven products from tikog, buri, etc. and mix materials
Price	- Consider sales to be added to CADT	 Consider Direct & Indirect Cost (materials, labour, logistics, cultural value, hours of weaving) Secure contracts, agreement, purchase order, payment terms, purchase order/invoice 	 Knowledge on setting prices Build confidence on haggling & communicating with buyers
Promotion & Placing	 Include in promotions: 'Part of sales go to CADT' Establish Weaving and Display centres for woven products Establish plantation areas for mass production, a possible area for Weaving Walk Link woven products to eco-tourist spots and recreation area in Tina & West Coast Palawan 	 Create a brand identity and logo reflecting their cultural identity (e.g., Karubwaten it Tina) Use of tags, labels with texts about their culture and stories Guerilla marketing Social media promotion Online boutique Participate in local trade fairs (Barakalan, Baragatan, MIMAROPA ventures etc.) Prepare to pay Php 125/night + tent 2,300), free for IPs funded by DTI Consign products to existing shops 	 Connect to markets Sell online (Facebook, Lazada, Shopee) Exposure trip and learning visits to Display centres (Binuatan Creation, Kultura @ SM, PPC souvenir shops) Setup Weaving and Display Centre
People	 Upskilling of weavers/craftsmen to produce high quality products 	Look for a leader/entrepreneur who will stand management challenges	- Skills in sewing, installing zipper for bags, etc.

Table 21. Summary table for marketing ideas and strategies

5.3.2. Recommendation for new products and designs

Identifying new products and innovating designs begin with understanding the materials. Below are discussions on the raw materials analysis, which then proceeds to the patterns and colour schemes, product development, ideation and innovation.

Material analyses conducted at Central Saint Martins, University of the Arts London reveal potential for new products and new design. Raw materials were sent to CSM UAL for inspection and discovery of potential for development and possible co-creation. This has been done by analogue, non scientific exceptions. Exploring usability and testing quality of use, possible in scenario of exchange connecting weavers international developing work in co-production. This could be set up between TWC and the weaving students from CSM, UAL.

- Pandan dried: Material quality and potential product development. The material is very dry and the durability working with it would not lend itself so well. Due to the bundles of pandan being wrapped in travel, they are easy to break during the weaving process. The pandan leaves are very irregular, and the community works with more careful knowledge and consideration with the materials under moist conditions/weather. The material has good potential for weaving and has proven its uses in wider cultural product development. There could be a potential crossover co-creation in developing innovative applications along with concepts and designs of the students who have specialised in weaving. In relation to the workshop with the community, the pandan shows potential as it integrates highly skilled applications in technical forms of weaving and folding. The drawings of the community show new patterns that could be developed in the future. These patterns show the locals' relations with the mountainous landscape and seasons. The works of locals show different intensities of dyeing the material which depict different colour combinations.
- Rattan dried: Material quality and potential product development. The material has a strong durability characteristic and would be easy to process. The rattan can be bent well, which mainly serves as valuable for crafts, household furniture or kitchen tools. The material is versatile in nature since it has great potential to combine with other materials such as textiles or ceramics. Its durability is longer and therefore could deliver more quality and potentially, higher priced products. For indepth material analysis, it is recommended to further explore its uses in the community in the future since it has great potential in connecting knowledge across generations. For example, students may become involved in co-creation and learning stages.

Focus on new patterns and directionality of colour use. Developing new designs is a process that can be complex and requires time, patience and practice. The developments for the TWC community are not only dependent on their skills but even more the lack of capital to invest in equipment and having good insight in future markets and target customers. Nevertheless, the community has their own narrative to embed in the work and this could be translated more boldly into the weaving. This has been initially done through Design workshops, where the weavers drew, out of their own ideas and creativity, during a series of workshops (outputs of the weavers below).





