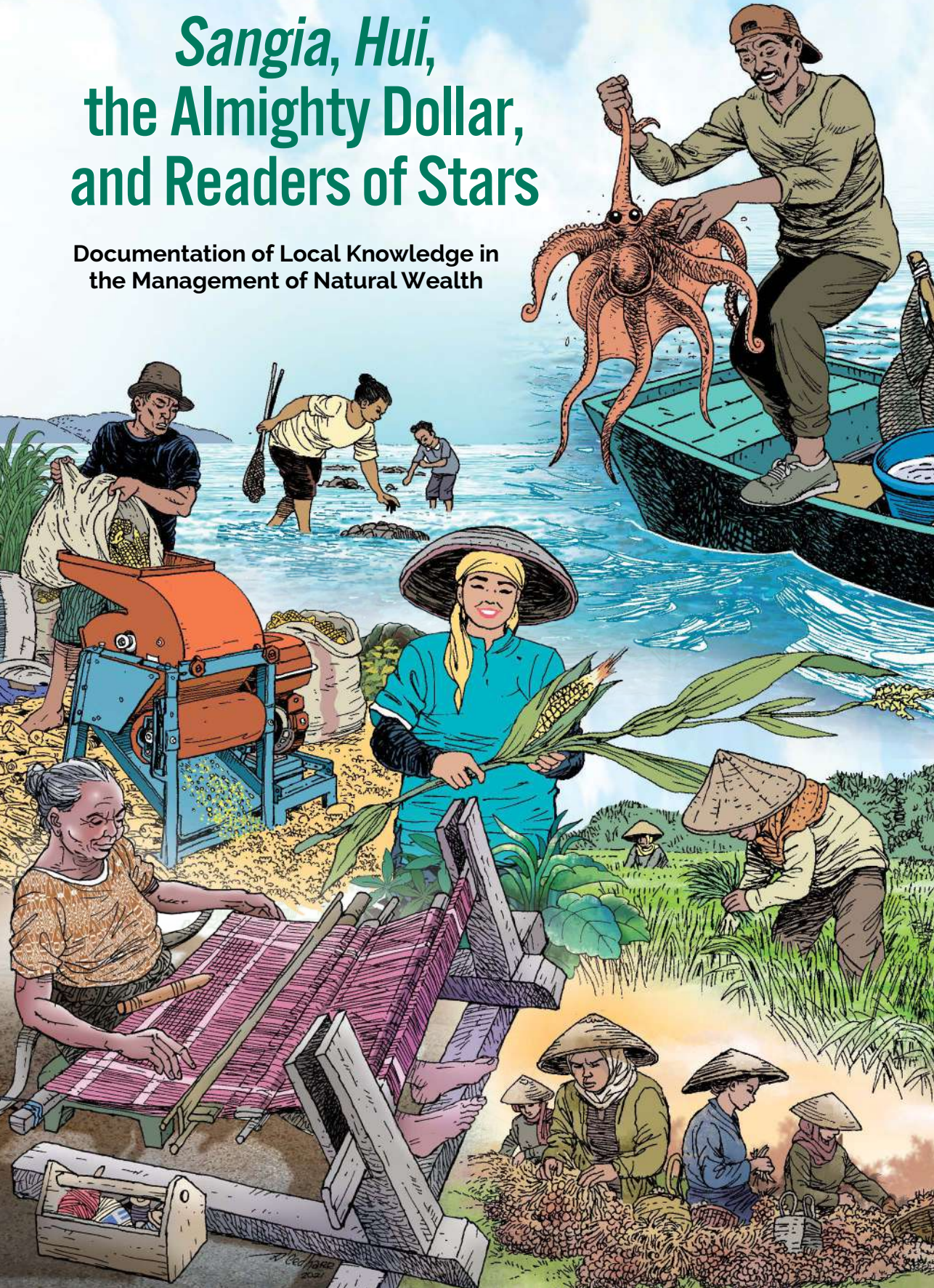
Sangia, Hui, the Almighty Dollar, and Readers of Stars

Documentation of Local Knowledge in the Management of Natural Wealth



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Documentation of Local Knowledge in the Management of Natural Wealth

by:
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Kapasungu
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and Readers of Stars
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List of Abbreviations

AKKM	Community Managed Conservation Areas
API	Anugerah Pesona Indonesia
APL	area for alternatives/varied uses
ASN	State Civil Apparatus
ATBM	"Looms Are Not Machines"
BMKG	Field of Meteorology, Climatology, and Geophysics
BPD	Village Representative Agency
BPS	Central Statistics Agency
BRWA	Customary Region Registration Agency
BUMDes	Village Owned Enterprises
CBD	Convention on Biological Diversity
CEMARA	"The Rational and Reflective Peoples' Foundation"
CRU IBCSD	"Indonesian Business Council for Sustainable Development's Conflict Resolution Unit"
DBD	Dengue Fever
FMIPA	Faculty of Mathematics and Natural Sciences
Forkani	Kahedupa Toundani Forum
GEF SGP	Global Environment Facility Small Grant Programme
Gerbades	Village Development Movement
GMI	Motorcycle Gang for Innovation and Mobilization and Transformation
Ha	hectares
HPH	Forest Management Rights
HPT	Forest Production Limited
HTI	Industrial Forest Plants
ICCA	Indigenous and Community Conserved Area
INSIST	Institute for Social Transformation
WOOD	Management License GPA
IUCN WPC	International Union for Conservation of Nature and Natural Resources-World Parks Convention
IUPHHK	Permits for Timber Forest Product Utilization
IUPHHK-HA	Permits for Business Utilization of Timber Forest Products in Forests
JAPESDA	Natural Resource Management Network

JED	Village Ecotourism Network
KBBI	Indonesian Dictionary
Kemendikbud	Ministry of Education and Culture
KKP	Marine Conservation Area
KKPNTNP	Marine National Water Park Conservation Area
KLHK	Ministry of Environment and Forestry
LPPM	Institute for Research and Community Service
Menhut	Minister of Forestry
MHA	"Communities of Customary Law"
MK	Constitutional Court
NGO	Non-governmental organization
NTT	East Nusa Tenggara
OCD	Ocean Cozy Destination
Perda	Regional Regulation
Pergub	Governor's Regulation
Perpres	Presidential Regulation
PIB	Association of Indonesia Exclaims
PKEPKL	Center for The Study of Coastal Ecology Based on Local Authority
PKI	Communist Party of Indonesia
PLN	State Electricity Company
PPL	"Roaming Agricultural Supervisor"
PPLH	Center for Environmental Education
Prosumsi	Production and consumption
PRRI/Permesta	The Revolutionary Government of the Republic of Indonesia
	Struggles the Universe or the Struggle of the People of the Universe
Puskesmas	The Center for Public Health
Pustu	Puskesmas Maid
RPJMN	National Medium Term Development Plan
RTRW	Spatial and Regional Plan
Skolmus	Multimedia School for All
SM	Wildlife Sanctuary
SP	Unit Of Settlement
STRIDE	Strategic Alignment in Development
TNC	The Nature Conservancy
TNW	Wakatobi National Park
TNWAL	Marine Nature Park
TSP	Triple Super Phosphate
TWP	Water Park
UNESCO	United Nations of Educational, Scientific, and Cultural Organization
UNG	Gorontalo State University
UPT	Technical Implementation Unit Law
UUPA	Agrarian Fundamentals Law
Wakatobi	Wangi-Wangi, Kaledupa, Tomia and Binongko
WCTC	World Coral Triangle Cente
WGII	Working Group ICCA Indonesia
WIRE G	Women Institute Research and Empowerment of Gorontalo
WWF	World Wildlife Fund
YAO	Alfa Omega Foundation
ZOM	Seasonal Zone

THANK YOU

THIS book was made possible thanks to the support and participation of many parties. At first, these writings were born from conversations between the GEF SGP writing teams, the National Coordinator Catharina Dwihastarini, and the Principia Learning Lab Director Shirley Suhenda. Thanks and appreciation should be given to these two great female leaders for building on the original idea. Also appreciation and gratitude must be expressed for the National Steering Committee of GEF SGP Indonesia who approved funding without which there would be no book. Our respect and gratitude goes out to Laksmi Dhewanti, Fransiscus Wellirang, Y. Purwanto, Julia Kalmirah, Brigitta Isworo, Zainal Arifin, Latipah Hendarti, Yani Witjaksono, Meynar Sihombing, Martha Tilaar, Heru Wardhana, as well as Agus Prabowo and Anton Sri Probiyantono. Also, thanks to the GEF SGP Indonesia Secretarial Team, Meinar Sapto Wulan and Hery Budiarto who pushed us towards the completed project you see today.

Thank you also to the activists and partners of GEF SGP Indonesia Phase VI for all the information, support and assistance that has been given to us. To La Beloro, Hasanudin, Yanti, Mursiati, Buke, Edi Harto, Dita, and all of Forkani's friends in Kaledupa; Akbar, La Amursan, and Sarpin in Binongko, Nyong Tomia and Tasman in Tomia, Wakatobi, we express our gratitude; also to Torry Kuswardono and colleagues at the PIKUL Association, Kupang, who provided information and also a valuable perspective. We should also thank Yurgen Nubatonis, one of the authors of *Semau Beta*, who eagerly drove Nirmala Palupi around Semau Island. For that we would like to express our deepest gratitude. In Gorontalo, the team received support from Sugeng Sutrisno and Rosyid from the Agrarian Institute, as well as Ismail and colleagues in Japesda. While in Nusa Penida, the role of Gede Sugiarta and Denik Puriati from the Wisnu Foundation, as the program hosts of the Nusa Penida region, made the work of the research team possible. For all the help given, our respect and appreciation goes out to you. Thanks also to the activists Kaoem Telapak Erry Damayanti, Zainuri Hasyim, and the late Candra Kusuma, who provided additional information to improve the writing in this book.

We would also like to express our sincere thanks to the many resourceful people who shared invaluable information with us. We must first recognize the special figures of Wakatobi, namely "Old Mama" Wa Nina, "Old Father" La Asiru, La Ode Karboys, La Amursan, Rozali, La Ode Mudirun, Mayiati, Wa Ode Hajari, La Ode Armin, and others. Thank you also to Salmun Batu, Salmon Putis Lulut, Barnabas Laitabun, Lamek Pong Nenobisi, Amos Tanu, Calvin Marthen Massa, Yohan Lilong Mama Poni, Thertulianus Pong, Yuliana Pong, Mama Rossi, Semaya Thomas Katu, Sanda Bolos, Adit, Firman, Wempy Tepa, Uniasis Lafu, and other speakers from Semau Island.

While in Nusa Penida, we were humbled by the spirit of generosity

with which Mangku Wayan Leser, I Made Rama, I Made Gata, I Wayan Darya Susila, I Ketut Sutama, Kadek Jiwa, Made Betet, Made Jagat, Mangku Alit, *Mek* Murni, I Wayan Sidemen, Abdul Hamid, Yusuf, Ketut Suarna, I Made Wijaya, I Wayan Adnyana, I Kadek Cik, I Putu Netra, and other speakers offered us anecdotes and facts about their relationships to the islands. While in Gorontalo, Prof. DR. Nani Tuloli, DR. Yusna Ahmad, Terri Repi, Amarudin Y. Dako, Bali Pano, Ipong Niaga, Bukari Boroma, Danggu Nani, Saha Saini, Amran Daud, Ibrahim Suudi, Aba Yasi, Hamzah, Yunus, Abdul Gani Biga, and other speakers gave us all of the information they could – and for that we are grateful.

We would also like to thank our own families, who have always supported us throughout the writing process. Also, a big thanks must go to friends and other parties that we cannot mention one by one. Thanks to the help of friends, we have crafted a book that will be of some use to others.

FOREWORD

"If you want to do something for the environment, then just do it. You'll receive good karma as your reward."
(Jero Mangku I Wayan Darya Susila)

PEOPLE around Indonesia have passed-down knowledge of how to manage biodiversity -- passed down across generations through word of mouth. These traditions come in the form of advice, rules, abstinence, and mythology, which is often referred to as local wisdom. The content of these teachings includes interpretations of the signs of nature, the seasons, and when to start and finish farming, how to grow crops, the conservation of large trees, protection of animals domestic and wild, and others.

This local, passed-down, place-based knowledge is essential to ensure survival, culture, safety, and sustainability, as well as community independence. Furthermore, it indirectly contributes to the resilience of the people in the face of uncertainty and climate change. Unfortunately, local knowledge is quickly becoming something else – as markets draw the people's attention elsewhere.

The gradual loss of traditional / local knowledge is happening because of government policies that marginalize local wisdom. It is also happening because of the ease of logistical accessibility that has introduced various environmentally destructive commodities (pesticides, chemical fertilizers, synthetic dyes, plastic waste, etc.), economic demands, transfer of land functions (opening forest areas), industrialization movements, and modernity. Tried and true ways of invaluable in and of itself is losing its grip.

This widespread abandonment of local wisdom is occurring in the GEF SGP OP6 areas of study too, of course. These include Nusa Penida Island, Semau Island, Gorontalo and Wakatobi Islands. For example, the people of Nusa Penida Island have begun to forget about strains of corn such as gembal and bleleng -- after the Government of Indonesia encouraged the consumption of rice. Furthermore, strains such as bleleng corn are a staple -- a sustenance commodity -- for times of famine or climatic phenomena, such as high waves that cause food supplies from the island of Bali to be hampered. generations through word of mouth. These traditions come in the form of advice, rules, abstinence, and mythology, which is often referred to as local wisdom. The content of these teachings includes interpretations of the signs of nature, the seasons, and when to start and finish farming, how to grow crops, the conservation of large trees, protection of animals domestic and wild, and others.

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Similar transitions are taking place on Semau Island. The invasion of hybrid corn seeds is causing the consumption and planting of local strains of corn to decrease drastically. People have not only lost these strains as commodities and as staple foods, but they have also lost the knowledge of corn preservation techniques, such as covering the kernels in the ashes of mahogany. Along with this, they are also losing the artistic traditions, the communal dances and rhyming games, which went hand-in-hand with these processes of preservation.

The situation in Wakatobi is also comparable. In the past, people were vigilant and obeyed the ban on logging near freshwater springs. The ban is now largely ignored and as a result many springs are becoming brackish and salty due to the intrusion of seawater. Similarly, in Gorontalo, the shamanic Panggoba are almost all but gone -- because the important work of these individuals is now considered superfluous.

Many ecological threats have arisen due to the loss of local wisdom. Negligence of traditional land management techniques has led to soil infertility. The use of chemical pesticides is causing new types of pests to grow uncontrollably; crop diseases are spreading and communities are being cornered into becoming consumers of imported goods. This latter point

especially is contributing to a loss of traditional wisdom, including reliable practices of subsistence farming.

The Global Environment Facility – Small Grant Program (GEF-SGP) is a small grants program supporting grassroots work initiatives and innovations in the face of these aforementioned threats. Based on the work of GEF SGP Indonesia throughout more than 25 years of studies in the field, catastrophes are exasperated due to the people's having forgotten the traditional means of preventing and dealing with them. As such, the GEF SGP program supports community initiatives based on local wisdom to reduce the impacts of these regional threats. Several community actors / non-governmental organizations have gathered in support of traditions – of local wisdoms -- as they relate to the management of biodiversity in the four working areas of GEF SGP OP 6. This has been made possible through the funding of GEF SGP's 6's activities and work in the field, the artistic traditions, the communal dances and rhyming games, that went hand-in-hand with these processes of preservation.

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biodiversity in the four working areas of GEF SGP OP 6. This has been made possible through the funding of GEF SGP's 6's activities and work in the field.

This book, Sangia, Hui, the Almighty Dollar, and Readers of Stars has been compiled as an account of the local wisdom that exists in the community -- even drawing on the memories of aging farmers. Local wisdom is being reinvigorated, as supported by GEF SGP, through the management of fish banks in Wakatobi, the replanting of black rice in Semau Island, the planting of local crops on small islands to fulfill the basic needs of the people, resurrecting the panggoba "farmer / shamans" of Gorontalo, and through many other creative approaches.

Thank you to friends of Kapasungu (Dicky Lopulalan and Nirmala Palupi) who initiated the creation of this book. This was all made possible thanks to the GEF SGP National Steering Committee, namely: Mrs. Laksmi Dhewanti, Mr. Fransiscus Wellirang, Mr. Y. Purwanto, Mrs. Julia Kalmirah, Mrs. Brigitta Isworo, Mr. Zainal Arifin, Mrs. Latipah Hendarti, Mrs. Yani Witjaksono, Mrs. Meynar Sihombing, Mrs. Martha Tilaar and Pak Heru Wardhana, and Mr. Agus Prabowo and Pak Anton Sri Probiyantono. Appreciation must also be expressed to fellow GEF SGP Indonesia Secretariats: Meinar Sapto Wulan and Hery Budiarto.Finally, we wish to recognize you, the reader, for having interests and priorities that overlap with our own.

Salam
Catherine Dwihastarini
National Coordinator of GEF SGP Indonesia

INTRODUCTION

ONE night at the end of March 2018, GEF SGP Indonesia National Coordinator Catharina Dwihastarini sent a short message via *Whatsapp* app to the author. It contained an invitation to discuss the possibility of documenting local, passed-down knowledge in the four areas of the GEF SGP Indonesia Phase VI program, namely Wakatobi (Southeast Sulawesi), Semau (East Nusa Tenggara), Nusa Penida (Bali), and Gorontalo. Local knowledge is defined as a variety of teachings, traditions, myths, rituals, and other ways of thought being related to the management of nature on the four islands.

The discussion, via *Whatsapp*, was continued from a previous discussion in Jakarta that was conducted by Shirley Suhenda from Principia Learning Lab. At the time, Shirley expressed how important it is to document local knowledge, both still practiced in the management of natural resources, but also in an effort to save the wealth of community knowledge so that it is not paved over by encroaching change.

The discussion that night ended with an agreement to create a book containing local knowledge concerning the management of natural wealth in the four regions. The bookmaking project was named "Treasure Hunt: Finding, Collecting and Rediscovering Lost Knowledge." An important note, at the end of the discussion, the possibility of encouraging the community to revitalize local knowledge in implementing the GEF SGP Indonesia Phase VI program was welcomed warmly by all.

The initial administration and research process would last until the end of 2018. It wasn't until early to mid-2019 that a team of writers from Kapasungu, a "knowledge management group" founded in Denpasar, Bali, took to the field to dig up information. Dicky Lopulalan researched in Gorontalo and Wakatobi while Nirmala Palupi to Semau and Nusa Penida.

As initially suspected, it was not easy to dig up information related to this specific type of passed-down knowledge. Most of it is not recorded, has been forgotten, is no longer practiced, or the speakers have aged and do not remember many important details -- or cannot speak Indonesian. Admittedly also a factor, the local language skills of the research team are also very limited in regards to regional dialects or local language variants.

Fortunately, the team received a lot of help from GEF SGP Indonesia partners who willingly supported the team, both providing initial information, references and respondents to facilitate the extraction of information in the field. In short, without the support of activists and implementers of GEF SGP Indonesia programs in these four regions, this book would not have been completed.

The research process was not only successful in collecting information and data. It also inspired the interviewees, who were invited to discuss, to look back at local knowledge, traditions, wisdom, or rituals that had been forgotten – though they are best practices. It became interesting later when efforts were undertaken to revitalize local knowledge in the present context. For example, efforts were made by the Agrarian Institute to revive village discussions with *panggoba*, the "readers of stars" of Gorontalo, This effort This effort had to be left behind – and instead the creation of *panggoba*-run farming plots was initiated.

The writing process was an adventure in itself. An excess of data was produced. Teams had to sort and choose which information is important and relevant to the book. Elimination is not easy -- because to get all the information the team goes through the process of exploration physically to far and hard-to-reach places. This was one of the most challenging parts. However, in the end, tough love was needed, and the writing became more streamlined and readable. Records of information not used in this book remain documented and will be used in the writing of other publications.

There are always surprises in the writing process. Not all of these surprises were technical or logistical ones, though most of them *can* be explained through commonsense. Like a woman going into labour, the writing team also had anxieties and mixed feelings – such as joy, nausea, and worry enough to affect the health. Usually if it's too pressing, we decide to stop writing and take some distance so as not to get overwhelmed.

When we stopped writing, either when taking a break or experiencing a block, some of us would see the faces of the interviewees in visions, imaginings, or even in dreams. These dear people were urging us to continue the writing process. It's a strange thing. Upon opening up to some friends outside of the group, we were given some stern advice that drove us forwards. "The four regions you visited are sacred places. The knowledge you dug into is the sacred science of the past. It is fitting if they come to you in dreams". *My oh my!*

After grappling with this draining process, early in December 2019 we discussed the draft manuscript of this book in front of representatives from all four regions -- in the event "Paruman Nusa" in Wantilan Pura Saab, on Nusa Penida Island. From there the writing team received much input and records of improvements that need to be done.

Although was compiled, still the book would not be quick to finish. It took another year for the book to get into the layout and printing process. To make this even more challenging, this was all done during the COVID-19 pandemic.

Ironically, this pandemic added a certain immediacy and relevance to the material we wrote. The pandemic created crises throughout Indonesia and the world. One crisis was a food crisis in which the distribution system was hampered

due to travel restrictions put in place to prevent transmission of the virus. Movements to build food security at the local level were happening everywhere at this time. Many people encouraged the management of a healthy agricultural system, without using chemicals in the process, as a way to increase the body's immunity to fight the terrible virus. Some of this work involved looking back at local food and traditions that have been neglected and left behind. What we found through contingency was more than we had hoped for. Inevitably, some adjustments were made to make the material we wrote more relevant to this current state of crisis.

After going through such a long process this book is now in the hands of you, dear readers. We have divided this book into five parts. The first part, "Ecological Wisdom of the Sea People" tells about the local, passed-down knowledge we uncovered in Wakatobi. This section concerns the belief systems of Wakatobi, New Order practices (which destroyed many traditions), the management of natural resources on land and sea, how to read the seasons, and much more.

The second part,"Hui, the Belief System that Disappeared," is the exploration of local knowledge on Semau Island. In this section, readers travel through time, encountering the changes that are happening on the island -- not far from Kupang City. The local system of beliefs was lost after Abrahamic religions arrived on the island; water management systems were forgotten, and the use of local foodstuffs were lost to hybrid seeds harvested in distant factory-sized operations.

In the third part, "All that was Lost & All that is Unfinished," the story of Nusa Penida Island, which has become famous in the last six years as a backpacker's paradise, will likely broaden your understanding of the effects of tourism. Such massive growth doubled incomes around the island – while also causing the people to forget their traditions, which have been passed down from generation to generation for centuries. At the same time, the boom transformed the social system -- from the sacred into the profane. The Almighty Dollar has become the latest deity. As if foreseen by their ancestors, when the pandemic happened, this new and novel source of income – tourism – evaporated into thin air. Residents inevitably had to look back to the cultivation of seaweed and gardens that were previously abandoned, picking up where they – and the people before them – left off.

In the fourth part, "An Elegy to the Forest, Farmers, and the Readers of Stars," we look at the impact that occurs when the government urges a superior commodity-based agricultural program – but one which damages the forests, causes the extinction of local seeds and strains of plants, and the redundancy of the roles of the *shamanic* readers of the stars, the *panggoba.*

As for the last and final part, this can be said to be a *teaching* -- of what

can be gleaned from the stories in these four regions. Without intending to romanticize these older ways of doing, thinking, being, this "learning" tries to answer the question of what needs to be done next to build and recover the power of communities and ecosystems.

With humility the writing team would like to admit that this book should not be seen as perfect and finished. There are many things that we would like to explore and expand on. Further excavation, discussions, analysis, and new inferences are needed to further advance our own growing understandings. This documentation should be regarded as the first step and a strong indication of the intents and aspirations of those involved in their interactions with these communities.

The writing team would like to express deepest gratitude to all those who have financed, informed, helped, encouraged, and translated this book into its present form. Without such efforts and support, this book would never have reached your hands – to approach the trial of an esteemed reader.

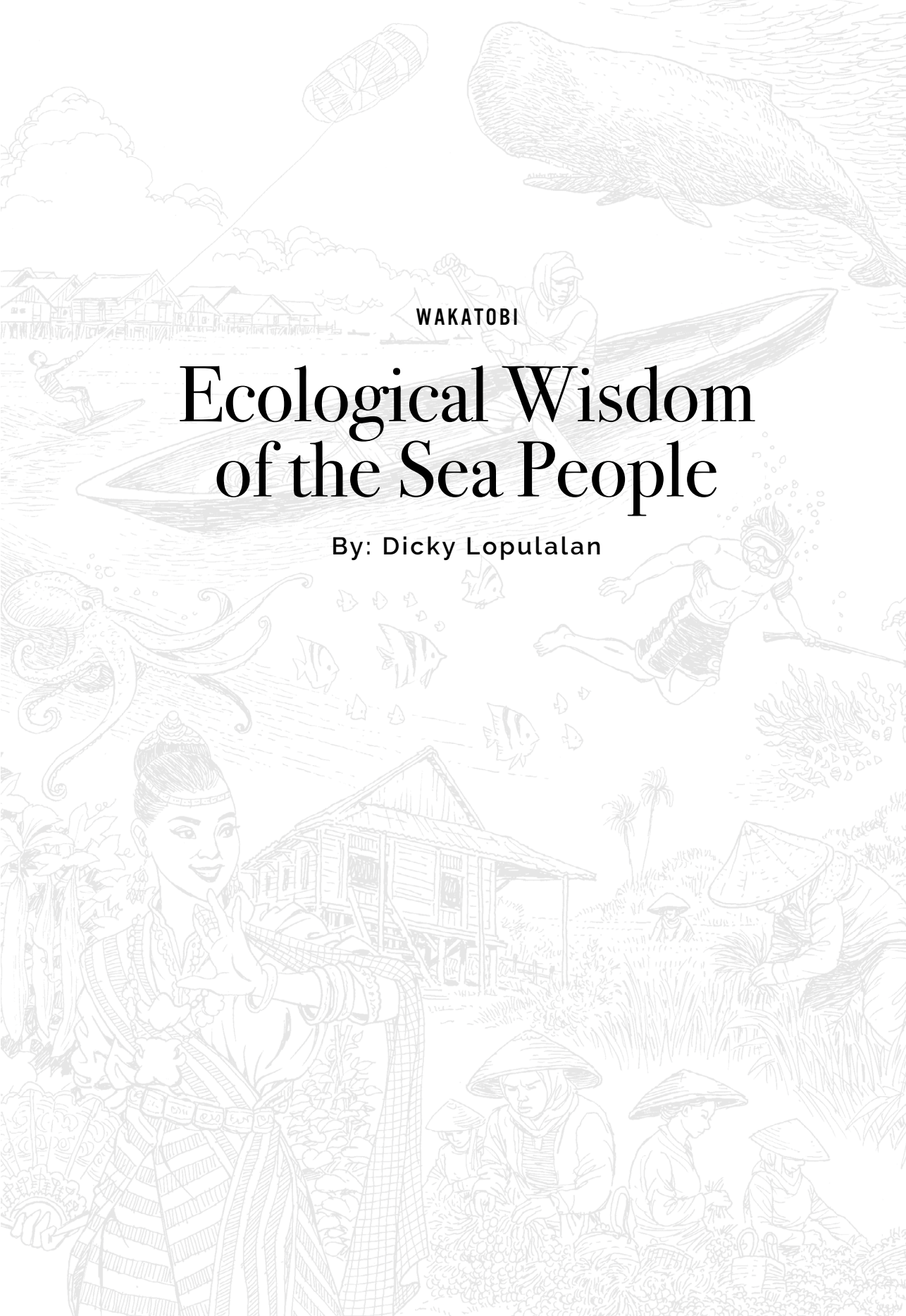
Wishes for a *bon voyage* through the regions of Wakatobi, Semau, Nusa Penida, and Gorontalo.

Denpasar, 8 March 2021
Writing Team

WAKATOBI

Ecological Wisdom of the Sea People

By: Dicky Lopulalan



WA Nina is the daughter of a boat builder from Tomia Island, near to the Wakatobi Archipelago, in Southeast Sulawesi. At the age of five, Wa Nina's family moved to Ambon, finding work and settling down on Seram Island. Her father said that Seram was heavenly, because unlike Tomia, Seram had large trees for making simple watercrafts and boats. On the island of his youth, in Tomia, the growth of trees had been stunted by the dry soil.

Wa Nina's family struggled to get by. For additional money, aside from carpentry, they sold coconuts and firewood from the only boat that they called their own. "We use our only boat to make a living. We move items from the smaller islands and sell them in Ambon," says Wa Nina, resting in the tranquillity of Kulati Village, Sub-District East Timur.

Wa Nina is 75 years old but still appears both strong and resilient. She sits on the white tiles in an unfurnished room, narrating the journey of her life while crushing *pinang* and betelnut in a small pestle. "Got to grind it down. Can't just chew it anymore. No teeth," says Wa Nina, bashfully.

When she was 20, Wa Nina married La Asiru, who was also originally from Tomia, on Seram Island. They had six children, one of whom passed away. The children of Wa Nina and La Asiru had to forage from island to island to scratch out a living, going to and from on boats.

"That's right, we're simpletons, don't know anything. My man tells me this and I listen. Even if it's the wrong direction, I've got to follow him. Better or worse, we go. Bear it together. This life of mine has many twists and turns," says Wa Nina with a chuckle, eyes seeming lost for a moment.

They arrived in Tual, Maluku, where their business flourished and expanded. Their growing group supplied fresh catch from the ocean, bringing in a steady income. Each day, small boats puttered to and from from their small fishery, bringing the catch to the city. At prime the fishery employed 30 people.

Aside from the fishery, they ran a stall near the terminal. There, Wa Nina bought and sold a variety of natural products and confectionary, and also her own homemade bread. She sold the harvest from her allotments, not limited to coconuts and nutmeg; meanwhile, Chinese merchants also sought after fish, sea cucumber, and *trochus niloticus*. "I was the one in face-to-face contact with these merchants," says Wan Nina while twisting a curl of black hair now diluted with grey.

The unrest that swept Ambon in 2011 continues to affect the area of Tual. Their house

"That's right, we're simpletons, don't know anything. My man tells me this and I listen. Even if it's the wrong direction, I've got to follow him. Better or worse, we go. Bear it together. This life of mine has many twists and turns."

and fishery were burnt to the ground. Their hard work was erased. In a bad way, La Asiru decided to return to his hometown on Tomia Island. Wa Nina, La Asiru, and their five children, now with their five partners and grandchildren, sailed away owning only the clothes on their backs. They were at sea for one week before arriving at Tomia.

"Along the way, I kept doubting that I was even alive anymore. Maybe because my thoughts themselves were fading out. And this was followed up with only greater struggles. Problems seemed to chase us down," says Wa Nina, her eyes and expression going distant. She continues her story. Heavier silences seep in between recollections.

In the village, they made a home in her husband's childhood house, along with his younger brother who had never left. This set up lasted only a month. "I had two grandkids, five kids, and their five partners. There were 14 of us. Without money to pay for vegetables or fish, we tried our best to help out around the house. But it came down to all of us finally just moving onto the beach," said Wa Nina.

They moved to the beach, making a simple shelter with a roof, walls, and a floor of palm fronds. To get by, Wa Nina and family gathered what they could from the forest, such as wild root vegetables. These were plentiful on the coast, some of them in the ancient plots of Wa Nina's husbands ancestors who had lived there long ago. The cassavas were especially large. In an hour of digging, they could harvest two or three of these. These were then boiled or fried.

"I spent my days in that forest, slept in the forest too. Planted cassava, just for us. My body wanted to just stop, but the situation did not let up. These days were a disaster, and the saddest days,""

Her in-laws fished with their hands and sharpened sticks. These fish they traded for cassavas. They continued to barter with what they had, to the point Wa Nina and her family had a small farm at the edge of the forest. They grew cassavas, *opa*, and assorted veggies.

"I spent my days in that forest, slept in the forest too. Planted cassava, just for us. My body wanted to just stop, but the situation did not let up. These days were a disaster, and the saddest days," says Wa Nina in a slow drawl.

After seven months spent farming, their lot began to improve. The struggle subsided. Their allotments were fruitful. Wa Nina's husband made a little money carting sand to sell to Unimai and Osuku, two separate villages in Kulati. Wa Nina suspects the occupants of the land, the spirits of her husband's ancestors, heard their prayers and responded to the various offerings that they made to the land.

After three years on the same beach, Wa Nina and family constructed a new home near the settlement of Kulati. They received the wood from a seafarer whose boat was broken, stranded on a rocky island near Kulati. It was clean and solid wood. Their children worked odd jobs. They pooled their money and bought cement one bag at a time for their seven-by-four meter plot of land, a gift from Wa Nina's father-in-law. Together, the group slowly trailed out of their old shelter on the beach.

"This house that we built is where we still reside," said Wa Nina with pride, eyes darting around the room. It was a concrete house with tiled floors and a terrace, master bedrooms, a guest bedroom, and a kitchen. The materials salvaged from the boat still reside, making the walls of the kitchen area. It was unpainted, sparsely furnished, but it had a warmth. The house was pleasant.

Wa Nina resides here with La Asiru, their youngest boy, and his wife. All of their other children work jobs and have their own places. Their oldest child made a return trip to Tual and found work as a teacher. Their second child is a staff member at a company in Sanana, Ternate. Their third child lives in Kendari, while their fourth remains in Dete, a village near Kulati.

"Looking back, it all seems like such chaos. But we're moving forwards," says Wa Nina, laughing lightly. She then expresses her gratitude a few times, still grinding betelnut, and swishing the mixture around in her toothless mouth. For a moment her posture suggests that Wa Nina feels accomplished and smug in her life.

Wa Nina's life story is full of twists and turns and bespeaks the resilience of the people of Tomia and Wakatobi. These people are merchants, fishers, seafarers, and hawkers going between islands. They are used to large waves and being stranded in storms. They have adapted to live in this hostile place. They step up. They put it all beneath them.

"Wa Nina's life story is full of twists and turns and bespeaks the resilience of the people of Tomia and Wakatobi. These people are merchants, fishers, seafarers, and hawkers going between islands. "

The strength of character of the people of Wakatobi has evolved to match the limitations imposed by their environment. The islands of Wakatobi are mostly dry, rocky, lacking fertility. To add to this, their only source of fresh water is rain. Plants will only flourish in very specific ecotones and within the span of specific weather patterns. Like it or not, the people must leave these islands to gather more, which is what La Asiru and Wa Nina have done. Staying in La Asiru's hometown, their only option was to scrape by in austerity, also known as adaptation.

These adaptations have been made around an agricultural system that produces only a select few plants based on brief growing seasons, based on ancestral knowledge.

Because harvest seasons also vary, these veggies act as staple foods for locals all year round. For something more substantial they rely on the fishers and their varied catch.

These adaptations also involve processing foods so as to preserve them for the coming months, or in anticipation of famine as a result of pests or bad weather. The people, like Wa Nina herself, store great knowledge of how to preserve. Like Wa Nina, growing up on Seram Island long ago, most women learned these ways from their mothers. In working alongside her mother in the kitchen long ago, Wa Nina learned how to preserve cassava, corn, sago, and other staple foods – along with seeds, large grains, small grains, and even powders, like flour.

These adaptations came about in earlier days, when there were only small sailing boats, and it would take months just to reach Wakatobi. On their own, the people were forced to become self-sufficient in securing a few staple foods, unable to rely on distribution from other islands. Their subsistence lifestyles emphasized planting and domesticating local, forest plants, and harvesting only as required. Challenges of the environment and limitations on the island have made the people productive, and both obeying of and conveying ancestral, land-based knowledge. This body of knowledge is a tool that aids in the conversion and multiplication of their surrounding nature of which Wakatobi now has enough to make life a little easier for the local people.

"These adaptations came about in earlier days, when there were only small sailing boats, and it would take months just to reach Wakatobi. On their own, the people were forced to become self-sufficient in securing a few staple foods, unable to rely on distribution from other islands. "

Wa Nina now believes strongly in the benevolence of ancestral spirits that lifted them out of famine and instability. Wa Nina has a ritual of making small offerings to the Earth whenever clearing new farmlands or fishing, certain that ancestral spirits will be pleased, and aid them in meeting their needs. These are not only Wa Nina's beliefs, however, but the convictions of the people of Tomia, Kaledupa, Binongko, Wangi-Wangi, and the smaller islands of the Wakatobi Archipelago.

The act of making offerings is not just for fishers and farmers, however, but in all aspects of life. When heading out to sea, offerings are made when strong winds begin to stir, and again when waves begin to swell. In facing almost all hardships of life the people make offerings, carrying them along from the cradle to the grave.

Aside from beliefs in ancestral spirits, the people of Wakatobi also have a system of land-sharing, and a comprehensive delegation of responsibilities that aids in harvesting and gathering – whether on the islands or at sea. This unique system of sharing territories and duties has been around since Wakatobi became a part of the Kingdom of Buton.

Liwuto Patanguna

In the past, Wakatobi was once part of the Kingdom or Sultanate of Buton (1332-1960). The Kingdom of Buton[1] was itself a part of the kingdoms of Islam in southeast Sulawesi, including Wolio, Kaledupa, Muna, Callasusung (Kalisusu), and Konawe.

Le Beloro, the head of the Kahedupa Toundani Forum (Forkani), a Non-Governmental Organization (NGO) in Kaledupa, sees the historic creation of the federation of the Kingdom of Buton, centered in Bau-Bau (Wolio), as a strategy to match the communities of strong sea-goers, under the influence of Hasanudin in Makassar, against the many fleets of the Portugese.