- Some examples below on new development ideation in regard of colour and pattern development



Figure 26. Some examples on new product development and ideation in regard to colour and pattern development. Handmade basket of space dyed reed (Figure 26a) and Pandan colour hues (Figure 26b). Photo provided by Judith van Den Boom

Development of new products, ideation and innovation. The current products like the handwoven *banig* mats are due to their 2D nature a good product for shipment and markets further away, but the design of the weaving and colouring could be more outspoken and directed by a brand identity. The coin purse, baskets and bags are versatile products that have an accessible market, for tourists but also to more international markets. Whereas the traditional carrier, the Rarong, has a more complex application for broader audience. Focussing on wearables relating to daily use and indoor products would be in regard to the material quality and use most feasible. It would be advised to do new production and material development from a permaculture perspective, and this story can be included in pattern making and colour development. By branding the work on a healthy ecological cycles that maintains a balance and proportionality. And also in regard to the social and psychological capacity of the community, meeting realistic economic needs like equipment needed to develop the works.

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Figure 27. Pattern weaving developed and inspired by planting crop squares (Figure 27a) and pattern weaving developed which depicts water and forest ways (Figure 27b) From Judith van Den Boom



Figure 28. An example of weaving detailed patterns clutch by EcoQuote (Figure 28a) and an example of weaving modern natural large tote bags by Stitch&Tickle (Figure 28b). From Judith van Den Boom

Successful Weaving Enterprise for TWC to benchmark, model, and partner

Inana Handicrafts Store, Luisana, Laguna Lala Ladies, Luisana, Laguna LaBasketry, London, United Kingdom Harmonikrasi, Indonesia EcoQuote, Malaysia Stitch&Tickle, Boston, USA

Core Products which designs vary for seasonal collection. It would be advised to make a viability chart of the products and select the core product forms that are sustaining a more stable generated income, and create space for new form experimentation that could be branded as such. The community has basic tools for dyeing the materials, but could explore how the dying intensity is used. Having pandan that is dyed in darker or lighter variations so it can build up different depth in the profile that resemble for example the mountain range or

the depth of the forest or sea colours. Also the pattern weaving could be explored, weaving and turning the pandan to explore designs that resemble the scenery or customs of the local TWC community.

Some examples below on new development ideation in regard of color and pattern development



- Sample Post-workshop new product designs

5.3.2 Potential Network Partners and Roles

Sector	Potential Partners
Community	NATRITI NATRIPAL TWC/Karubwaten
Government	DoT DENR (PENRO/CENRO) DTI - MIMAROPA National Museum (Quezon, Palawan) Palawan Heritage Centre NCCA
	Palawan Council for Sustainable Development Local Government Unit (Barangay Culandanum) DSWD 4Ps DOLE livelihood assistance
Private	Binuatan Creations (See list of enterprises, Table 14)
PO	NATRITI NATRIPAL
NGO	Forest Foundation Philippines NTFP-EP
Educational Institutions	LifeCollege, Inc. Department of Education Western Philippines University Palawan State University
Consultants	Judith van Den Boom Irah Lillen Rosete (for branding and labeling)
Other organisations	British Council PH

Table 22. Potential network partners

Table 23. Overview of Potential network partners and roles

Partners	Roles/Interests	Coordination	Potential Role
COMMUNITY			
TWC (Karubwaten It Tina)	 Establish a small-scale, Community- based Enterprise and secure registration to relevant government agencies (e.g., DTI, LGU) Promote weaving culture and livelihood by recruiting and training more weavers Develop new products and improve designs align to culture Establish a Weaving and Display Centre 	Ginna Lesian Jezeimel Ongot	Lead for Weaving Enterprise activities and projects

NATRITI/Tribal Leaders and elders	 Ensure balance in the ecological, cultural and economic activities in the CADT Implement ADSDPP for sustainable management of the Ancestral Domain Approve and supervise livelihood activities and projects in the CADT Secure project funding for community development Cultural appropriation to highlight the cultural heritage and practices 	Cenon Ongot, Tribe Leader	Community Lead Consultation Permits FPIC
FINANCIAL			
Forest Foundation of the Philippines	- provide small grants for duly-registered organisations working on projects related to forest protection and conservation		Potential Funding
NTFP-EP	 Provide grants for startup IPLCS and effective NFTP management Provide access to training and advisory services (EXCEED) Approves/enrols Forest Harvest Collective Mark as sign of traceable forest source, sustainable and good quality 		Advisory Potential Funding Technical support
DSWD - MIMAROPA	- Pantawid Pamilyang Pilipino Program 4Ps - Livelihood assistance program	To be determined	Funding
DOLE - MIMAROPA	- Provides support via Integrated Livelihood and Emergency Employment Program (DILEEP)	Luis Evangelista, Palawan Chief	Funding
OTHER SUPPORT			
NATRIPAL	 Secure cultural integrity, tenurial security, and protection from economic exploitation and environmental abuse Encourage enterprise development among member-IPOs Provide assistance for establishing, managing and sustaining their community-based enterprises 	To be determined	Advisory Link to other organisation, including funders
LGU - Barangay / Municipal	- Promote the cultural and environmental preservation and livelihood development activities of IP and local communities	Bgy Capt IPMR -	Link to other government agencies Funding
DA PhilFIDA (Philippine Fiber Industry Development Authority)	- Establish and develop of pandan farm (e.g., Tepoh weaves of Bajao in Zamboanga) - Support for pandan weaving, rattan- based crafts	Edel M. Dondonilla Acting Regional Office IV	Technical assistance on cultural management

DOST - MIMAROPA DOST Provincial S&T Center-Palawan	 Training on processing (dyeing) and weaving of NTFPs Innovation Laboratory (InnoLab) provides access to design and fabricate competitive products 	Engr. Pacifico T. Sariego III, Provincial S&T Director	Technical assistance
DTI - MIMAROPA / Palawan	 Livelihood assistance for rural communities (Livelihood Seeding Program-Negosyo Serbisyo sa Barangay) Provide assistance in market access and market development (One Town One Product) Provide platform to market artisanal products online thru National Arts and Crafts Fair (NACF) Provide assistance in label printing & product development aligned with internationally-recognized standard 	Joel B. Valera Regional Director Hazel DP. Salvador Provincia Director	Technical / financial support, Enterprise development, Link to markets
PCSD, DENR - CENRO	- Sustainable forest resource management - Monitor and supervise relevant laws & policies in Palawan		Permits Technical assistance
DOT - MIMAROPA	- Encourage and link tourism-based Livelihoods - Product placement in www.visitmimaropa.ph		Technical support, link to market
Palawan Tourism Office	 Access to provincial festivals and fairs - Cultural appropriation to highlight the cultural heritage and practices 	Maribel C. Buñi, Provincial Tourism Officer	Technical support Link to tourists, market
British Council PH	 Facilitate conduct of Craft Toolkit: create customer, tell story, establish ways of selling Setup of social enterprise and creative weaving hub Link to other creative hubs for brand collaboration Cultural appropriation to highlight the cultural heritage and practices 	Malaya del Rosario Senior Manager	Technical support
Consultant- Judith van Den Boom, Irah Lillen Rosete	 Materials analysis for product development and design innovation Brand awareness and marketing (i.e., social media presence on Facebook, Twitter, and Instagram; 	Judith van Den Boom	Technical support, linking to international market
MARKET			
Binuatan Creation, PPC	- Explore local and higher-end markets for bags, hats, and pandan-strip accessories - Consign products	Engr. Eva Valledor	Link to local and national market

Baybay. Leyte women weavers	 Peer to peer knowledge exchange Product differentiation/specialisation Enhance product quality 	To be determined	Link to national / international market
Luisiana, Laguna weavers	 Peer to peer knowledge exchange Product differentiation/specialisation Enhance product quality 	To be determined	Link to national / international market
EDUCATION			
LifeCollege, Inc	- Continue research and development assistance - Business and entrepreneurship incubation project		Technical and research support
Department of Education (DepEd schools in Tina & Culandanum)	- Include weaving in Technology and Livelihood Education projects -		
Palawan State University / Western Philippines University	- Business and entrepreneurship incubation project		

* Please note that not all agencies / organisations mentioned here have been contacted.