In its infancy, the Kingdom of Buton grew into a political entity with rapidity, thus expanding its territory and forming relationships with the Majapahit Kingdom, Luwu, Konawe, and Muna. As for economic prosperity, the Kingdom popularized using woven cloth instead of currency. This was known as *kampua.*

In administrating aspects of the Sultanate, the Kingdom moved forwards in terms of improving livelihoods, which, like other fields, were also overseen under the constitution of the Sultinate of Buton, known as "Murtabat Tujuh". This constitution oversees multiple functions, responsibilities, and the standing of the sultanate in terms of its roles in governance. Beyond this, a decentralized system (local autonomy) was upheld through the creation of four *barata* and 72 *kadie* (smaller areas). One such *barata*, Barata Kahedupa, contained the four islands of Wakatobi, known as Wangi-Wangi, Kaledupa, Tomia, and Binongko, with its center in Kaledupa.

"*Barata* were given autonomy to deal with their own land, including their own military forces, while of course being obliged to observe the restrictions given from the central government in Bau-Bau," says La Beloro.

Before unifying in Barata Kahedupa under the Sultanate of Buton's administration, each island had its own structured system of governance, individually. In essence, an individual island could have been broken down into multiple, tiny 'kingdoms', as there was in Kaledupa. These kingdoms often had skirmishes and territory disputes with one another. Peace was only observed, and upheld, when members of one group married into an opposing community. Becoming unified under the Sultanate of Buton drastically lessened the territorial disputes and skirmishes between these lesser kingdoms.

"In the past, Wakatobi was once part of the Kingdom or Sultanate of Buton (1332-1960)."

The four main islands of the Wakatobi area are known as *Liwuto Patanguna*, which was their name before the Dutch interfered in local

1 Later the area would become a sultanate when the 6th King of Buton -- Timbang Timbangan, or La Kilaponto, or Halu Oleo -- embraced Islam and used the title of Sultan Murhum Kaimuddin Khalifatul Khamis.

affairs. Post-colonization, the area became known as *Toekang Besi Eilanden*, or the Metalworkers Archipelago (*Kepulauan Tukang Besi*).

When Soekarno and Muhammad Hatta proclaimed the independence of Indonesia in 1945, the Sultanate of Buton was still a part of the separate nation of Eastern Indonesia. Only in 1950 would Buton became a part of Indonesia itself. Under the governance of President Soeharto, Wakatobi was broken down into a handful of sub-districts, to be administrated by the Regency of Buton, in the province of Southeast Sulawesi.

Wakatobi was officiated as its own regency under law (UU) Number 29 of 2003 concerning the Creation of Bombana Regency, Wakatobi Regency, and North Kolaka Regency. The name of Wakatobi itself is an acronym drawing from the names of its four main islands, **Wa**ngi-Wangi, **Ka**ledupa, **To**mia and **Bi**nongko.

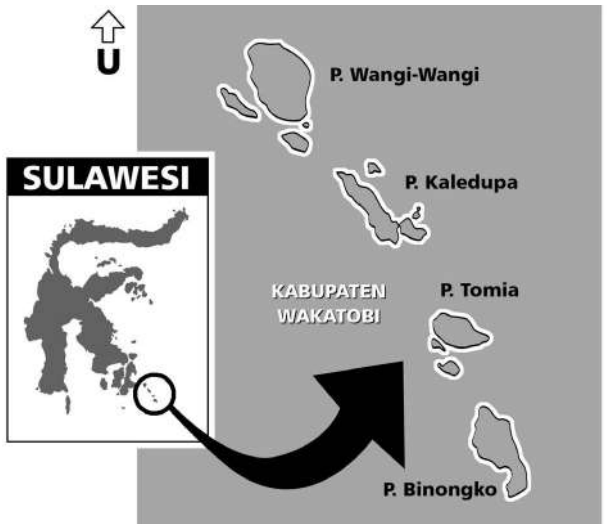


Image 1. Map of Wakatobi Regency

Wakatobi Regency, in the middle of Buton-area waters, in the Banda and Flores seas, has 139 islands. The regency is 19.200 km² with 823 km² of land (3%) and 18.377 km² ocean (97%). The oceanic area hosts 750 types of coral reefs from 850 types of coral reefs found around the world – all within the World Coral Triangle Center, which is large enough to be within the borders of six countries, which are Indonesia, Malaysia, Philippines, Papua New Guinea, and Solomon Islands.

In 1996, the waters around Wakatobi were declared part of Wakatobi National Park. This declaration was made by United Nations of Educational, Scientific, and Cultural Organization (UNESCO) through the program *Man and Biosphere*. The aim of the program is to discern and draw attention to ecosystems, both on land and

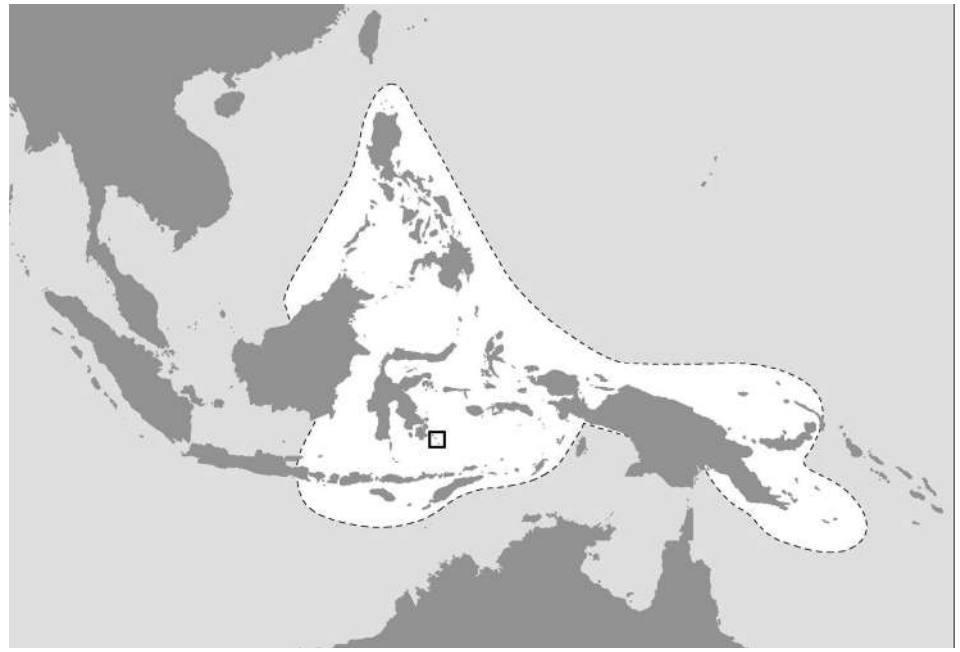


Image 2. Map of the World Coral Triangle Center

underwater, and to protect the biodiversity found there. To achieve this goal, social economies are created and efforts are made to encourage positive aspects of local cultural value systems that support the goal of conservation. In July 2012 the location was crowned a Biosphere Reserve, recognized by 165 countries, via members of the World Biosphere Reserve. The declaration confirmed that the management of this area, from both conservation and developmental perspectives, is a worthwhile venture for all.[2]

Three percent of the land area of Wakatobi is of mixed soil quality. Abdurrahaman Hamid, in the journal *Wacana*[3], compared the land to human anatomy. Binongko would be the head, Tomia the chest, Kaledupa the stomach, and Wangi-Wangi the knees and feet.

Related to the physical body, the head would be of hard bones with little meat, comparable to the actual island of Binongko's being dry and infertile. The chest, while having much meat, has its share of small bones, which compares to Tomia's soils being only slightly better than Binongko. The stomach is as soft as Kaledupa is fertile, comparably. Lastly, while the knees and feet have meat they also have bone, meaning that Wangi-Wangi comes in above Binongko and Tomia -- second only to Kaledupa.

2 Anonymous, *Laut Wakatobi Serasi*, National Geographic Indonesia, 11 December 2015, URL: https://nationalgeographic.grid.id/read/13278798/laut-lestari-wakatobi. Accessed 31 Mei 2020.

3 Ichwan Susanto, Mohamad Final Daeng, and Ingki Rinaldi, *Binongko dan Anatomi Tubuh Manusia*, Jelajah Kompas, URL: https://jelajah.kompas.id/terumbu-karang/baca/binongko-dan-anatomi-tubuh-manusia/. Accessed 2 Juni 2020

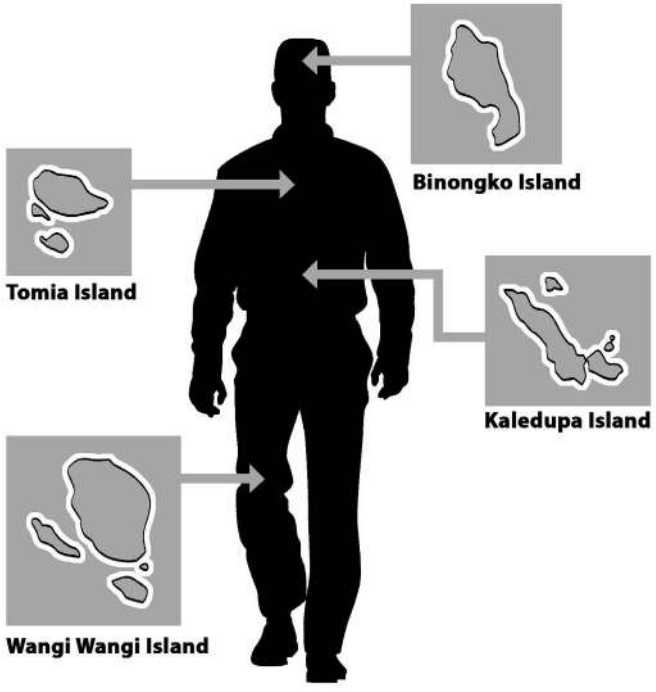


Image 3. The anatomy of the Wakatobi Archipelago, figuratively speaking.

Wakatobi's islands, with its sundry soils, are occupied by nine Indigenous groups, who are the Wanci, Mandati, Liya, Kapota, Kaledupa, Waha, Tongano, Timu, and Mbeda-beda. Aside from these, there are also some newcomers to the islands, such as the Bajo and Cia Cia of the Buton ethnicities. The Indigenous groups are a collective under "Communities of Customary Law" (Masyarakat Hukum Adat (MHA)) of Barata Kahedupa.

"If looked at linguistically, actually Kaledupa, Tomia, Binongko, and Wangi-Wangi could be labelled a singular tribe. However, in Binongko, there's the Cia-Cia language, which cannot be understood around Wakatobi at large," says La Beloro.

Under the rules of MHA Barata Kahedupa, the Indigenous area of Kaledupa Island is divided into two *kadie* and seven *limbo*, then grouped together with two larger areas, which are: the *umbosa* area (east), including Limbo Tombuluruha, Limbo Kiwolu, Limbo Tapa'a, Kadie Langge, Limbo Tampara; and then there is also the *siofa* area (west), including: Limbo Watole, Limbo Ollo, Kadie Laulua, and Limbo Lefuto. Barata Kahedupa is led by Lakina Kahedupa, locally known as *Waopu.* Despite their leadership, each individual *limbo*, or designated area, is also ruled by a *Bonto.*

Communities manage the natural resources of Barata Kahedupa – both on land and at sea. On the islands, the land can be used as follows:

First of all, *Futa nu Sara*, the lands managed and organized by *Sara Barata*, can be used for the good of the community – through traditional means. For example, conservation areas, such as Indigenous forest grounds, mangrove forests, and other sacred areas.

Secondly, *Futa nu Limbo*, lands used for farming by the communities of one *limbo*, meaning one area. Thirdly, *Futa Nu Walaka/Kaomu*, the land managed or used by specific families or groups of families.

Aside from these designations, the island communities also recognize the rule of *galua.* This indicates that coconut trees and others planted along roads also have a social function. Whoever wishes to take from these trees may do so. Any hungry person may pick the fruits of these 'public' trees – on the condition that the skins and seeds of these fruits are not tossed on the ground, but are placed beneath three large leaves so that they might grow and replenish.

In the case of the ocean, there are a few exemplary communal rules associated with the usage of natural resources. Fishers must ask for permission to install the traditional *bubu* and *seru* fish-catching tools within the area of their *limbo.* They must ask permission from the community leader of the same *limbo.* They must also pay community retribution for the catching of fish. This will take the form of a percentage of their catch being put down on the ground near the *bantea*, or the main harbour of boats, in their home *limbo.*

Aside from these, there is also the area of *Namo nu Sara.* This laguna area is protected under *Sara* Barata Kahedupan and may only be used by the public. Then there is *Namo nu Kamali*, an oceanic area that functions to provide fish specifically for the communities themselves, including the families of former village leaders residing in the *kamali*, or the large house.

On Binongko Island, the Wali community recognizes the rule of *kaombo.* This disallows the taking of anything that people do not have the rights to. If there is a violation, either against the *kaombo* itself or the *kaombo* applying to that which is meant to fulfil the needs of the people, there will be sanctions. *Kaombo* is enacted both on land and at sea.

As for ocean areas labelled *kaombo*, these are undisturbed 'fish banks' that can only be used in times of proven scarcity. The creation of these special allocations came about as influenced by the logic of the people of Binongko, especially Wali, in order to guarantee an emergency food supply. In all locations bordering the Banda and Flores seas, coral reefs are important as breeding grounds and supply fish to sustain life on the islands.

"Aside from these designations, the island communities also recognize the rule of galua. This indicates that coconut trees and others planted along roads also have a social function."

The *kaombo* areas of Binongko also include forests, namely mangroves and coastal reefs, as agreed upon by Sarano Wali since 1950, though actually this inclusion was already recognized by the locals prior to then. Sarano Wali is the customary procedure of *sara* governance, or the value systems of institutions in overseeing life and customs in Binongko. The agreements made for these inclusions were officiated in *Kitab Kasawa Culadha Tapetape*, a written account of oral teachings that had been passed down.

Unfortunately, the tradition of *kaombo* ended between 1960-2007 with the arrival of *lakina* systems -- when traditional governance was replaced by President Soeharto's New Order Regime. *Kaombo* was reinstated in 2008 and by 2015 their boundaries were recognized and officiated. *Kaombo*, however, are mobile, and need to be moved wherever they are most required for the sake of the fish and reefs. This is facilitated through the opening and closing of these areas for fishing access. Though they may move around, until today, most *kaombo* in the north and south of the island have stayed fixed in place.

Near to the village of Wali, there are two *kaombo* areas within the boundaries of Wakatobi National Park. Each *kaombo* measures 200 x 600 meters. Within these areas are the best preserved coral reefs, the busiest spawning areas for fish populations too.

The second *kaombo* area, also an area of coral reefs in the national park, is still managed by tradition and custom, albeit working together with the park itself. The role of the traditional overseers is known as *cunggano pasi.* Rozali, a Wali fisher and a contributor to this body of writing is also a *cunggano pasi* of the Wali and Binongko areas.

"*Cunggano pasi* are protectors of the beaches and reefs under the customary, traditional rule of Wali. If, for example, I see somebody fishing with bombs, I may catch them and deliver them to a customary prosecutor over here. We've already processed many of these fishers, either in Binongko or Kaledupa," says Rozali.

Rozali's role is a device of customary law enforcement here. The highest position in this system is the *lakina* or head of customs. Beneath them are the *silabona,* as regulators of customs. Beneath this position, the *panglasa* are section coordinators, and Rozali's role, as *cunggano pasi*, is one of these. Aside from these, there is another role, known as *cunggano maranggo.*

"Cunggano maronggo are responsible for protecting the mangroves. They won't let people take any wood from these areas. They will be reported. Once reported, they will be caught," says La Ode Mudirun, a respondent for these writings and also a *cunggano lulu*, and a treasurer of this structure of customary rule.

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If the villages cannot overcome a problem, the personnel of Wakatobi Nation Park will be involved. "We might get the help of a speedboat, then approach them together. Damn right, we'll come at them all together," says Rozali.

The protection of coastal ecosystems through customary mechanisms is also common for Tomia and Derawa islands. In Kulati Village, East Tomia, the locals maintain the waters around Ampombero, which are important spawning grounds – a veritable 'fish bank'. It is this way in Derawa too, where the people open and close access to an area famous for its octopus. Both operations were worked out in 2019 through the GEF SGP Indonesia program.

Belief Systems of Wakatobi

The ancestors of the people of Wakatobi had a spiritual awareness and belief in a power beyond mere human beings (*kekuatan gaib)* that often influenced their own lives. They believed that ocean environments, mountains, bays, ponds, large trees, and special patches of wilderness – are inhabited by invisible powers, known as *sangia.*

Image 4. The locals believe that the supernatural is behind every notable event occurring in the nature around them

The word *sangia* itself is derived from the ancient Hindu expression *Sang Hyang*, meaning a being of 'spectral eminence'[4]. The word *hyang*, as known in Malaysian, Kawi, Javanese, Sundanese, and Balinese, refers to a supernatural force that cannot always be seen by humans. This could be said to be either divine or spectral. A combination of these two words, the compound word, *sangia*, has gained a dimension of breadth and size, making it more suited for referring to these areas of strong supernatural importance.

The people of Wakatobi also believe in the existence of ancestral spirits. Like *sangia*, these can be good or bad – in this case, this depends on how these people lived their lives. People believe that, after death, ancestral spirits accompany their living descendants, often bringing fortune. Just like living people, these spirits can become sick, and are then called *sumanga*. If a young child is crying uncontrollably, their parents might presume that the child is possessed by an ancestral spirit – of one who often made their parents angry.

Sangia and ancestral spirits have control over the beliefs of the people in the areas written about above. These spirits are capable of calming storms and calming waves. The people will ask for their help whenever they are troubled.

The belief in *sangia* seems problematic, at first glance, given that the population of Wakatobi is statistically Muslim. "We prefer to emphasize the essence of our beliefs, rather than just follow sharia rules. For example, praying five times a day is not always going to cut it, and going to the Mosque on Fridays, these things are great, but we must also consider the values that have kept our communities alive. Of what I understand, that is of importance," says Beloro.

Practices based on these values include relations with powers, seen and unseen, inherent in nature. For this reason, the *sangia* and the ancestral spirits are revered – wherever it is believed that they may reside. Two such places may be Indolu, in the village of Pajam, and Kota, in Derawa, on the island of Kaledupa.

"*Sangia* and ancestral spirits have control over the beliefs of the people in the areas written about above. These spirits are capable of calming storms and calming waves."

Indolu itself is on a hill in Pajam Village. (a combination of the names of the two major villages there, which are Palea and Jamaraka). The area of Pajam marks the highest grounds of Kaledupa Island. It is an older village, and the former seat of the Kaledupa Kingdom, before being usurped by the Buton Sultanate. The village is renowned for artifacts left behind by Benteng Palea and the strongest weaving culture in the former Kingdom of Kaledupa.