5.4. Summary Recommendation of Strategies for Community-Based Weaving Enterprise based on the Impact Areas

A vision for TWC is to transition from indigenous women weaving in silos into a sustainable Community-Based Weaving Enterprise using materials such as pandan and rattan raw among other NTFPs. Sustainability entails not only an effective marketing strategy in place, but also a system for Cultural and Ecological Heritage protection rooted in community values and identity. In fact, the relative strength of marketing the TWC woven products lies on a centrepiece: culture + ecology + livelihood.

Table 24. Summary of Recommendations for TWC CBNE

Recommendation/Strategic Action	Lead	Potential Support Organisation
Sustainable Livelihood - Enterprise Development		

Implement CBNE business model	TWC -	NATRIPAL, NFTP-
 Place strong leadership to start and sustain the enterprise and marketing 	Karubwaten It Tina	EP EXCEED, DTI - MIMAROPA
relation to CBNE	NATRITI	
 Acquire Forest Harvest Collective Mark from NFTP-EP Asia 		
 Identify markets including new market segments and partners to link the TWC to local, national and international partners 		
Implement 4Ps of Marketing	тwс	Binuatan Creation,
 Develop new products, use of other NFTPs, and improvement of design 		Local markets, DTI
- Cultural appropriation on the products: build the		- MIMAROPA,
product out of the people's culture and oral stories		Palawan Tourism
etc.)		LifeCollege
- Develop product catalogues & price list		
documentary film, coffee table book, collection		
catalogue and prices lists)		
Use their social media for promotion and engaging buvers and partners using their stories		
 Explore events and exhibits in local and 		
International areas to expand networks		
potential market		
Facilitate capacity-building of the TWC leaders	NATRITI,	LifeCollege, Inc.,
- Upskill leaders for strategic and operations	NATRIPÁL	CSM UAL NFTP-
enterprise, including balancing issues of		- MIMAROPA
environmental protection and cultural preservation		
 Provide working capital to startup and run the business, guided by mentors 		
 Network with established CBNE for learning visit, 		
exposure trips, and mentorship,	TWC	DTI-MIMAROPA
Continuous capacity-building of the weavers		PTO, LifeCollege,
Upskill the weavers with identified skill gaps Develop Good Practice/Quality Standards		Inc., CSM UAL,
 Develop new products (housewares, 		
- Use/combine other NTFPs		
 Conduct personality development, communication, 		
and confidence-building workshops		Barangay LGU, DA
Construction of creative weaving and Display Hub		PCSD, NCCA,
- Establish a community centre for weaving and		National Museum-
for Eco-Tourism site and School of Living Tradition		Quezon, Falawan
- Cross-generations and geographical practice with		
Sustainable and Innovative Weaving Practice		
	THO	
Ensure the protection of the land by designating plantation Areas	TWC - Karubwaten	LGU

 Setup plantation area for pandan and rattan since the community rely on forest resources; this will make ensure sustainable use of forest resources Support organisational strengthening of NATRITI and TWC to reinforce values and culture implementation of ADSDPP and strengthening of leaders to reinforce cultural traditions and encourage sustainable management of resource 	NATRITI, NATRIPAL, LGU	DA-PhilFIDI, DTI, NCCA,
LifeLong Learning		
 Collaboration and partnership with schools, museums, Collaborative partnership with DepEd schools, including the development and use of Weaving Kits as product/performance; Collaborate with National Museum & Palawan Heritage Centre helps promote awareness about their culture and craft; 	TWC, LifeCollege	DepEd, public & private schools; National Museum (Quezon, Palawan),
 Create clusters of weavers for cross-pollination Establish School of Living Tradition Weaving-chain between weavers and externs students/designer responding through weaving forms and patterns, learning and co-creating together 	LifeCollege	British Council PH, CSM-UAL, NCCA

5.5. Recommendations to ensure effective engagement with hard-to-reach communities with limited digital connectivity.

In order to do this the communities need support and local leadership to co-distribute and strengthen the markets. With the strong internet connectivity in the area (PLDT poles have been installed across the West Coast (covering Puerto Princesa, Aborlan, and Quezon), provision or investment by the TWC of desktop computer/laptop and SMART Television will enable the TWC local brand to obtain more online representation, creating a shorter circuit to the targeted customers. With the younger generation of the communities developing more interest in online or technological progress a gap could be bridged here by using this to enable the TWC of the TWC community into new prospective markets.

Many of the TWC members are already familiar with Facebook, having their own messenger accounts can facilitate communication. The enhanced road networks from Culandanum to town/city centre and availability of public vehicles can help them bring their products to the market; otherwise, tourists visiting the tourist spots in the West Coast may consider visiting the TWC for walking tours and buying their products.

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7.0. ANNEX

Annex A: Our Team

Jan Michael Vincent N. Abril is the Principal of LifeCollege, Inc. He holds an Educational Planning, Economics and International Development MA from University College London Institute of Education funded by the UK Foreign Commonwealth and Development Office Chevening Awards.

Cristobal B. Cayetano is an Aquatic Biologist from Palawan. His interests and specialisations lie in spatial, statistical, data modelling, and environmental research. However, he is also up to exploring the qualitative research area. He is currently an Early Career Researcher from the Western Philippines University and is involved in the institution's two internationally-funded projects that promote a sustainable future by empowering the coastal communities. He serves as a consultant for this scoping research.

Judith van dem Boom is the Head of Product Design, ArtEZ University of the Arts, Arnhem, The Netherlands. Keeping curiosity and vision in development is central to her practice in design and education.With the approach of a 'practical idealist,' she offers a 15-year international academic career and design practice. She build up an extensive work from EU, the US, the UK, China and Canada, connecting grassroots initiatives and experimental practices like SlowResearch Lab, Design Inquiry USA, CRAFT Vancouver, UFO collaboratory, Research group LiFE (Living in Future Ecologies) as also others. She is currently pursuing PhD Art & Humanities, Manchester School of Art, Manchester Practiceled, Part-time PhD in Design, expected completion in 2024. She serves as consultant for this research.

Community Engagement

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Photo Documentation and Other Visuals: (LifeMedia Team) Wendy Maryglance Copias-Tarnong; Eduoard Antoni B. Foronda, Juderick Arcilla