Indolu is said to the be the location of the tomb of a Kaledupa king, though there are no indications of such. For the most part, it has been turned into farming plots. The belief persists, though it is well known that graves and their contents have long since been moved to another location. No, these facts do not detract from the belief that Indolu is inhabited by something sacral.

4 Asliah Zainal, Menjaga Adat, Menguatkan Agama: Katoba dan Identitas Muslim Muna (Published in Yogyakarta, 2018), page 163.

Around the supposed areas of buried royalty, Indolu has been made into a place to worship and make offerings. According to the stories, the wishes of those who pray here are likely to be fulfilled. Even requests for rain during an extended heatwave will be answered – with a shower. Aside from praying and making offerings, the people of Pajam are compelled to place the fruits of their first harvest here, on the graves of Indolu, offering the essence of their harvest to the powers that be.

According to the people, there are many other spiritually charged locations, besides Indolu. Tampara is one of them and differs from Indolu in that the graves are entirely those of deceased women. And while the people of Pajam may pray in Indolu, in Tampara, only relatives of the people buried there may proceed.

Yet another important spiritual site, Kota is located in Derawa Village[5], in the hilly interiors of Derawa Island. This location is marked by two houses with staircases sitting on top of a hill. One of these is for men, the other for women. According to the groundskeeper, and the diverse mix of devotees, the grounds are bustling – with people and bright lights. For this reason, the area is called Kota, which means 'city'. The uninvited outsider, however, will go there and not see a thing.

Mayiati, a resident of Derawa, English teacher, baker, and owner of a seaweed farm, says that there are specific rules for those who wish to pray in Kota. "We cannot make vows, except in our hearts, that we will return to Kota. Because if we do, our mothers will fall ill," says Marsiyati.

Aside from vows, there are other rules visitors must observe. First, all visitors should be accompanied by the groundskeeper. Visitors must lose the shoes, must not fight, must not litter, must not swear, and overall, visitors should avoid doing anything immodest. If these tenets cannot be followed, visitors will receive a sudden push, a thrust from behind, from an unknown, unseeable force.

"According to the people, there are many other spiritually charged locations, besides Indolu. Tampara is one of them and differs from Indolu in that the graves are entirely those of deceased women."

Other sacred places include Liang Kuri-Kuri, on Huntete Beach, Kulati Village, in the Sub-District of East Tomia. This location is marked by a large cave at the base of a cliff facing seawards. On the walls, a yellow moss grows. It is not a large hollow, only about six square

5 Derawa Village is located on an island to the East of Kaledupa Island. Around this village there are many smaller islands. Tour guides often dub this island a miniature of Raja Ampat. In the past, most residents of Derawa went to Malaysia to find work as nannies or general labourers. However, after glimpsing a potential for harvesting seaweed, seaweed plots have become their livelihood, apart from catching fish and octopuses.

meters, and it can only be entered when the tide is down. It is surrounded by clear waters and diverse, orderly coral reefs, which are now demarcated as 'fish banks'. The people revere this location, as did their ancestors. In the past, fishers would come here to worship before heading out to sea. Until this day, fishers will make an offering of betelnut or a cigarette as they path the mouth of the cave at Liang Kuri-Kuri.

The head of East Kulati, La Ode Karboys, explains the rules to follow if one wishes to enter the cave at Liang Kuri-Kuri. In the opinion of this man with curled and streaked with greys, visitors should not wear red or yellow clothes when entering the cave. La Ode Karboys does not know why – only that these are the observances.

Aside from these observances, there are other rules, such as not breaking any tree branches along the left side of the path that leads to the cave, not damaging the interiors of the cave, and not partaking in any immoral activities in the surrounding area.

La Ode Karboys tells a story from the days when 'agate fever' swept Tomia, and a group of junior high school students ventured into the cave. They had a plan to steal a stalactite from the roof of the cave. "After going inside, they took out a hammer and chisel. They chipped away at it. But the very moment the rock fell to the ground, all of them were suddenly possessed," says local fisher, La Ode Karboys.

These stipulations and superstitions do not only apply to the cave itself, but also the forests that tower above the cliff itself, and for the surrounding oceans – of a few hectares around the cave, and even the freshwater springs Te'e Tooha and Te'e Lafota in proximity to the sacred grounds. Locals and outsiders alike should avoid damaging and felling any trees standing in the surroundings. Locals cannot catch any fish that are found around the cave – except if there is a famine, an infestation of some kind, a blight, or winds and waves that prohibit inter-island travel and distribution. Elders have requested that the area be protected so that the occupants feel respected, therefore they will be less likely to disturb the tranquility of nature, and the communities.

"These stipulations and superstitions do not only apply to the cave itself, and for the surrounding oceans. "

These observances, passed down from the elders of Kulati Village, are respected and followed by the people, all the way down to the youth. This information came from Nyong Tomia, a teenager who is active in the development of the village, already holding the title of Chairperson of Poasa Nuhada Tomia, a local NGO. In Nyong's opinion, no one has dared even to pluck a leaf or crack one stick on their way into that special cave.

Meanwhile, in Binongko, sacred areas can be found in Sasi Adat Wali, Mbara-Mbara Beach, Latuempo Beach,

Latuempo Forest, Sampua Bueya Beach, Sampua Bueya Mangroves, Waode Cave, Lasikori Cave, Lapungga Forest, and Old Bambubaruga Lapunga Forest.

In the opinion of a villager from Wali, Binongko, known as La Ode Mudirin, there are two sacred places where it is forbidden to enter. These are Laungga Forest and Katodunusara. These two forests have been walled off and these observances have long been in effect, and will remain respected.

Places of reverence and sacrality are not to be found only on land, however. Fishers and sea-goers, migrants and merchants, and others of Wakatobi also hold strong beliefs that there are sacral places within the ocean itself -- for example, Ondolu in Banggai, Peropa in Sombano, Sanggia in Hagugu, and Peropa in Semalun.

"These other sacred places are out near Flores and Sumbawa islands. There's an active volcano that emerges from the water. We call it Sangia Nugima. Aside from this, there's a small island in East Flores that we call Sangia Lonto-Lonto," says Beloro.

In the waters around the South of Binongko Island there is a sacred landmark called Kota, somewhere near the coral reefs known as *koko*. Usually, if people are lost at sea, the people of Binongko go to this place to make offerings and pray. They wish for the safe return of these individuals -- from the ocean and back to their families.

Like Kota on Derawa Island, this other Kota in the waters of Binongko, is considered an 'otherworldly hub'. In the opinion of those who have had a calling and visited this place, it is bustling with spirits, and as noisy and bright as a city. There are even large buildings, lights, and even Mosques with large domes. It differs from the site in Derawa, because it's all beneath the ocean's waves.

La Amursan, Chairperson of the Binongko Fishers Forum, explains that those 'invited' to this 'otherworldly hub' are invited by twins they did not know they had – until they heard the callings of these twins, who reside deep in the ocean itself. Every holy Friday, these people make offerings with the purpose of giving food to their twin siblings in the ocean. They wait for their twins to call them home into the waves.

"Once beneath the waves, in this Kota, we would be invited to sit and eat. However, we must remember the advice of our parents, advising us not to accept the gifts of strangers, else we might feel obliged to stay forever. Having resisted the temptations, the person will be offered a small gift, a piece of turmeric

"In the waters around the south of Binongko Island there is a sacred landmark called Kota, somewhere near the coral reefs known as koko. Usually, if people are lost at sea."

root. This too they must resist, perhaps saying that they already have turmeric in their garden. This will seem strange to those underwater, since, in their world, turmeric is as rare and as prized as gold," says La Amursan.

Since birth the people of Wakatobi maintain strong ties to the people of the ocean, a concept they call *imbu.* They believe that their twin brothers and sisters inhabit other worlds. It is common to hear a mother say to a child, "Your twin lives in the ocean". These distant twins are born alongside the people of Wakatobi, before going off to dwell in the depths.

These twins are abstract. Some say they are like humans. Others say that they can change shape. On occasion, when artists attempt to render these twins, the people's ocean counterparts, they turn out to be nothing more than innocuous eight-legged octopuses.[6]

These *imbu* twins are given names. Sometimes the child's mother names them, though oftentimes mothers have dreams in which their child's 'ocean twin' tells her their name. They also tell the mother what their identity is, their health, or perhaps the emotions that they are feeling. The communication between the mother and the *imbu* through dreams is then explained to the human child, who is asked to always remember their twin – who lives in the ocean.

In the opinion of Forkani activists and the supporter of these traditional communities, working diligently in documenting the traditional wisdom of the local people, few children of Wakatobi have only one name. Yes, they may have official names for formal purposes, at school or for administrative forms, but they also sometimes use the name of their ocean twins. "For example, my older brother, Agus Rianto, his twin name is Umar. We call him Umar whenever possible, so that there are no negative consequences," says Mursiati.

These *imbu* twins, as known by the people of Derawa, will occasionally appear in the form of octopuses with nine tentacles. This makes them anomalous, since, of course, most octopuses only have eight tentacles. Fishers cannot take these special creatures, and definitely cannot consume them either. They must be released back into the ocean. If this is not done, there will be a death or an awful consequence, like a serious illness or accident.

"These *imbu* twins, as known by the people of Derawa, will occasionally appear in the form of octopuses with nine tentacles. This makes them anomalous, since, of course, most octopuses only have eight tentacles."

6 The people of Bajo believe that each member of their community has an octopus twin who is released into the ocean shortly after their births. When there is a problem with a human twin, the community, led by a village shaman, will carry out a special ritual, asking for help from these octopus twins. Up until 10 years ago, Bajo communities were not allowed to catch or consume octopuses. Due to the increasing demand for the animals, however, some make a living by catching and selling them at market, destined for consumption.

Image 5. The embodiment of an *imbu* as an octopus with nine tentacles

There exists a special ritual that must be done to insure the well-being of the people's ocean twins. This ensures that these *imbu* do not meddle in the lives of humans. The ritual is undergone when the *imbu* appears in a dream to voice a complaint, or when somebody falls ill and is not recovering, even after treatment. The ritual is known as *ano'a inu imbu*, and it may even be done when material objects go missing and cannot be found, as if perhaps the *imbu* were coveting them.

These rituals are a sort of entertainment for the *imbu*, an entertainment to placate their spirits, so that they stop interfering with human beings – and their belongings. In the *ano'a inu imbu* ritual, the family should repeat certain phrases to themselves, in their minds and from their hearts. These sayings are known as *batata*. "They are sentences like requests, for example 'please show us where the missing object is, or heal the person who is sick, for we continue to give you food'," says Mursiati.

Together with these *batata*, a family would also make offerings believed to be the food of the *imbu*, like rice, eggs, bananas, betelnut, gambier and tobacco.

The connection between the people of Wakatobi and the ocean is not limited to their interactions with their private and personal mythical beings, such as *imbu.* The relationship extends to all other creatures of the ocean. In general,

the people of Kaledupa will choose an animal from under the sea to represent their ancestors, which they call their *ompu.* These are not their genetic ancestors of course, but nevertheless the people are indebted to them. Their *ompu* are believed to have had good relations with their actual, human ancestors since long ago, and so their descendants must hold these sea creatures in high regard.

In the event of an accident at sea, if a fisher survives, perhaps due to the real-or-perceived assistance of a sea creature, the fisher will extend a vow of friendship towards this lifeform. They will promise to never eat this fish, octopus, or turtle, until the end of time. Mayiati's ocean ancestor is the *katoha* fish, the red snapper. "Since long ago and continuing on, our family will not eat the *katoha,"* says Mayiati.

An elderly fisher of Derawa has their own tall tale about their inter-species friendship. The fisher once sailed a small boat all the way from Jakarta to Derawa, and along the way they fell overboard. Luckily the ocean was calm. Luckier still, they were helped by a sea creature – none other than a shark. They recall feeling confused as they were bumped along towards an island -- by the snout of the creature. Since then, the shark has been their *ompu* and the *ompu* of their family, which they will never be allowed to consume.

Another tale tells of a mother who fell out of a boat somewhere between Kaledupa and Derawa. Villagers found her standing upright in the ocean, and the waters appeared only to come up to her knees. She wore a sarung, the fabric of which was still dry. Villagers were confused. The mother believes that she must have been standing on the back of a giant turtle. From there arose her promise to never eat turtle meat. She has kept this promise, as do her children, grandchildren, and so on, out of respect for their *ompu*, who once came to the aid of their ancestors.

"The mother believes that she must have been standing on the back of a giant turtle. From there arose her promise to never eat turtle meat."

Another Forkani activist, Yanti, short for Nurmayanti, believes that in deed there are consequences to disobeying the customs surrounding the *ompu* – even if unintentionally. It is said that those who disobey their own customs and alliances with life in the ocean will suffer from skin problems, and especially itchy ones. Others who disobey will be haunted by an awful smell they cannot get rid of. When breaking a magical bond, people require magic in order to undo their wrongs. The miraculous cure is namely the burning of fish scales and bones, mixed with burnt charcoal and coconut oil, which must be applied to the body to ease the sensation of itching.

The people of Wakatobi believe that the fishy occupants of these other worlds are immensely powerful. Their natural powers have control over the entire compass, North, South, East, West. They have control over the wind, water, land, animals, creatures of the ocean, the weather, waves, and

nearly all aspects of the human experience – and surreptitiously. So as to not disturb these invisible forces, human beings need to ask for permission before they can travel. The people of Wakatobi prefer the word *batata.*

"*Batata* is a kind of prayer. You see, we here believe in God. However, there are mediators between us. These middle-beings are mythical creatures. So it's better off that we work together with them," says La Ode Karboys.

Just like humans, these mediators are full of character. There are some that are good, while others are evil. Some give freely if only the people are brave enough to ask, others are angry spirits, some sit and sulk, while others seem always offended. Long story short, their characteristics resemble those of the mediators people contend with in the visible, human world, on a day-to-day basis. To calm their tempers and lower their defences, people need to do the rituals correctly. People need to make offerings, most of which consist of rice, eggs, betelnut, cigarettes, or tobacco.

When La Ode Karboys does his rituals, he offers prayers, the sentences of the *batata,* while making offerings:

Iko'ote, jumaga alamu hato
Tompa jaga' aku,
Bantu aku, tullu aku
Hu'u aku te rajaki
(That which guards the four directions of the compass,
Guard me,
Help me,
Protect me,
And allow me to have luck)

All fishers of Wakatobi do the same. Each time they go to sea, they repeat the *batata* while making an offering to that which guards the four directions of the compass, and to those who rule over the sky. Some make separate offers for each direction of the compass – offerings full of confectionaries, such as betelnut or tobacco. As long as these offerings are made with no strings attached, and with respect, they will be accepted.

What is offered, by islanders to those of the ocean, does not need to be expensive. Some only set aside a tiny bit of food or rice for them. When Rozali goes out to sea he always brings a sachet of coffee and a biscuit. Before he sets to fishing, he makes an offering with these. "I throw them out to sea, before saying a few sentences, such as asking for permission," says Rozali.

"Just like humans, these mediators are full of character. There are some that are good, while others are evil. Some give freely if only the people are brave enough to ask, others are angry spirits, some sit and sulk, while others seem always offended."

Then, while fishing at night and using a headlamp, smaller fish once began to jump out of the ocean and into Rozali's simple boat. As one who is aware of the need for conservation, Rozali began throwing the fish back into the ocean so that they would not die. While he did this, he repeated the *batata*, making a request to the keepers of the ocean. "Feeling like I had received too much, I began to throw them back into the ocean while saying 'please give me the type of fish that I want to catch, now that I've saved your lives'," says Rozali.

The seafarers of Wakatobi have another simple ritual that they place their hopes in when storms are brewing, when the waves grow and the currents and winds strengthen. Seafarers are to take an egg, poke it with a needle, and then throw it overboard. This simple superstition gives them hope when they most need it.

Fishers at sea must always be very aware of their surroundings. If mysterious lights hover around the reefs, they will know to return to their homes, even if they are empty-handed. And if the fish continue to eat their bait and run off, this is another sign that something worse could happen if they test their luck.

The same superstitions apply to fishers who smell the scent of a sea cucumber while fishing. This might be a bad omen, as there are sea ghosts who roam the Earth seeking sea cucumbers out. With a whiff of this powerful aroma, fishers say that the ghosts have just returned from a feast of sea cucumbers. After this, fishers become very self-aware, and aware of their boats' interrupting the paths of these seafood-craving spirits. Even with the correct prayers on the lips of these fishers, there may be consequences.

"If mysterious lights hover around the reefs, they will know to return to their homes, even if they are empty-handed. And if the fish continue to eat their bait and run off, this is another sign that something worse could happen if they test their luck."

A few months before the writer arrived in Derawa (in March of 2019), the people of Derawa organized the closure of five octopus-catching sites. These closures were for the sake of the octopuses, so that they might increase in numbers. While these places remained closed off, none of the villagers, nor anybody else, would be allowed to harvest them there – regardless of their excuses.

The process of these closures had to begin with more offerings, these made to the occupants at all six sacred places around Derawa. First and foremost, Kota. Then, the cemeteries near the village, the western edge of the island, the eastern, southern, and northern too. Their offerings were of red bananas, red sugar cane, betelnut, eggs, rice, fried bananas, biscuits, and sweets wrapped in banana leaves. These materials were placed on trays and then carried to the exact locations where the essence of these items needed to be offered, and there they remained.

As for sacred places on land that are to a house of worship, usually there is an altar-like object known as a

parasangiya. If not, there would at least be a *pakani,* which resemble many small 'homes' in which the materials can be placed.

Pakani are in the shape of square houses, like doll houses. Their roofs are made of coconut leaves, while the walls are only white or bright yellow fabrics. *Pakani* stand on a piece of wood known as *katangga* (a local wood often found near the beaches).

Image 6. *Pakani*, a place for offerings made on land

As for offerings made at sea, to the four directions of the compass, trays will be filled with materials, tucked into the a container like a traditional fish trap, known as the *sasa.* Therein the community will proceed to pray as the offering is swept out, into the ocean. This exact ritual will need to be repeated as long as the octopus conservation areas remain closed for public usage.

From the perspective of others, the beliefs of these people, and their rituals, could be seen as backwards, or as a coping strategy for older cultures who were afraid of the unknown, and therefore pretended it was divine. From the perspective of certain organized religions there is debate over the legitimacy of the very unique brand of syncretism that these people preserve.

Apart from this debate, the awareness and spiritual practices that are common in Wakatobi, as previously detailed, have a strong impact on conservation. The spiritual awareness fosters various means by which the environments are managed, so that these environments remain pristine, and remain a sustainable source that the people can rely on – if it is absolutely necessary. This unique cosmology has a hold on people, and restrains them from treating one another, their families, and the environment, merely as something arbitrary.