Annex B: Acronyms and Abbreviations

ADSDPP	Ancestral Domain Sustainable Development and Protection Plan
ASEAN	Association of Southeast Asian Nation
AWSC	Aborlan Water Service Cooperative
BC	British Council
BZ	Buffer Zone
CADCs	Certificate of Ancestral Domain Claims
	Certificate of Ancestral Domain Title
	Community based Non Timber Forest Product Enterprise
	Community-based Non-Timber Forest Froduct Enterprise
	Captrol Spint Morting, University of the Arts London
	Certifial Saint Martins, Oniversity of the Arts London
	Controlled Use Area
CZ	Core Zone
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DepEd	Department of Education
DILG	Department of Interior and Local Government
DOST	Department of Science and Technology
DSWD	Department of Social Welfare and Development
DTI	Department of Trade and Industry
ECAN	Environmentally Critical Area Network
FFP	Forest Foundation Philippines
FGD	Focus Group Discussion
FPG	Finished Products Group
FPIC	Free Prior and Informed Consent
GOs	Government Organizations
GIDA	Geographically Isolated and Disadvantaged Areas
HIRA	Hazard Identification and Risk Assessment
IPMR	Indigenous People Mandatory Representative
ISKSPs	Indigenous Knowledge Systems and Practices
KII	Key Informant Interview
	Municipal Comprehensive Land Usage Plan
MOLOF	Micro Small and Modium Enterprise
	Municipal Diagning and Dovelopment Office
	National Deven Comparation
NAPUCUR	National Power Corporation
	Nagkakaisang mga Tribu ng Palawan (United Tribe of Palawan)
NAIRII	Nagkakaisang Tribu ng Tina (United Tribe of Tina)
NGOS	Non-Government Organizations
NIFPs	Non-Limber Forest Products
NIFP-EP	Non-Timber Forest Products - Exchange Programme
NIFP-IF	Non-Timber Forest Products - Task Force
OTOP	One Town, One Product
PALECO	Palawan Electric Cooperative
PCSD	Palawan Council for Sustainable Development
POs	Peoples Organization
PPC	Puerto Princesa City
PSTFAD	Provincial Special Task Force on Ancestral Domain
PWC	Philippine Women Commission
RMG	Raw Materials Group
RTN	Rio Tuba Nickel Mining Corporation
RUA	Restricted Use Area

CWRS	Community Water Refilling Station
SEP	Strategic Environment Plan for Palawan
SHS	Solar Home Systems
TUA	Traditional Use Area
TWC	Tina Weaving Community

Annex C: Research Questionnaires Focus Group Discussion and Key Informant Interview with Weavers

Main questions	Key Areas to ask	Probing questions:		
Demographics		 Kindly mention: 1. Name 2. Age 3. Sex (let's just take note of this) 4. Educational attainment 5. Main sources of income 6. Marital Status (single, married, separated, widow) 7. Number of Children 8. Average monthly income from weaving 		
What are the NTFPs and other raw materials used for weaving and other handicrafts?	Scientific properties of 4 varieties, tikog, yantok; Map the site – km away from the hub; recommend possible site/s for plantation and how to do it (home- based)	 What non-timber materials are used in weaving?(<i>Anu-ano ang mga non-timber na materyales ang gamit sa paghahabi?</i>) How much supply of non-timber materials referred to in the prior question are there in your surrounding?(<i>Gaano kadami ang supply ng mga ito sa kapaligiran?</i>) What are the ways to preserve them?(<i>Anu-ano ang mga paraan upang ito ay napre-preserb?</i>) What kind of plants do you use to make mats? (<i>Anu-ano pong mga halaman ang pinagkukunan nyo ng panggawa ng banig?</i>) Where do you get pandan, buri, etc? (<i>Saan kayo kumukuha ng pandan, buri, etc?</i>) Do you plant them? (<i>Tinatanim ba ninyo ang mga ito?</i>) How wide is the land or area where the non-timber materials are planted or harvested from? (<i>Gaano kalawak ang pinagkukunan o tinatamnan?</i>) How do you harvest the pandan leaves/materials to be used to make mats? (<i>Paano niyo kinukuha ang mga dahon ng pandan/materyales na gagamitin sa paggawa ng banig?</i>) Do you use anything else besides pandan? (<i>Meron pa ba kayong ibang ginagamit bukod sa pandan?</i>) In your observation, does the pandan plant grow or live all year round? (<i>Sa inyong obserbasyon, buong taon po ba tumutubo o nabubuhay ang pandan na halaman?</i>) 		
What are the different community assets?		 What are the attributes and assets of the community?(<i>Anu-ano ang mga katangian at asses ng komunidad sa Tina</i>) What are the financial assets of the community? (<i>Anu-ano ang mga 'financial asset' ng komunidad?</i>) What are the physical assets of the community? (<i>Anu-ano ang pisikal na asset nito?</i>) What are the human assets of the community? (<i>Anu-ano ang pisikal na asset nito?</i>) What are the natural assets of the community? (<i>Anu-ano ang human assets nito?</i>) What are the natural assets of the community? (<i>Anu-ano ang human assets nito?</i>) 		