How the New Order Regime Destroyed Traditional Knowledge

La Beloro was a young boy when Soeharto stepped into power. He remembers seeing New Order ships of the new president arriving in Kaledupa. One event he recalls with clarity is his father placing photographs and books about the previous president, Soekarno, into a tin and burying them, back in 1971. He remembers his father saying that there shall be no more reading, and especially those books that he buried. "If people knew we even had books, we could have been called PKI, back then," says La Beloro. PKI is an acronym for *Partai Komunis Indonesia*, or the Indonesian Communist Party, who were opposed to Soeharto becoming president.

"Through his father and others in the villages, Beloro heard stories about killings, even genocide, happening elsewhere in Indonesia. "

Through his father and others in the villages, Beloro heard stories about killings, even genocide, happening elsewhere in Indonesia. Anyone who raised a soldier's suspicions could be killed, imprisoned, intimidated, or discriminated against. The family of the former regent of Buton was targeted, and it is widely believed that the only reason was because of the power and reputation that this family had. It is thought that the military saw them as a barrier that came between the soldiers and the people.

"The people of Buton have influence because some of them went to school in Holland. The New Order saw them as dangerous, and so they were made into 'commies'. Finally, there were some who committed suicide, though people say they may have been killed off," says La Beloro. Meanwhile, the former regents were seen as threats because they had influence over the people. For this reason they were targeted as PKI, though many of them were not even familiar with the group they purportedly belonged to.

Wa Ode Hajari, a descendant of the Kingdom of Kahedupa, recalls an event from the early days of the New Order. He remembers when local authorities were replaced with soldiers, under the Second Lieutenant. The first policy was to have all people who lived on remote beaches and hills moved closer to the main streets. In the opinion of Wa Ode Hajari and other prominent social figures, this policy was meant to make it easier for the military to be aware of people, to keep track of them and prevent them from forming groups or movements.

To strengthen the bureaucracy, authoritarianism, centralization, and developmentalism, Soeharto officiated Policy number 5, in 1975, concerning local governance, and Policy number 5, 1979, concerning village governance.[7]

Policy number 5 of 1975 is oriented towards the creation of a central government, represented in the area. Meanwhile, Policy 5 of 1979 delegitimizes village governances, demarcating them as level III areas, as introduced in the 1950's. These two policies were accompanied by the introduction of political parties that began to organize village development.

Policy 5 of 1979 unified the format of village governance throughout the entire country. This was a form of Javanization, or the grafting of Javanese governance across all islands. This policy no longer recognized local concepts, such as *nagari*, *huta*, *sosor*, *marga*, *negeri*, *binua*, *lembang*, *parangiu*, which have long existed outside of Java, nor concepts like *limbo, barata,* and *kidie,* which were once important observances in Wakatobi. The policy did not recognize infringements on Indigenous governance, like Sara Barata Kahedupa, and Sarano Wali.

These omissions and new restrictions have had much consequence.Indigenous institutions that once organized social system in the village were disempowered and disenfranchised. The New Order government recklessly wiped out everything the Indigenous systems had functioned to uphold for centuries, or even longer.

"These omissions and new restrictions have had much consequence. Indigenous institutions that once organized social system in the village were disempowered and disenfranchised."

Hasanudin, an important figure in Forkani, remembers when the government began to convert and control the land itself, after having gained official control over it. Indigenous forests became Indonesian forests, and they were used for the greening program. During this period, however, the government did not disallow local people to use and control this land. Instead, because the government had already stripped the land of previous associations, local people felt free to use it for their own, economic benefit.

7 Muhammad Zainul Arifin. *Pengaturan Desa di Masa Orde Baru*. Universitas Sriwijaya: 2019

Aside from controlling land, through their many apparatuses, the New Order could do as it pleased in controlling local economies. Taxes could be introduced by governmental apparatuses, without having to announce the function or purposes of those taxes. For example, government employees could request taxes from ordinary people as they deemed necessary.

"As I recall, at that time, I was about six years old when an official came and stood in my way. I had been off picking coconuts. The official asked if my father had paid his taxes? I didn't know what to say. He said that if my father hadn't paid taxes, I shouldn't be allowed to bring home the coconuts I was holding onto," says La Beloro.

In another case, a boat maker named Alimudin had broken a village custom, the punishment of which was him having to collect coconut shells, which he could use for his own family. However, now that the system had changed, he was required to give them to the corrupt officials.

At that time, villagers still saw taxation as a form of extortion or theft. All aspects of the economy were taxed. The officials counted how many farmers were in the fields, then worked out how much the locality owed them in taxes. If people were unable to pay, the farmers could be sent abroad, far from Wakatobi, as transmigrants. Other times, debtors were held captive for lengthy periods, tortured, and prosecuted.

There were many who were unable to pay these taxes, because previously their livelihoods were only enough to meet their daily needs. What's more, the taxation was sometimes unreasonably steep. To avoid sanctions, many villagers had to flee from Kaledupa. Some went to Buton or Taliabo, or to Obi Island in North Maluku. An entire hamlet of 40 homes was deserted when the people decided to move to Taliabo together. Furthermore, many people from Sudu-Sudu, in Derawa, moved to Buton just to avoid taxation. Once abroad, these groups began to farm, and many of them succeeded. Success stories only encouraged others to leave, even if they were not a focus of these new rules of taxation.

"The power of the government in those times grew to fill every nook of people's everyday lives, including cultural and religious spheres."

Unofficial collectors were commonplace when the New Order first began. If people had just come home from Java or Singapore, officials would search their houses for expensive things. If costly items were found, they would be required to pay the collectors a percentage of their value. If they refused to pay, those items would be kept from them. "They were very selective. They made sure to hold onto people's most valuable items," says Hasanudin.

The power of the government in those times grew to fill every nook of people's everyday lives, including cultural and religious spheres. Ceremonies and rituals were

forbidden, including the act of making offerings at ocean or on land. Sacrificing goats on sacral lands was discontinued. Even the process of *harua,* the rituals in Poanuhuta, and offering up various dishes on the date of Prophet Muhammad's birth were disallowed.

The people were not allowed to visit their holy places, such as the Liang Kuri-Kuri in Kulati, Indolu in Pajam, Indolu in the Banggai Sea, the *peropa* in Sombano, or the Sangia Hagugu. These places were closed off, and tensions were building. Large and impressive traditional buildings in Kamalea, the homes of former kings, were burnt to the ground by the head of the village himself.

Image 7. New Order officials forbade participation in local rituals

The reason behind these new restrictions was simple. These practices were not Muslim ones, and therefore they could be conflated with the practices of communism. "Anything that is not Islamic can be called *bid'ah*. So, anything not found in the Qur'an or *hadits* is evil. That's what the New Order government taught us about our rituals in Kaledupa," says La Beloro.

However, it was not rare that these restrictions were put in place because the people's rituals made others uncomfortable. Any signs of rituals were seen as rebellious expressions of discontent and doubt of the new government.

One example of this was the elimination of a healing ritual known as *te hekombia.* This was usually held in Wungka Wa Tole (now known as Teeku Village). The process would unfold near the three graves of three revered, and somewhat legendary, individuals. These are La Manungkira, Wa Sauleama, and La Koto Gau. The *te hekombia* ritual would be accompanied by oral storytelling from a descendant of Wa Sauleama. Anyone who had a desire to partake was welcome, and could join others in worship. What was problematic were the versus of the story that praised the deceased as strong leaders. The new government would not stand to have their authority undermined, even by the deceased. Officials worried that these rituals would give the people mutinous and rebellious ideas.

This ritual, of Wa Sauleama, is part of an oral storytelling tradition from Kaledupa. Apart from the ritual, these stories would also be passed on from grandmothers to the younger generations, usually as bedtime stories.. The stories were full of local wisdoms and advice. These were linked to the theme of the story, and definitely included hopes that the child would be brave in fighting for their rights -- while never intruding on the rights of others. The stories were peppered with hopes that the children become wise leaders of the people, so that the people would respect their rule in return. For females, stories were different, but were also educative and instructed them how to be their best selves.

"Amongst other more innocent songs, there was one with subtle, social criticism, in the form of advice to the people, which the government had a strong objection to."

The legends of Wa Saulema lost their orators and their audience when *te hekombia* was eliminated by the New Order government. The stories and imparting of them were seen as *bid'ah*, not in line with Islam nor the government. Behind this prohibition was a desire to crush local critics of the government, who would be encouraged by the advice of these stories. These stories were a threat to changes being made to the socio-political realm under the New Order.

Aside from this ritual its oral tradition, the New Order government also forbade the Lariangi Dance. As with the *te hekombia*, this dance also involved an oral narrative. This speech blended with the dance itself, the tempo of the music, and the verses of the songs. The government did not care for the dance as a keystone of the Kaledupa identity. The officials were offended by the verses of the songs, and so it was labelled *haram*, or forbidden, by the New Order period.

Amongst other more innocent songs, there was one with subtle, social criticism, in the form of advice to the people, which the government had a strong objection to.

"And if they heard these verses sung, the new head of our village would actually stop us from fetching water for our daily needs," says Mursiati.

Those verses, if sung in the right tone, singing about how to be a good leader – put the New Order on their toes. As a result, the Lariangi Dance joined the long list of things that were suddenly forbidden. For sensitive rulers, who must always maintain that they are the perfect match for their responsibilities, the Lariangi Dance was subversive[8].

The new governance watched this dance with blank eyes, not wanting to see any values that it had, nor how it helped to raise the women of Kaledupa. Essentially, this dance is a procession that follows the cycles of life for the women. Their first dance would be as girls, as an initiation ritual, the *sombo'a*. The dance signified that they understood the values and traditions of being female, or of being an aspiring bride or mother of children.

The values inherent in this ritual dance were believed to be mirrored by the dancers themselves, from there being passed on throughout the broader social environment. A women from Kaledupa would be pressured to become tough, but soft and supportive of her husband's endeavours. Women were taught to take care of the home while their husbands sought after their livelihood. The women struggled to follow these rules, and to create harmony in their lives. If their husbands were merchants, oftentimes they would disappear for months on end. Couples were taught the value of mutual trust, hard work, and to take care of their children, all the while practicing surrender to *Mo'ori* (the creator), and for the women to pray for their husbands' safe return.

The New Order government were also suspicious of other rituals that had the potential to organize the masses into large groups. The officials were as though allergic to groups. For them, a crowd could only be whispering mutinous ideas, and therefore should be broken up immediately.

"The New Order government were also suspicious of other rituals that had the potential to organize the masses into large groups. The officials were as though allergic to groups."

In Hasanudin's view, the fears of the government were justified. When the people gather for rituals, there is a bond, and this bond does have them feel like the rulers of their homes and lands. From these processions, people are influenced to reclaim ownership.

The political unrest became a topic of discussion among the people. When other

8 During the New Order, the word 'subversive' was weaponized against the people. Consequences of being subversive were to be weighed heavily, and the people around you at certain events would be weary of a subversive person. This label could affect an arrest, jail time, torture, execution, and even the lives of a subversive person's children and grandchildren – through social, political, and economic systems.

rituals were not allowed, new 'rituals' began, using rhymes and rhyming slang. Rhymes about love, wisdom – even political provocation. "So these new 'rituals' planted seeds in the collective. And that's what the New Order wanted to destroy. The government wanted there to be no other actors on the scene," says Hasanudin.

La Beloro and Hasanudin vaguely remember an old ritual from Keldupa that was forbidden by the New Order, and unlike other rituals, the one they recall has never been done again since. They don't remember what the point of it was, because it has been so long since it was done. "The ritual was first stopped in Poanuhuta. By the way, the village's name means 'the center of the world.' Almost all of us on Kaledupa took off to celebrate in Poanuhuta," says Beloro. They arrived to find that the ritual was cancelled, because it involved too many people gathering in one area.

The prohibitions snuffed the continuation of many Wakatobi traditions, and the transmission of local wisdom that comes along with them. The people feared sanctions as they tried to hold on to traditions, such as *pasikamba*, which are simple prayers for fishers to have a good catch. The true values of these rituals were that they brought people into direct communication with nature, and many of the prayers themselves included details of how to read nature, how to read the environment, in order to find fish. Another tradition, known as *issu*, told seafarers when it was safe to sail.

Another facet of these traditions was their teachings about a philosophy of enthusiastic living, known as *gau satoto.* In essence, the core concept is ideological, offering instructions on how society should relate to the larger lands of Nusantara (Indonesia). *Gau satoto* taught that our words and our actions should be aligned, and that they should involve five main values, including *tara* (toughness), *turu* (patience), *toro* (firmness), *taba* (bravery), and *toto* (honesty). This ideology once offered guidance and shaped societal interactions in Wakatobi.[9]

"The space for people to conduct their traditions became narrower as those working under the guise of public safety began monitoring the people, or at least the leaders of the communities."

The space for people to conduct their traditions became narrower as those working under the guise of public safety began monitoring the people, or at least the leaders of the communities. The insecurity of their over-controlling agents was in the air, and it had power – even over the upper echelons of village power itself, who had become the hands and feet of the state. In a matter of months, children would not have had the same exposure to their cultural heritage that their parents, grandparents, and great-grandparents had. In a matter of years, these children would have different traditions and possibly even different values. This observation was echoed by Beloro and Hasanudin.

9 Hadara, Ali, dan Gau Satoto: Kearifan Lokal Orang Wakatobi, 2014).

When populism suddenly toppled the New Order government in 1998, the people of Wakatobi went straight back to their world of folk wisdom. "Forkani's household got to work reviving those traditions. But we only brought back the cultural ones, not any that would interfere with people's newly adopted religious beliefs," says La Bloro. Leaders now had to tread carefully and seek reasons to justify calling certain areas of the islands more holy, or sacred, than others. The Larianggi Dance came back straight away -- but this time as a tourist attraction.

The revival of traditional belief was not easily undertaken. Modern technology and knowledge of the outside world had since crept into their daily lives. "And no way could we force anyone to take part in an old healing ritual, especially because nowadays there are modern medical facilities," says Hasanudin.

The people of Wakatobi are quick to catch on to acculturation, including the degradation of local values themselves. The considerable duration that these outside powers had held them captive now hindered revitalization. One difficulty was in interfacing with school children who had been sent to study on other islands, in Kendari, Makassar, or Java.

"Some kids came home wearing the burka and refused to partake in local activities. Others were brave enough to lecture their own parents over their roles in traditions that they considered 'extra-religious.' Families were divided and some of them fighting," says Beloro.

The people of Wakatobi faced many other problems, such as the government's new initiative aimed at constructing ten new tourist hotspots around Indonesia – to be called 'the 10 new Bali islands,' and Wakatobi had been chosen as one of them. The government planned to make a special governing body to preside over the island. "I received news that our local governors would need to set aside large tracts of lands for oncoming investors in tourism, which wouldn't be overseen by us. If not careful, the whole project could be yet another episode of Wakatobi being controlled by outsiders and by money," says Beloro.

The investors who purchase land and the tourism industry itself would find ways to marginalize local people and local interests. The people would lose their land and become labourers for these foreigners, or simply sit back and watch the industry grow with nothing to occupy themselves with. Local traditions would wane, because surely not all rituals would also match the tastes of foreigners. These traditions would lose their meaning and their context, over time. This had already happened in tourist areas like Bali, which was being used as the role model for these ten new popular tourist hotspots around the country.

"Local traditions would wane, because surely not all rituals would also match the tastes of foreigners. These traditions would lose their meaning and their context, over time."

Identifying Seasons, Reading Signs in Nature

The lives of the people of Wakatobi is inseparable from events in nature. The calendar of social activities, culture, and economy are affected by the seasons. To comprehend the pulse of social life, a person would first need to look at the polarities upheld by these seasons.

Drawing from the wealth of nature, whether in first turning the soil over to begin planting, or fishing, all relies on the conditions of the weather, the climate. For farming, rains and heatwaves must be observed, while fishers need to know the 'seasons of wind' at sea. A persistent wind that does not strengthen or weaken is a favourable condition, for example.

Farming Season & Crop Rotation

Farming in Wakatobi uses only rainwater, because there are no rivers that run year around. A few decades ago, if not enough rain fell, there was no back up or transportation available. So, for hundreds of years, the people structured a society that always watched the bottom line. They ensured that there was always food and, at least, moisture, for the purpose of survival. They did this not by storing food or drink, but by memorizing and charting out the growth seasons of most local plants – so that they are always aware of which one is available when, and there is always at least one.

The people of Wakatobi do not have storage sheds set aside for storing harvested rice and other produce – not like in other parts of the country. Wakatobi's crops are stored in the fields. Over the years, the types of plants relied upon have become so very specific that one crop will be harvested just prior to the next. It runs like clockwork, and there is no need for storage. Without storage, the people's needs are met.

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As the people of Wakatobi understand it, especially in North Kaledupa, the rain season starts in the fourth week of November. If it should be late, the rains will come in the first week of December. However, there is a climatic anomaly that they call *kamarunga*, in which the hot season is shorter than usual. If September and October are dry, that's normal. If there has already been rain, however, it's *kamarunga* – in Wakatobi.

"You could call it an abbreviated rain season. The rains – not often, not heavy. In general, farmers don't waste time planting crops. They'll wait until the end of November, for consistent rains," says La Beloro, a farmer and community leader in Forkani.

Once the rain starts, it continues until March. In April, the heatwaves return – only to be interrupted by rains in May or June. In these months it falls in greater amounts than it does between December and March, but is quick to end. The rain pummels down for two or three weeks. The people of Kaledupa recognize it as the "short rain," *temora tubigalaga*.

The name of these strong-but-brief rains recalls the past, when villagers built their houses' supports, known as *gelagar*, from bamboo. During the apex of heavy rains, villagers would run out of firewood and burn the supports of their own homes – rather than going out beneath the torrential downpour. "That's why 'temora tubigalaga' only happens in this season, between May and June," says La Beloro.

After June, the sun comes out and stays strong until October or November. In December, the cycle of seasons begins again. The rain comes down again, right on schedule.

Based on this cycle, the people of Kaledupa recognize two main planting seasons, the first being the main wet season (December-March), and the second occurring under the brief burst of heavy rains (May-June). The people of Eastern Kaledupa plant and harvest at different times than those in the South. For the people of North Kaledupa, December rains are the main planting season for corn and root vegetables, such as casava. During the brief rains of *temora tubigalaga*, however, they tend to only plant corn. Due to the short length of the rains, the corn is given just enough time to grow – not too short, not too long. It will then be plucked and boiled.

Meanwhile, for the people of South Kaledupa, planting patterns are quite the opposite. Temora tubigalaga is their *main* season for planting – for both corn and casava. This short season is characterized by marine winds, and growth would not be possible without the rich southern soils. Marine winds bring more water, shaping root systems with greater speed. Therefore, this short blip of heavy rains is just long enough to make plants strong – at the very start of the dry season.

These great marine winds have much effect on the casava. The people in the South do not use the sprouts directly from the casava, because they are usually already mouldy – from the moisture brought in on the winds. Like it or not, they will have to venture to the Northern parts of the island to find healthy sprouts.

" These great marine winds have much effect on casava. The people in the South do not use the sprouts directly from the casava, because they are usually already mouldy."

During the primary growing season in South Kaledupa, aside from corn and casava, people also plant soya beans (*lore*), root

vegetables (*kano),* and other vegetables. Traditionally, soya beans were once planted together with corn. The corn would come up first, and then the soya beans would follow. This assured a continual income, from continual growth, for the farmers. Unfortunately, not many people practice this strategy anymore.

As for the *kano* and *opa* root vegetables, more can be found in the North than the South. This is because the *kano* require the shrubs and brush to be burned before they are planted. The ashes of debris, leaves, fallen shrubs, cleared brush, is required as fertilizer. Without it, many root vegetables will not grow large. For best results, the brush should be completely dry when it is burned.

"In the South, we clear new lands in this season under the heavy marine winds. If we didn't, the brush would not have time to dry. We'd have to burn it anyway, and the results wouldn't be optimal for root vegetables," says Mursiati.

In North Kaledupa, corn planted at the end of November or the start of December is ready for harvest in March. Some of the harvest will be for the people's needs, and some will be set aside for later. This will be the main source of food for families, villagers, and farmers through the heavy rains of May and June.

The cassava has a lengthy lifecycle of about one year. Planted in later November or early December, it will not be worth harvesting until October, though sometimes farmers jump the gun and harvest in August and September – if they have run out of corn. The cassava harvest fulfils the farming communities' needs until January or February. To make it last, cassava is often dried through various means (as flour, in small pieces, in large pieces, or as flakes).

Meanwhile, the lifecycle of the *kano* root vegetable is only nine months. Therefore, when planted in December, the *kano* can be harvested in August, though often farmers set it on it early. The *kano* harvest lasts long as a family's base reserve – from four months, or until around December.

"After the *kano* is harvested, the farmers of North Kaledupa rotate crops, planting *opa* root vegetables in September. This vined root vegetable is resilient. It can live in heat and without water."

After the *kano* is harvested, the farmers of North Kaledupa rotate crops, planting *opa* root vegetables in September. This vined root vegetable is resilient. It can live in heat and without water. The rotation system is traditional knowledge that is passed down from older generations. Currently, *opa* root vegetables thrive from planting until the rain season. The root vegetables are usually nine to ten months when dug up. If planted in September, they would need to be harvested between May or June, and they also make a dependable reserve, making ends meet until around July.

The legacy of Kaledupa's traditional crop rotations, from the ancestors of the island, has an important function. Islanders would not be able to manage without it. In the past, when transportation was limited, the people had to ration their reserves stringently – relying on the traditional system of sewing and harvesting at appropriate times. This results in food being available year round.

These accounts paint a picture of the people of Kaledupa, and how they thrive. From the start of the growth season (November or December), until they begin to plant corn and cassava, they should still have cassava left over from the previous year to fuel their efforts. If they run out of cassava in February, they'll harvest corn in March. And from this month on until June, they will make it by on corn – as a staple. When the corn is gone, they will consume *opa* root vegetables, which can be dug up starting in May. Opa can last them until July. And when it is almost finished, farmers know to switch to *kano* root vegetables, which can be harvested in June and can be stored until December, while cassava can be eaten in August and can keep a family going until February.

Continuing onwards, the cycle repeats. For more detail, see the following table:

Table 1. Planting Seasons and Dried Food Reserves of North Kaledupa's Farmers

No	Kegiatan	Bulan											
		11	12	1	2	3	4	5	6	7	8	9	10
1.	**Corn**												
1.a.	Planting												
1.b.	Harvest												
1.c.	As Reserve												
2.	**Cassava**												
2.a.	Planting												
2.b.	Harvest												
2.c.	As Reserve												
3.	***Opa* Root vegetables**												
3.a.	Planting												
3.b.	Harvest												
3.c.	As Reserve												
4.	***Kano* Root vegetable**												
4.a.	Planting												
4.b.	Harvest												
4.c.	As Reserve												

February is of critical importance for crop rotation. Prior to the corn harvest, after the cassavas have been dug up, there is nothing for the farmers to rely on. "That's what happened in Kaledupa in 1971. For more than a week, the people had no food," says La Beloro.

The worst case of famine, however, happened in Bajo, among people who do not farm. They would have usually been able to purchase food, but for once the cassava had been finished, and the corn was not yet ready. Those with reserves kept it for their own sustenance. In those times, rice was much less common than it is now.

During this famine, the people fed on the fruits of mangrove trees. Mangrove fruits cannot be eaten immediately, but rather they need to be prepared. First, they are sliced, then submerged in running waters, before being steamed. This procedure would take away the strong, unpalatable flavours of the fruit.

"From those who experienced it, well, they were all suffering from constipation, because they had to eat this fruit. Just to get the fruit down their throats, they had to combine it with grated coconut to mask the flavour. That was their only option in those tough times," says Yanti.

Aside from the fruits mentioned, farmers also plant sweet potatoes, which they can rely on in times of scarcity. Sweet potatoes are not a staple food. They are only to be dug up after the dry season. The potatoes are often made into cookies or are fried. Sometimes they are stacked up as a reserve, other times only their leaves are picked and eaten as a side dish. Sweet potatoes can also be made into a porridge enjoyed by young children, before the corn ripens.

When transportation improved, rice became readily available in Wakatobi, and the old system changed fast. Farming and consumption patterns changed. Fewer farmers set out to sew crops in vast fields. Rather, they only cleared enough land for their own needs, and many stopped selling their produce. Consumption of cassava become unpopular. It was replaced by rice.

Traditional crop rotation continues until today, but it now occupies much less land. The scheduled planting of corn, cassava, *kano* root vegetables, and *opa* root vegetables, has not shifted. Very few farmers opted to plant and harvest for the sake of sending their produce elsewhere to be sold.

"The people of Wakatobi will only head out to sea if the seasons and monsoon winds are in their favour. "

Ocean Season

Reading the Moon, Wind, and Stars

The people of Wakatobi will only head out to sea if the seasons and monsoon winds are in their favour. There are two types of monsoons in Indonesia, which are the Western monsoons and the Eastern ones. Locals know them as seasons.

In the Indonesian Dictionary (*Kamus Besar Bahasa Indonesia*), seasonal winds are considered a stated as part of the climate, and are preceded by a shift in the direction of winds and rains, or dry seasons, lasting usually about three months. All of this happens in keeping with the position of the sun in the sky, from June until December. Otherwise, in the book *Metode Klasifikasi Iklim Indonesia* ("How to Classify the Indonesian Climate"), an essay by Arrifin explains that monsoon winds follow the seasons, and change patterns about every six months.

West winds are active from October until April. These bring much rain. They come from the direction of mainland Asia and continue down towards Australia. During this period, it is winter in mainland Asia, and atmospheric pressure is higher. At the same time, Australia is very warm, and atmospheric pressure is low. These winds tear across the ocean, across the South China Sea, across the Indian Ocean, stirring up water vapours, contributing to Indonesia's rain seasons.

On the other hand, the East winds, or monsoons, start in April and end in October. These winds are hot and dry winds from Australia on their way towards mainland Asia. During Australia's winter, atmospheric pressure is high, while mainland Asia's summers are warm, and pressure is low. The winds have been exchanged, and now return from Australia over the vast deserts and across only narrow stretches of open ocean water. These are the factors behind Indonesia's hot and dry seasons, known as *kemarau*.

The winds of the Western season (the West winds) pass into Wakatobi at the end of November or the start of December. The West winds bring the rain. However, when the West winds are only just beginning, fishers have already returned home, weary of strong winds and high waves. Usually, fishers will set into farm work, as this is the start of the planting season. Only in January will they again return to their boats and head out to sea.

The fishers of Binongko Island, on the Southeast side of the Wakatobi Archipelago, have their own way of thriving through the changing seasons. These people never leave the ocean at any time during the year. During the West winds, they search for fish in the East of the island, between January and March. In April, there is a transition, and winds begin to arrive from the East. This indicates that the winds have already shifted. In these times, fishers begin to move to the Western part of the island, where they remain until September. Only during

"This indicates that the winds have already shifted. In these times, fishers begin to move to the Western part of the island, where they remain until September."

November, when the winds are minimal from either direction on the cusp of dry season, will they fish freely – in the West of East of Binongko. Finally, in December, fishers will group together in the East again.

"As for the West season, we can't fish in the Western oceans because the waves are high, and the winds are strong. And it's the opposite scenario in the East season," says Rozali.

Binongko Island is in a vast openness between the Banda and Flores seas. Nothing shields the island from the winds from East or West. Binongko's fishers are crafty, using their own island to shield them from the winds, and the great waves that result.

The ocean-going habits of the fishers of Binongko are based on observance of the strengths of currents, either from the West or East winds. In order to predict these currents, they observe the phases and positions of the moon. In their traditional wisdom, they can predict light waves and lax currents from the 8th until the 14th days of the cycle, and again from the 20th until the 29th. In this latter phase, ocean waves will be lower than usual. Waves and currents will be lax. This is ideal for fishing. Meanwhile, tall waves and wild currents begin on the fifteenth and continue until the nineteenth night, or from the 1st to the 7th. To know the ocean, they look to the moon with the naked eye. For a better understanding, here is an illustration of the lunar cycles (⊗ = strong currents, Ⓥ = lax currents)

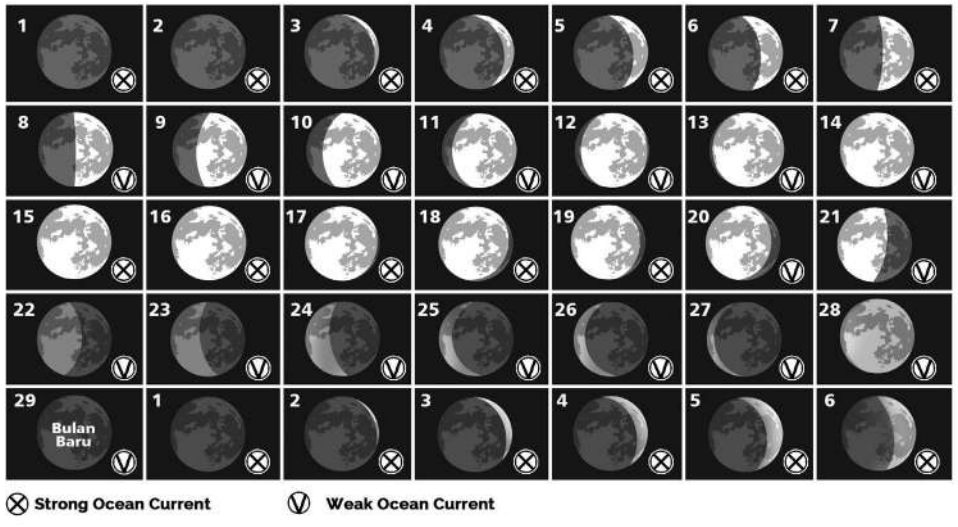

Image 8. Lunar cycles and the strength of currents

An indicator of the strength of the currents based on the lunar cycle above has become the main utility of the fishers. Though there are usually fish available to them, if the moon indicates strong currents, fishing would be fruitless. Even and especially the most common varieties of fish are unavailable at those times.

The people of Tomia began to realize the correlation between lunar cycles and tides when they noticed the moon wane and go entirely black (*bulan mati).* They had no telescopes or apparatuses to observe the coming of the new moon. That is when they realized that they could predict the waxing of the moon through observing the waters. When the tides stopped lowering and began to rise, fishers came to know that a new moon would occur that same night, marking the first stage of the cycle.

Meanwhile, for the people of Tomia whose role it is to deliver goods between islands, this knowledge is also associated with auspicious and inauspicious times of the month. Good days to push out to sea are counted from a black moon onward, being the first, fifth, seventh, ninth, 11th, 13th, 19th, 23rd, and 27th.

The people of Tomia also recognize the rise and fall of tides and use this information to meet specific needs. If the high tide is higher than usual during a half moon, which they call *tay monihi,* this is an auspicious sign, encouraging them out to calmer seas. Meanwhile, if the high tide is high during a full moon, known as *tay tto 'oha*, this is an indicator that it might be best to pull boats inland, onto the beach, and set in on doing some repairs, before bringing them back to the harbour.

Traditional knowledge concerning wind is commonplace in Tomia. At the very least, they are familiar with eight types of wind, which are named *wande sangia (North to South)*, *wande salata (South to North)*, *wande timu (East to West)*, *wande waha* (winds from West the but also returning to the West), *wande betea porimia* (Southeast to the Western ocean), *wande barmolanga* (from the West ocean to the West of the Southeastern), *wande wakampopo* (from the Eastern ocean to the West), and *wande barasumba* (from the West to the Eastern waters). This last type of wind, the *wande barasumba*, has a bad reputation for being obstinate and very unpredictable.

As for the stars, the ocean farers of Tomia can loosely predict the weather based on their orientations in the night sky. For example, the Milky Way Star is called *hotofola,* the **Seventh Star (*bintang tujuh*)** is known as *lamakoruo,* the **Third Star (*bintang tiga*)** is known as *sangia,* and the Morning Star is called *fituo ndea.*

Similar systems are also useful to the people of Kaledupa. Not only to predict weather, but also in everyday life. In Kaledupa, the stars tell people when to sell their products, when to go to sea, and when to sew their crops. It is unfortunate that this local wisdom is fading from the collective memory of Kaledupa. Only certain individuals recall this tradition, and these individuals tend to be elders.

"As for the stars, the ocean farers of Tomia can loosely predict the weather based on their orientations in the night sky."

Observing the Signs of Nature

Nature gives us signs. In observing certain indicators in nature, the people of Wakatobi can predict seasons, weather, and deduce how they should best plan their activities. For example, in Wali Village, Binongko, before the Gregorian calendar, all calculations of time and seasons came from nature. These signs were especially important to farmers.

Image 9. A breaching whale as a sign of changing seasons

One such meaningful indicator to the observant islander is the breaching of whales in and around Wali. When people see the whales swimming from the North to the South during the heat season, this signifies an emergent Western wind – along with the first rains. Whales tend to breach in November, near the end of the dry season.

Those observing this event will inform the leaders, the *tiga tungku* (the head of the village, the Imam, and the head of native customs/*lakina*). The head of the village will send out written invitations for villagers to gather in a congress, in a traditional building, *baruga.* The Imam of the Mosque will also receive a letter. In discussion, the village works out a strategy to prepare the lands for crops. Some farmers will be sent to work immediately, clearing lands and burning rubble. This is because the sign of the coming rains, the whales, has been seen.

The clearing of lands does not always precede sewing crops, however. There are other signs that the people need to wait for, namely the return of the whales – from South to North. This tends to coincide with a swift downpour. Upon seeing this sign, the people meet at the *baruga* once more. This time they pray together, recite the *batata,* and bring foods to share among one another.

In the opinion of the Imam of the Mosque in Wali, La Ode Armin, the imam decides when to plant and when and what to pray. "Our prayers are prayers for

abundance, that our efforts are not in vain, and that all makes of pests remain at a distance from us," says La Ode Armin.

On the following day, a *procession* of planters is led by the imam, head of the village, and *lakina,* after which villagers can then plant their personal crops elsewhere on the following day. Villagers normally plant corn, cucumber, and squash.

Up until ten years ago, these traditions were still prominent and steadfastly observed. In recent years, they have all but stopped. The imam, La Ode Armin, does not know why they stopped. In his opinion, the people no longer need signs from nature in order to predict the rains. Neither do the farmers and the villagers feel the need to pray together before planting anymore.

A change in the winds, and the coming of the West winds, can be signalled by the sudden growth of mosses. Before the port of Binongko Island was built, there stood some very large stones on there, on the outskirts of the island. Some residents still remember that they could predict the arrival of the wind West season by looking at the condition of the rocks. If moss starts to grow in abundance, it is a sign that the West winds, which will bring rain, are soon to arrive. After these large stones were covered for the construction of the harbour, the people had nowhere to clearly observe the growth of moss anymore.

Wali islanders also observe animal behaviour to predict seasonal changes between the West and the East. Even when the East winds are already felt, if the natural signs are not visible, people tend to say they are still experiencing the West wind season. The signs that they look for are those of monkeys and birds. The locals say that certain birds on Tujuh Island, in the Maluku Islands, can predict the winds – because they migrate to the Wakatobi area when their other habitat is hit by the eastern winds.

"This is true. When the birds arrive, that means so have the Eastern winds," says Rozali.

In Rozali's memory, the birds in question are black and about the size of sparrows. Their call is easily recognized by the people. When the people hear them, they know it is time for Wali fishers to head off to Dobo, in Maluku, and to Papua, to harvest the eggs of the flying fish.

There are other species of birds, which the people of Wali know as a type of *duck.* These ducks live on Murumaho Island, not far from Binongko, and are always out diving for fish in the middle of the ocean. These duck-like fowl are an indicator of distance for fishers. If fishers see them in the middle of the day, then this means Binongko is still very far away. If they see them in the evening, around four or five PM, then they will soon arrive.

"There are other species of birds, which the people of Wali know as a type of duck. These ducks live on Murumaho Island, not far from Binongko, and are always out diving for fish in the middle of the ocean."

Other ocean goers of Wakatobi prefer to observe the stars in the sky. Reading the stars is especially useful when one is travelling great distances across many months. To predict the weather, crew look to the stars. When the clouds are in layers and swollen, it is possible that winds will soon come. And in the event of a storm, when clouds thin out and shrink in size, it is likely that the storm will dissipate. Some search the night skies to find a blinking star, and predict that the winds will be stronger if the star is blinking faster.

Traditional Wisdom in Managing Natural Resources

In general, the people of Wakatobi manage their own resources, whether on land or at sea. On land, they manage their crops, the farmers' allotments, and for the sake of these, they also manage water. Unlike many other Indonesian islands, there are no paddies here, because there is not enough water for integrated agriculture-aquaculture here.

As for natural resources and what can be gathered from the sea, villagers oversea the catching of fish along the coastlines and near the beaches. Diversity is vast here, as Wakatobi is in the Coral Triangle. Aside from fish, the people also catch shrimp, squid, octopus, clams, and many other varieties of seafood. In the past, seaweed was grown in a few areas, but namely in Derawa.

Traditional Wisdom of Farmers

On land, produce from farmlands comprises the most important source of sustenance. The other land-based source is the natural bounty of the forests – and Wakatobi has 9.828 ha, consisting of 7.348 ha of community forests, and 2.345 ha of national forests[10]. Threats to these forests are primarily from industrial development, namely metalworkers of Binongko, who require wood for their furnaces in order to shape the metals. Besides this, locals also require wood for their stoves, and for large village festivals. For the past while, the metal-smiths have been attempting to use gas instead of wood, and locals have changed the design of their fireplaces to be more efficient and lessen their impact on the forests.

"Farms and farmlands are set aside for the growing of staple foods, such as corn, cassava, and other root vegetables, and most are owned by collectives."