		6. What are the social assets of the community? (Anu- ano ang mga social assets nito?)
What is the design process?		 What is the first step in making mat? (Ano ang unang hakbang sa paggawa ng banig?) How long does drying of pandan leaves take? (Gaano katagal binibilad ang pandan?) What is the process of colouring the dried pandan leaves? (Paano niyo kinukulayan ang pinatuyong pandan?) What materials do you use to color the pandan leaves? (Anong materyales ang ginagamit nyo sa pagkukulay ng dahon?) What time do you normally start weaving mat? (Anong oras po kayo nagsisimulang maghabi/gumawa ng banig?) Why do you prefer that time? (Bakit yun ang napili niyong oras?) How long does it take to finish one product? (Ilang oras ang tinatagal upang makatapos ng isang produkto?)
What is the produ (i.e., collection an	iction process? d harvest; drying; dye	ing; weaving, etc.
Harvest	a. tools b. time/season –	1. What are the tools used in every step? What are the terminologies to know? (Anu-ano ang mga kagamitan
Drying	c. place/source d. process f. scientific/local terms g. storage	 When is each step done? (Kailan ginagawa ang bawat step?)
Dyeing		 Where is each step done? What is the ideal time or environmental conditions? (Saan ginagawa ang bawat step? Anu ang ideal na oras) o kondisyon ng
Weaving		 kapaligiran? 4. What is the process/How is each step done? Anu-ano ang bawat proseso/Paano ginagawa ang bawat step?
What are the different products and their existing design?	existing products existing designs Mat Basket Lampshade Bag Wallet Storage box	 What kind of plant-based products do you make? (Anu-ano ang mga produkto ang yari sa halaman na inyong ginagawa?) What designs have you done? (Anu-ano ang mga disenyo na nagawa na?) How was it learned and from whom? (Paano ito natutunan at kanino? How do you think the product and design could be improved? (Paano sa tingin ninyo malilinang ang produkto at disenyo?) Who can help you in this process? (Sino kaya ang makakatulong sa proseso na ito?)

Networks - Identify the Suppliers Buyers Middle man Associations Government agencies- Product, pricing, promotion(Does a business association represent your sector? Are you receiving assistance from any stakeholders? (i.e. private, NGO, govt)	 Are there associations specific for handweavers? (Mayroon bang mga samahan na para lamang sa paghahabi?) Are you a member of these associations? (Myembro ka ba ng mga samahan na ito?) Who provides assistance? (Sino ang nagbibigay ng tulong?) What kind of assistance? (Anong uri ng tulong ang binibigay?) What are the changes you have observed after the assistance has been given? (Anu-ano ang mga pagbabago na iyong napansin dulot ng tulong na ibinigay?) How is your relationship with them? (Kumusta ang ugnayan/relasyon mo sa nagbibigay ng tulong?) Who are the prospect buyers? (Sino ang mga pinagbebentahan? Organisasyon, NGO, business, etc.?) How much is the price? (Magkano ang presyo?) How is it sold? (Paano binebenta?)
Vulnerabilities, Opportunities, and Threats		 What are the challenges? (Anu-ano ang mga challenges?) What are the opportunities? (Anu-ano ang mga oportunidad?) What are the threats? (Anu-ano ang mga threats?) What are the weaknesses? (Anu-ano ang mga weaknesses?)

Key Informant Interview with Tribe leaders

Area	Probing questions		
Forest Feature (tenurial agreement)	 Do you have ownership over the land where your house stands? (Pag mamay-ari nyo ba ang lupa kung saan nakatayo ang inyong bahay? If yes, what is the source of your land ownership (For example grant by govt, rights, purchased, inheritance)? What year ownership was acquired? (Kung oo, ano ang pinagmulan ng inyong pagmamay-ari sa lupa (Halimbawa grant by govt, rights, nabili, pamana)? Anong taon naging pag mamay-ari nyo ang lupa?) If not, who owns it and what is the source of your right to use and possess? (Kung hindi naman, sino ang nagmamay-ari nito at papaanong nagagamit nyo ang lupa?) Who owns the land where you collect pandan/yantok used for weaving? (Sino ang nag mamay-ari sa lupain kung saan ka kumukuha ng pandan/yantok na ginagamit sa paghahabi?) Do you have permission to harvest pandan/yantok from the forest? If any, what is the source of your permission? (Mayroon ka bang pahintulot na kumuha ng mga pandan/yantok mula sa kagubatan? Kung mayroon saan nagmumula ang iyong permiso upang kumuha ng yantok/pandan mula sa kagubatan?) 		
Forest condition and trends	 Do you think that Tina's forest is still thick//thriving? Yes or no? Explain. (Masasabi mo ba na mayabong pa ang kagubatan ng Tina? Oo o hindi? Ipaliwanag.) 		

	2. What is the importance of forest for the TWC? (Ano ang kahalagahan ng kagubatan ng Tina para sa mga mamamayan dito?)
Forest Produce and products available	 What is commonly obtained/harvested from the Tina Forest? (Anu-ano ang pangkaraniwang nakukuha/naaani mula sa Kagubatan ng Tina?) Are you still planting trees or plants in your area? If yes, what are you planting? And if not, explain why. (Ikaw ba ay nagtatanim pa rin ng mga puno o halaman sa inyong lugar. Kung oo, anu-ano ang inyong mga itinatanim? At kung hindi naman ay ipaliwanag kung bakit.)
Management practices and forest protection	 How do you protect/preserve forest in Tina? (<i>Papaano ninyo napoprotektahan ang kagubatan ng Tina?</i>) Give an example of a tradition or practices you do to preserve the benefit and importance of the Tina forest? (<i>Magbigay ng halimbawa ng tradisyon o inyong ginagawa upang mapanatili ang pakinabang at kahalagahan ng kagubatan ng Tina?</i>)
Conservation goals and challenges being faced by Tina	 What challenges do you see/encounter in Tina forest? (Ano ang mga problema nakikita mo sa kagubatan ng Tina?) How do you think it can be prevented or avoided? (Sa tingin mo, papaano ito mapipigilan o maiiwasan?)

MAKING STORIES = MAKING PRODUCTS

What is your story? The stories that gives life to products and carry cultural identity

Option 1 think about story - draw the story example, carry flower in hair ceremony







Option 2

from your story - draw the colours test how you can color the material in different gradients





Option 3 from your drawing - draw a new pattern weave the pattern in the material







Option 4 from your story make small 3D models







Annex E. Respondents' Demogra	aphic
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Name	Age	Sex	Status	Role
Cenon Ongot	67	Male	Married	Tribe Leader
Efren Ongot	44	Male	Married	CADT Representative
Aniong Pardas	63	Male	Married	Indigenous People Mandatory Representative (IPMR)
Rejanin Ongot	49	Male	Married	Tribe elder
Jolino Pugad	57	Male	Married	Pangharapan/ Rattan Weaver
Soleta Ongot	66	Female	Married	Pandan Weaver/ wife of the Tribe leader
Gelly Gamayon	39	Female	Married	Pandan Weaver
Benda Talbo	54	Female	Married	Pandan Weaver
Jovelyn Lecian	41	Female	Married	Pandan Weaver
Emelyn Ongot	30	Female	Married	Pandan Weaver
Lilita Ongot	45	Female	Married	Pandan Weaver
Ebrina Pugad	48	Female	Married	Pandan Weaver
Ebrita Lecian	49	Female	Married	Pandan Weaver
Jezemiel Ongot	27	Female	Single	Pandan Weaver
Gina Ongot	39	Female	Single	Pandan Weaver
Eva Valledor	55+	Female	Married	Entrepreneur/Artisan