In 2010, the size of farms and farmlands in Wakatobi were measured at around 9.644 ha, while the farms of villagers were 9.069 ha[11]. Farms and farmlands are set aside for the growing of staple foods, such as corn, cassava, and other root vegetables, and most are owned by collectives. As for village farms, for the most part they only grow coconuts. Within the last year, farmers began trying their luck with cacao and rubber, but the return has not been significant.

10 BPS Kabupaten Wakatobi, 2011
11 *Ibid.*

On land, since times long past the people have practised sustenance farming hand-in-hand with conservation, without pesticides or synthetic fertilizers. When the Central Government forced the intensification of farming, which was commonly known as *Green Revolution* (*Revolusi Hijau*), in the 1980s, Wakatobi's farmers were labelled *too remote* – for a number of reasons. First of all, there is no easy access to the islands of Wakatobi, and this made it challenging for surveyors and planners to enact their plans here.

The second reason why Wakatobi was ignored is because of its landmass. Apparently, it was not worth the effort, the operational costs, nor the cost of distribution of produce. Another explanation is that traditions and customs of these farming communities – in labouring through seasons of sustenance farming – would have been a force to contend with. It was clear that these people have followed the teachings of their ancestors – call it Indigenous wisdom or lay science. These instructions tell them when to plant, and when to open new lands, and when to harvest too.

- **Clearing and Preparing the Land**

In clearing and preparing new farmlands, the communities of Wakatobi, in Kaledupa, Tomia, and Binongko (as subjects in these writings), farmers are enacting a ritual of respect to their ancestors. This ritual dictates land management, conservation, and includes rituals that strengthen community ties. This blend of the practical and the ritualistic provides just enough food for all, and for the ritual's own perpetuation.

When opening lands, farmers need to pay attention to the existence of the *unseen* (*mahluk-mahluk halus)* – through avoiding their known hangouts, such as certain trees. The people of Pajam believe that the banyan tree is the home of spirits both good and malevolent. If one of these trees must be cut down, to first ask for permission, farmers conduct a ritual known as *taupina*, in which betelnut, cigarettes, and chalk powder is placed at the tree before it is brought down.

"Taupina stops demons from bothering the people who cut down the tree. The unseen of the tree will not retaliate," says Mursiati, who only recently became a member of a weaving group in Pajam.

"When opening lands, farmers need to pay attention to the existence of the unseen (mahluk-mahluk halus) – through avoiding their known hangouts, such as certain trees."

Seldom are these trees cut down anymore. This is because they are usually taken down when people are pressed to clear more lands for farming. Farmlands in use today were cleared long ago and continue to be passed down to younger generations.

These beings which are called *farm spirits* -- or "*penunggu kebun,"* are not all invisible, however. In Kulati, Tomia, for example, when

clearing land, La Asiru follows his grandfather's teachings. Before clearing, he conducts a ritual, as a checkpoint, and announces his intentions in regard to the land.

"My grandfather says, we must realize that there are creatures, such as mice, occupying natural places. If we wish to plant there, we should ask their permission. This involves bringing offerings of food. Appease the creatures first, so that they won't bother your crops in the future," says Bapa Tua – La Asiru's local nickname.

Offerings are usually betelnut and rice, or a piece of a traditional food known as *soami.* These are best for proclamations of intent, signals to the occupants of nature, seen and unseen, that Bapa Tua calls *prophets, plant rulers* – "*nabi-nabi penguasa tumbuhan."* This ritualistic proclamation is aimed at requesting support from all beings of the acreage.

Aside from this ritual, farmers opening new lands must also make their intentions clear to one another. Farmlands in Tomia are mostly managed by a collective of local farmers. Many are owned by large families and their extended families too. A member must make their plans clear to all others and tell them that they will be responsible for conducting the ritual appeasement of the land's inhabitants. In this way, others wishing to clear new lands will know.

These are the steps that must be amounted when one is opening lands. There is no room for spontaneous, uncalculated expansions. First of all, one must make offerings to creatures both seen and unseeable. After this, one can clear only a small plot, usually three cubic meters. After this, one can fell a few trees, selecting a few pieces to form a square around this new allotment, which is then left alone for a few weeks. These areas, squared off within branches and logs, signal to others the intention of the farmer at that location. Curious people can easily find out who is doing the clearing. In this way, mutual understanding is fostered, conflict is avoided.

"Aside from this ritual, farmers opening new lands must also make their intentions clear to one another. Farmlands in Tomia are mostly managed by a collective of local farmers. Many are owned by large families and their extended families too."

Despite all of these stipulations, disputes will occur. "For example, when I wanted to clear some lands near to the village, I discovered that the plot used to be worked by an older woman. Though she was too old to work the land anymore, it is proper to ask her permission first. She asked me not to cultivate the land. Then, suddenly, my colleague, Tasman, cleared the lands anyway. I was furious. 'Why would you do that? I wanted to use that space' – these things happen. It never comes to conflict, but arguments, sure," says Nyong Tomia, explaining a case from Poassa Nuhada Tomia.

Another land use conflict happened a few years prior. At that time the development of a solar power farm was underway, funded by the Central Government. The people of

Kulati did not want to give up any of their lands, however. At the time, Bapa Tua had 30 X 40 meters of land that he wanted to donate to the project. However, the land was not his alone to give.

Bap Tua called together a few members of the collective with grandfathered rights to these lands. He explained to them what the government wanted to do, and how they would all benefit. Finally, the group came together and made a unanimous decision to donate the lands to the solar farm project.

Bapa Tua admits that, in persuading those with different opinions, so as to avoid conflict, he used the old principles of *Pobinci-binci kuli.* This is a philosophy, comprised of four main tenets, from the era of the Buton Sultanate, and which spread to all of its encompassing territories, including Wakatobi. This philosophy encourages the acknowledgement of:

Pomae-maeka (mutual fear)
Pomaa-maasiaka (mutual care)
Popia-piara (shared responsibility)
Poangka-angkata (lift one another up in status and esteem)

It's important to note that these values come to have much meaning to the people as they work together and strive for harmonious relations. The first tenet, *pomai-maeka*, encourages deference and caution within the community. The wealthy defer to the poor, but the poor also defer to the wealthy; the strong defer to the weak, and the weak sometimes defer to the strong; the uneducated defer to the educated, but the educated sometimes defer to the less educated ones; youth defers to the elders, but these elders sometimes defer to the youth; men will defer to women, but women will defer to men too, and so on. In this way, each person has rights that are fair, and evenly *distributed* as each will have their turn. All are on the same page in appreciating the context and the autonomy of one other, separately but as a collective.

In the second tenet of *pobinci-binci kuli*, *pomaa-maasiaka*, the value of mutual care, or even love, is promoted amongst all: weak or strong, rich or poor, governance or ordinary people, rulers or ruled, and so on. Under this tenet, the people live together, help one another, are friendly, and get along well.

As for the third tenet, *popia-piara*, each level of a community is expected to keep watch and protect material possessions, morality, and one another's status. In this way they lift one another up and strive to improve.

"It's important to note that these values come to have much meaning to the people as they work together and strive for harmonious relations."

The forth tenet, *poangka-angkata*, recognizes the need for people to be commended when they do good or act for the benefit of the people. It is to be noted when groups or individuals put the needs of the community, the public, and the country over their own, or even simple, but less integral, general interests of the people.

As for the case of the lands that were donated for the solar farm, the people acted together under *poangka-angkata.* The development was to benefit the people of Kulati, who had limited access to electricity, through the national electricity company (Perusahaan Listrik Negara (PLN)) between 6 PM and 6 AM only. With the construction of a solar farm, the people would receive 24 hours of electricity, resulting in an entire village being *lifted up* in terms of convenience.[12]

Returning to discuss the clearing of lands, once approval is given from the collective, the inhabitants of the lands, it comes time for the farmers to open the lands to become productive allotments. To do this, the farmers first need to consult elders who will tell them when are the auspicious times to plant. This is known as *"kutika."* Not only are some days better than others, but some hours of the day are seen as more conducive to succeeding as a farmer. These opportune times are discerned through observance of the stars and the moon. Kutika is the observance of many variables, and dictates the best times to build a house, start a family, and other activities. Kutika is especially important for farmers to observe so that their crops grow large, offering up bountiful crops, and are not bothered by pests.

"... once approval is given from the collective, the inhabitants of the lands, it comes time for the farmers to open the lands to become productive allotments. To do this, the farmers first need to consult elders who will tell them when are the auspicious times to plant. "

When the right time is decided upon, farmers clear the lands. In Tomia, elderly farmers call on younger people from their neighbourhoods to conduct a *hoposale,* or working together – *a team effort.* They will also observe *pameri* or *pohamba-hamba,* meaning *the roles of group work,* in which farmers' wives cook for those who get their hands dirty. Farmers' wives take turns at fulfilling this important role.

"For example, today for three hours we will *pameri* for so-and-so, and then the next day we will *pameri* for another group, and so on. So, for ten people busy opening lands, each individual will work around 30 hours. That's unpaid labour. In this way, ten people can clear a ten-by-ten plot," says Bapa Tua. And after clearing, still the branches need to be arranged in piles, and burned.

12 The solar energy project was intended to increase supply in Kulati and surrounding areas through partnering with the national energy company. However, it seems that this project was not well coordinated. After the solar faction was operational, the national energy company increased operational houses for the full 24 hours. This has resulted in the redundancy of the entire solar energy project, for now.

Image 10. Community members work together to clear land

Lessons are to be gleaned from the above examples. The traditional request for permissions, from the *unseen,* and from the animals, and also the community, and also the collective who also have usage rights – all of these steps are to prevent conflicts and avoid disturbances that could be detrimental to all involved. The farmers manage the land with patience and dodge any foreseeable issues that may distract them from the task at hand.

The gifting of offerings to the unseen beings is also an interesting phenomena to look into, and it should not be regarding as tradition for tradition's sake. The offerings gifted are almost always organic and break down easily over time. According to researcher Nico Wanandy, unseen creatures of the "*demit, setan, iblis, roh halus"* varieties could be conceived of as a type of microorganism, that feeds on these offerings.

"These beings cannot be seen. And that means that these offerings are meant for the micro-organisms, which further break them down into plant food," says Nico Wanandy, in conversation, in June 2020. And within this process, the offerings made will fend off *unwanted* microorganisms, such as gnats, leaf-eating grubs, and fruit fly larvae. In the end, the plants will be healthier. As the farmers themselves see it, however, other unseen forces, such as *"roh-roh halus,"* are protecting their crops.

The utilization of farm waste, either piled up or burned, will also contribute to soil fertility. These are the thrifty means by which the people make up for a limited supply of fertilizer. Working together as a community can be seen as their way of overcoming labour shortages. Populations are only so large here, and many of them disappear out to sea for weeks or even months on end, and so these local *standards of labour* are important to observe.

- **Cultivation of essential crops**

Corn and cassava -- these were once the staple foods of Wakatobi. It was once very rare to have rice. Rice was usually brought in by wealthier families who often went to Java, or the government officials who received monthly rations. In the past, rice was a luxury.

Nowadays, the staple food of Wakatobi is rice. This is because transportation has improved. The people now rely on supply channels, from other islands, and at fluctuating costs. These supply channels can be distributed as they were, for example, during the Corona virus in 2020.

Though rice is a staple food, corn and casava, and other root vegetables, are still on the proverbial menus around Wakatobi. Aside from being a traditional food source, these plants are easy to cultivate in the given geography of these remote islands.

Cultivation of these essential basics is achieved through use of seedlings or shrubs that have been stored from previous harvests, or even passed down from previous generations. Meanwhile, on other nearby islands, farmers insist on only using new and hybrid seeds from factories. No, the farmers of Wakatobi keep it local. They have their own ways, and their own ways of preparing and planting their local seeds.

Corn is grown from kernels that were left behind from previous harvests. Farmers choose ears of corn that are beginning to change, already appearing as miniature cobs of corn, and yellowing earlier than others. These are demarcated by tying the leaves around the corn and stalk. Then they are left to dry, before being chopped up.

"Cutting up these prospective seedlings, one cannot be thoughtless. When the stalk is chopped down, the corn has to be cut up, and it's better to use coconut shells to clean the cob. One shouldn't use wood, especially old wood," says Yanti. If the cobs are cleaned with the wrong materials, the corn will not keep. Using jagged coconut shells, it lasts for years. Using specific materials will deter the advancement of unwanted micro-organisms, those spoilers of vegetables and infiltrators of fruit.

"The kernels are soaked for one night inside of clam shells in a powder of dried clam eggs. "

The preparation of corn kernels for planting, in Kaledupa, is done with a method all their own. The kernels are soaked for one night inside of clam shells in a powder of dried clam eggs. Farmers are certain that this preserves the corn, and prevents it from being eaten up by birds or mice, once it is already in the soil. "For this reason, we cannot be forbidden from taking clams from the ocean here. It's for the farmers," says Mursiati.[13]

One day before planting, the farmers' wives will ask other villagers to partake in sewing crops. People from all walks of life come out, from men, women, widows, teenagers, and small children. This is how knowledge is passed down. The older men teach the younger boys. The older women prepare meals, sometimes from home, and sometimes in the fields – using what is available to them in the surrounding area, such as moringa leaves, and other common vegetables.

13 Not just for preparing pods / seedlings, giant clam shells are also used to bury the people of Kaledupa. It is especially important in burying young men who never married. The shell is placed into the grave and buried with the person. Women, however, are usually buried with a mortar – as in a mortar and pestle.

The head of the families will start the process off. First of all, they turn to face the four directions of the compass. This is known as *belai.* After this, they dig four small holes – to start the process, while reciting *batata,* and making offerings of betelnut. Only after this can others begin to plant. Specifically in Tomia, farmers must wait exactly a day to start planting, after this ritual is completed.

The stick that is used to make the first four holes in the ground must be a strong and resilient wood. Easily-breakable sticks are to be avoided. This stick is to be saved and reused every time planting season comes. Usually it is propped up against poles around farmers' shelters, or it is tied to a stump where land has been cleared. It would not be a good omen if this stick were to go missing, or to be accidentally burned.

La Ode Buke, another Forkani activist, emphasizes just how important this stick is to the community. "Some believe that if this staff were to break or go missing, the corn would share the same fate, and the harvest would come up short," says La Ode Buke.

It is not uncommon for strong winds, known as *tambusisi*, to channel through and touch down in this area. If the farmer's stick falls to the ground, farmers will stand it upright it again. In keeping the stick upright, farmers are ensuring that corn grown on slanted slopes, will still rise up from the ground and grow tall – through rain or strong winds. For this reason the stick is not kept indoors, because the act of righting it – after storms, especially -- is symbolic of the upkeep of the crops themselves.

Following the initial ritual, the leader will let others know how far apart to plant seedlings, the distance between one hole and the next (approximately one meter, for example), and will train the kids and teenagers how best to toss the seeds.

"The stick that is used to make the first four holes in the ground must be a strong and resilient wood. Easily-breakable sticks are to be avoided."

The next stage involves planting crops together as a community. The people assemble in two lines, with the men in the front and the women behind. The men make the holes with staffs, and the women insert four or five corn kernels into each hole.

"Grandmothers are very good at planting. They don't need to bend over anymore. They can just toss them right into the holes as they go. They

score every time. Children, however, squat down and put their hands into the holes," says Mursiati.

While planting, people observe a reasonable level of chatter. Eating, however, is not allowed in the area of the allotment subject to planting. If hungry, people head to a rough shelter. They believe that, if we walk while we eat, the mice will be in tow.

Planting requires that everything line up perfectly, and no holes can be trod upon. Surprisingly, without using string to measure, the holes tend to line up perfectly. This is not easy, considering that farmlands here are not flat, not like those in Java. These farmlands are crooked, leaning, sloped – clinging to the edges of hills, and yet the plants come up in neat rows.

Wa Ode Hajari says that, when planting corn in the village, farmers need to check where the moon is in the sky. "When putting corn into holes, we have to be facing away from the moon's last observable position. This is so that the corn doesn't get eaten by mice," says Wa Ode Hajari.

Another quirk of the island of Binongko involves the division of labour when planting. While on other islands, both men and women partake in planting, in Binongko, women do most of the planting. This is because the men of Binongko often head out to sea, and sometimes disappear for months.

A female farmer of Wali Village, Binongko, Marwati explains how women first make the holes in the earth, and then drop three pieces of corn into it. A challenge to the people of Binongko, this earth is usually peppered with broken pieces of coral. To work around this, the staffs used in making the holes need to be sharpened, or they use a crowbar to break the coral. "After the holes are made, we put a little sand or dirt into that hole, then the seeds go on top and are covered with dirt or sand," says Marwati.

"Planting requires that everything line up perfectly, and no holes can be trod upon. Surprisingly, without using string to measure, the holes tend to line up perfectly."

Not only one type of corn is planted. In Kaledupa alone, a few types of corn are familiar, such as *gandu makuri* (mostly yellow), *gandu fungo* (dark purple), *gandu pullu* (dark corn), *gandu buri* (mixed reds, yellow, white, and purple), *gandu pullu fungo* (purple waxy corn), and *gandu pullu mohute* (near-white and waxy corn). In Tomia, the people at least five variants of local corn, such as *fullu ponga*, *mohute*, *bolombo*, *pulla*, and *kelokonde*. Meanwhile, in Wali Village, Binongko, people recognize a few types of corn, which they call *gandu pulu*, *gandu moriri*, *gandu parangi*, and *gandu kapute*. These four types of corn have uniform stalks and leaves, but the kernels on the cobs are varied in colour and texture.

After the corn begins to grow, the people of Kaledupa and Tomia then plant a few types of other plants, such as cassavas, gourds, cucumbers, sugar cane, and sorghum. These plants are interspersed, one after the other, between

the corn, and require a little bit of soot from past brush fires made when clearing the lands. Cassava farmers always place them at an angle, believing they will grow best this way.

In Binongko, to start with, communities only recognized two types of cassava. These they distinguished based on their *laa'a* (stems). The two different stems are the called *laa'a yanda* and *laa'a ndoke.* Both of these require a long time, nearly two years, to grow. This became problematic and did not sustain the communities. The people were finally forced to reach out and obtain other varieties of cassava, ones requiring only six months to one year, such as *laa'a bagoro*, *laa'a inggrisi*, *laa'a wungo*, *laa'a kalambe*, *laa'a koicu*, and *laa'a jampea.* These types of cassava are brought in from other areas, such as Buton Island and the Maluku Islands.

The people of Binongko plant cassavas in a traditional way. They believe that, in order to grow large root vegetables, cassava seedlings need to have a tiny cut made on the backside, and that they must be planted upside down with the protruding leaves facing downwards.

There are different ways to plant cassavas depending on the season. In the hot and dry *kemarau*, the stalk of the cassava plant should be cut down a little, down to 40 CM, so that the cassava plant can conserve energy and survive. On the other hand, in the rainy season, the cassava's stalk is cut down to 20 CM. The plant's soil should be left unsettled, and not tightly packed down or compressed.

As for soil that is full of chunks and shards of old coral rocks, over many years the local people have developed a workaround, using bamboo. A section of bamboo is cut, in a closed-off section, a plant – like cassava – is planted inside, standing up straight. Farmers crack into the coral rocks with tools, such as crowbars, and then insert the bamboo into the hole. "Over in this area, cassavas won't grow if they are planted at an angle. We don't know why. Perhaps because there is so little rain over here," says Marwati.

When it's time to plant casavas, the people of Binongko recite a verse of the *batata*, as follows *"Soo nabi rangga-ranga, hokolo paha hokolo wici."* This saying expresses their hopes that the plants will branch out and become very large, like thighs and calves.

In Binongko, cassavas don't need to be planted after the corn. They could be planted earlier. They could be planted together. And the same goes for other vegetables, some of which are planted casually and at random around the farmlands – not having to wait for the corn to rise.

"They believe that, in order to grow large root vegetables, cassava seedlings need to have a tiny cut made on the backside, and that they must be planted upside down with the protruding leaves facing downwards."

"It's up to us when we'd like to plant, so long as it's rain season," says Marwati. As for fertilizer, the people of Binongko use a mixture of cow dung and ash.

Locals make use everything, including the corn husks, which they call *katambari.* These function so as to close off, and kill, wild grasses that grow around the *kasubia* trees. Aside from this, husks will also keep the soil cool during kemarau, delaying the growth of grass during rainy season. Katambari, when weathered, will eventually break down into soil.

In Pajam, however, the farming of cassava is done slightly differently, namely in that they are planted by men. They make small mounds of soil, find the perfect seedlings, plant them in the earth, and care for them thereafter. Only if a man heads out to sea, and to make a living elsewhere, will women take over their responsibilities as cassava farmers.

There are two bad omens that inform the farmers of Pajam when not to plant cassava. First of all, farmers should not plant if they find mounds of earthworm dung and worm holes in the earth. If cassava are planted, surely they will become worm food. Secondly, planting should not occur when the *mohute* tree flowers. Cassavas planted at this time will not prosper.

For the planting of other vegetables, as with the planting of corn, the farmers of Kaledupa and Tomia will discern a *lucky day* to plant, offer betelnut, and create the three or four holes that commence the planting. Unlike the process of planting corn, which is presided over by the head of the family group, always male, the planting of other vegetables is overseen by women, usually the wife of a prominent landowner. As for sugar cane and sorghum, however, these are to be planted by younger children.

"Unlike the process of planting corn, which is presided over by the head of the family group, who is always male, the planting of other vegetables is overseen by women, usually the wife of a prominent landowner."

Plants most often suited to the tastes of younger children, who favour sweet flavours over others, are to be planted by children. Both sugar cane and sorghum are favourite snacks for young ones. While sugar cane is commonplace and enjoyed by many, how is it that sorghum can be enjoyed?

"Well, it tastes sweet. In the past we used sorghum to make food, but these days we don't often plant sorghum anymore. This is because nowadays we eat rice," says Yanti.

Apart from being gnawed and slurped, sorghum is also a simple play thing for the children, who pop them in fires to watch them explode, because they contain bio-ethanol.

In Tomia, sorghum seeds are used in a few dishes, and can still be found in the fields, though in limited numbers. There is just enough to be used in specially prepared dishes for the last day of Ramadhan, Idul Fitri.

These varied methods and beliefs concerning planting have been born from the experiences of the farmers, passed down from generation to generation. A few of these traditions

seem logical. For example, years ago only local seeds were used, but this was only because transportation was not available. It was not because the farmers were especially stubborn or resisting change.

In those times, communities still got around on rustic sail boats. Importing was irregular, subject to delays. Journeys lasted for months. In certain seasons, Wakatobi would be as though closed off entirely by the elements. There was no other way. And this is when farming practices were refined, because there was no alternative food. Unique strategies of subsistence farming emerged, using local seeds, supplying the local people with sustenance.

The limited populations of the islands also forced the people to delegate roles, differentiating between males and females, between youth and elders, in the processes of preparations and planting. Males play a role at the start of the process, before women, older people, and children continue where they leave off.

Aside from the small population size, the delegation of roles is also necessary in lieu of seasonal changes. Men have to head out to sea when the season is right, which is why they cannot stick around to harvest that which they began to plant. This transition, of the village continuing men's work, is symbolically acknowledged in specific, local rituals.

Though some view it as superstitious, seeing worm refuse as a *bad omen* is not necessarily a mystical connection to make. Earth worms come to the surface only if there is benefit to them, perhaps to source moisture, or escape an excess of it. Most often, worms will come to the surface during rains. To reach the surface, they will dig their holes, *shovelling* the dirt out, and forcing it out onto the topsoil. For this reason, worm droppings are an indicator of problems beneath the topsoil. It would be wise to not waste time planting in these areas.

Restrictions on the volume of conversation and noise, or restrictions that prevent planters from eating while they walk – are for fear of inviting pests such as mice. It is believed that these creatures are fond of noisy, bustling happenings – and especially if there are crumbs for them to eat around the allotments.

"Men have to head out to sea when the season is right, which is why they cannot stick around to harvest that which they began to plant."

The drastically different ecotones of the islands, and especially in terms of soil, necessitates varied approaches to farming, in keeping with soil conditions. In Kaledupa and Tomia, conditions are hospitable. Soils are rich and fertile, and clean water is fairly easy to come by. This is unlike the situation in Binongko, where the land is full of broken pieces of coral. To make it by, the farmers have to be creative, and this is

Superstitions around Men as the Holders of Money

In managing natural resources in Wakatobi, men and women have their specific roles to play, whether involving the terrain or the ocean. An important distinction is that women here hold on to the money and deal with financial matters. Income from farming and fishing is to be handled by the wives of the communities. If a man requires money, he will have to request it from his wife. "There are superstitions around men holding on to money," says Mayiati, conversing on the porch of a house in Derawa.

In the windy seasons, when currents are strong and waves tall, the men are forced to stay on land, where they take to farming. The weather factors into organizing planting season. As soon as the winds cease, however, the men disappear out to sea. The role of tending to the crops becomes a female one. Women must also do the cooking, raise the children, and keep the house in order. In the event of crop failure, women must search out a food source elsewhere, be it wild plants, leaves, vegetables, or fruits from the forest.

The main role of the women of Wakatobi, however, is in keeping their homes in order. For example, Mayiati must take care of her family and the crops by herself, because her husband is often at sea, working on commercial fishing boats from Malaysia. Each day, Mayiati wakes at three in the morning to bake bread to sell at the market. The morning rush ends at around seven. After this, she fires up the stove and cooks for her family. At ten she will have finished washing up from the baking, and from breakfast.

After the kitchen is clean, Mayiati sets to bundling up seaweeds for export, until four in the evening. After this, she cooks dinner for the family, and is usually free again by six or seven at night. Mayiati then cleans the house, and at ten or eleven at night, she finally takes a rest. If any of her children are sick, Mayiati cares for them throughout the night – before rising again at three in the morning and starting again.

For Mayiati, her responsibilities are not a burden, but rather she sees herself as merely helping out her husband. However, when her husband is home, Mayiati's role continues unchanged. It is not made easier. "I feel sorry for my husband. Commercial fishing is not easy work. If I can help him out, why not?" asks Mayiati.

There have been cases in which men leave the islands and never return, or they return after many months away, and sometimes after multiple years. Sometimes the men of Wakatobi get stranded elsewhere, stuck without money, with their boats damaged, or because they have gone off and married again, elsewhere. If any of these situations occur, the women are left with the same workload, caring for the children and the crops, but without any income from the men.

These factors are considered part and parcel of the social system of Wakatobi. Widows, older people, and women left behind by the men, receive extra attention from the communities. A portion of the harvest is set aside for them, and some of the catch from the ocean too. The people help each other whenever someone falls on difficult times.

The communities of Wakatobi realize that the role that women play is significant, and therefore this work must not go unrewarded. Women are the benchmark in contrast to which men are either seen as dignified, or undeserving. If men are violent or crass in their treatment of women, or their wives, they will be seen as less than others, or they will be ridiculed and shamed by the community.

For more information, the roles of men and women can be seen in the following table.

Table 2. The Delegation of Male and Female Responsibilities in Wakatobi

NO	TYPE OF ACTIVITY	DELEGATION	
		MEN	WOMEN
I.	Farming		
I.1.	Clearing and cleaning allotments	• Felling trees and clearing brush • Burning brush and organic waste	• Preparing offerings • Cooking for the community • Helping to clear lands
I.2.	Cultivating corn and vegetables	• Officiating the start of planting • Reciting mantras • Planting	• Preparing seeds and seedlings • Planting • Crop upkeep
I.3.	Cultivating cassava	• Shaping mounds of earth • Finding seedlings • Planting • Upkeep	• Planting (only in Binongko) • Crop upkeep (if men are at sea)
I.4.	Cultivating other root vegetables	• Loosening the soil • Planting • Making stakes	• Preparing seedlings • Upkeep

NO	TYPE OF ACTIVITY	DELEGATION	
		MEN	WOMEN
I.5.	Harvesting (mostly corn)	• Harvesting • Bringing the harvest from the fields to the village	• Harvesting (especially in Binongko) • Sorting the seedlings • Husking corn • Storing a portion of the harvest for future usage • Picking • Drying • Making offerings • Searching for alternate food sources upon crop failure
II	Fishing		
		• Fishing for sustenance or to sell	• Fishing & gathering assorted marine produce to feed family
III	Cultivating seaweed		
		• Running lines of seedlings tied in ropes in the ocean • Harvesting seaweed	• Tying up bundles of seaweed seedlings with string
IV	Sale		
		• Searching out goods to be sold • Transporting goods between islands	• Sale of goods (if following husband to distant markets)
V	Household		
		• Building and maintaining the physical structure of the house	• Cooking • Washing up • Cleaning house • Parenting • Caring for the sick of elderly

why they invented such practices as planting seedlings in a section of a bamboo pole – before placing it in the earth.

To further fertilize the soil, the people use what is available to them, such as the ashes from burning organic waste, dung from livestock, and a mix of dry leaves and compost. Aside from this, the people use the leaves of the *koiya* tree to revitalize the earth. The farmers have found their own ways of treating the soil, and their knowledge holds its position against the encroaching forces of modernization and technology, including the usage of synthetic fertilizers.

These methods have come about as a result of the creativity and intelligence of the communities in facing difficulties and logistical, environmental, and climatic limitations. While some of their practices have their own logic and subjective rationalizations, they are all quite necessary as parts of the process. So long as their methods assist the farmers in farming then they are essential. These beliefs have a place, a meaning that is land-based, and should be recognized and acknowledged as traditional wisdom -- the lay science of subsistence farming the islands of Wakatobi.

- **Cultivating**

Aside from corn, and vegetables, the people of Wakatobi also cultivate root vegetables such as *kano* and *opa.* Usually, these latter two varieties are planted on specific lands, and separated by crops of corn and cassavas. For seedlings, farmers use small, fist-sized roots. In Pajam, the preparation of these seedlings is the responsibility of the women of the community, while men ready the planting mounds, plant the seedlings, and make stalks.

There are two types of *kano* seedlings known to the farmers of Pajam, the larger of which are known as *"kasoba,"* and the smaller as "*kaulu.*" These two types are prepared in the same way (see Image 11). They are significant, however, in that they require different sized mounds and stalks. For *kasoba,* the earth mounds are larger and require a stake made of round bamboo, five centimetres in diameter, and about one meter tall. For the smaller *kaulu,* however, mounds are smaller too, and stakes are made of bamboo that has been split in half, or even quarters (depending on how many shoots are already emerging from the seedlings), which are then tied together at the top – almost like a little tent. In Pajam, these small and large seedlings are separated by their size, while elsewhere *kasoba* and *kaulu* are planted together.

"These beliefs have a place, a meaning that is land based, and should be recognized and acknowledged as traditional wisdom -- the lay science of subsistence farming the islands of Wakatobi.."

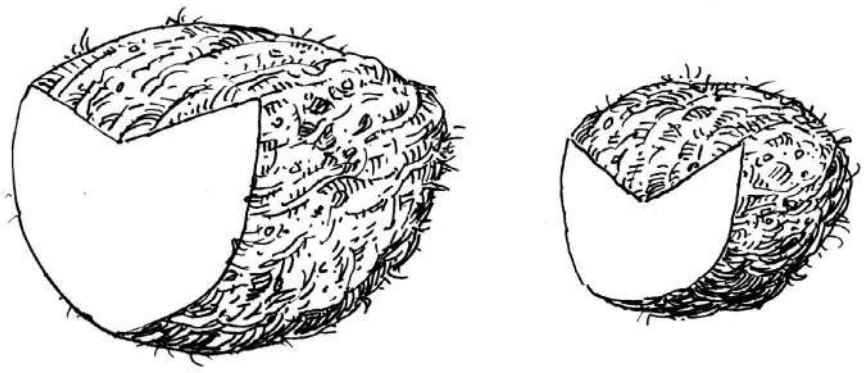

Image 11. Slices of the large kano (*kasoba*) and smaller kano (*kaulu*) root vegetables and associated planting techniques.

To plant *kano* and *opa*, farmers use sticks from mangrove swamps, which they call *ao*, to make the mounds. These long staffs are sharpened and forked into two at one end so that it can stick into the ground and stand without falling over. At the node where the stick branches into two, strips of rattan are wrapped around the two prongs. This tool is used to place the root vegetables. Before this, however, farmers first make deep holes in the mounds within which to place the seedlings. This is done using a large staff called a *tumbu*. Tumbu are large and require two hands to lift and drop, repeatedly, row after row.

Planting *kano* is not an easy task, but the most difficult part is actually the preparation of the bamboo stakes. More often than not, farmers must travel far in search of bamboo, which does not often grow near the farmlands. After this, the bamboo must be sharpened. All of this takes around two days – just to fashion the stakes for planting.

"Planting *kano* is not an easy task, but the most difficult part is actually the preparation of the bamboo stakes."

In Pajam Village there is a special ritual involved in cultivating *kano* root vegetables. After tying the *kano* to its stake, farmers and land owners make a diamond-shaped rice cake (*"kue wajik"*), and place these gooey, sticky rice cakes onto the stake.

The farmers of Pajam also have their own superstitions regarding the planting of *kano*. "We cannot store knives or other sharp blades under the floorboards of our homes, which is where we usually keep them. Because, we say, this would be like stabbing a *kano* root vegetables with a blade. If we do this, we imagine that the vegetables are being cut in two where they are planted in the earth," says Wa Ode Hajari.

As for other superstitions, while the vegetables are growing, the people are not allowed to *hetombele*, which

is a method of cooking that involves heating small rocks in a fire – before using them to cook food, such as *kano* root vegetables. This way of preparing food is forbidden – until the *kano* has grown large. If the villagers *hetombele* their food, cooking it using hot stones, they imagine that the *kano* they planted will be damaged, become stunted, because of rising temperatures under the earth.

In Pajam, the tradition of *hotembele* cooking is an attraction for tourists, which is usually done between June and January, after the *kano* is harvested. If tourists come hoping to see this tradition outside of the allowed period of time, villagers often make a simulation of *hotembele*, perhaps by precooking the food elsewhere and cheating the process a little. The visitors, in turn, receive an education about *hotembele*, and why the real tradition is forbidden at the time of their visitation, which is also quite interesting.

While these superstitions are important, villagers will not be angry if someone does not observe them. Most people would express their disapproval in a polite way. "'Come on, why did you do that? Our *kano* are still growing! Why would you *hotembele* your food? Don't you feel sorry for the harvesters?'," says Wa Ode Hajari, giving a dramatic example of how one might confront someone who has broken a *pamali*, or superstitious observance.

In the cultivation of *kano* and *opa*, as root vegetables, there are many interesting stories. One of these is the story of Wa Nina, written in the prologue, about these vegetables and how they grow in the wild in the forests – even varieties that have been farmed and cultivated for decades. For this reason, many believe this root vegetable to have started out in the forest, before its domestication. Others say that wild *kano* and *opa* started out in a farm, but then the farm was left behind and abandoned.

Within these two varieties alone, there is a great diversity of characteristics. The people of Wakatobi can see from the exterior what the colour and taste will be, and therefore how best to cook it, or whether to use it as an offering in a ceremony, perhaps. To the untrained eye, *kano* and *opa* are nearly the same – not only are they different, but they can be further broken down into subcategories.

The people of Pajam recognize six or seven types of *kano* and four types of *opa*. The people of South Ollo recognize six types of *kano*. In Binongko, *kano* is called *santa*, while *opa* is known as *hopa*. There are six types of *santa* and eight types of *hopa* in Binongko. Meanwhile, according to the people of Forkani, some of these plants came to Wakatobi from the island of Flores. Upon closer inspection,

"While these superstitions are important, villagers will not be angry if someone does not observe them. Most people would express their disapproval in a polite way."

this is a history that agrees with names of these root vegetables. For example, *opa larantuka*, gets its name from a village on the island of Flores, known as Larantuka. Opa *solo* on the other hand, well, likely comes from Solo, a city in Central Java.

The varied morphological traits most striking, separating the *opa* (or *hopa*) from the *kano* (or *santa*), are as follows. The *opa* has especially spiny tendrils and leaves, and sprouts multiple vegetables at the same time. For *kano*, the stem of the plant is not spiny or thorned, and the leaves are shaped like hearts (like betelnut), and *kano* only provides one vegetable – which can be very large.

People's knowledge of the diversity, shapes, colours, flavours, and possible usage of these plants indicates the length of their shared histories on these islands. Until now, this older staple food persists, and is grown by the locals for consumption – but also for use in ceremonies. It's not only *kano* and *opa* that the people are familiar with, however, but also cassava, corn, coconuts, mangoes, and others as diverse as what the forests preserve in terms of fruits and traditional medicine, sometimes necessary for traditional ceremonies.

- **Overcoming Troublesome Pests**

Edi Harto, a young activist from Forkani, says that farmers often go to their allotments to burn organic waste, like dry leaves and sticks, during their downtime, which are periods of maintenance for them. Harto explains that farmers believe that corn will grow better if it receives a few gusts of smoke once in a while. "The process of deliberately smoking crops is known as *tokomi,"* says Edi Harto.

"Farm owners also take time to check on the crops, keeping an eye on them, and protecting them from pests, like birds and deer. There are various and creative ways to scare these pests away, such as mako – a musical instrument made from a piece of bamboo. "

Farm owners also take time to check on the crops, keeping an eye on them, and protecting them from pests, like birds and deer. There are various and creative ways to scare these pests away, such as *mako* – a musical instrument made from a piece of bamboo. This instrument is played by bashing it, and the sound scares off the birds, which would otherwise clean the cobs of corn. Owners also work to close the farmlands off with fencing so as to prevent wild deer from coming in and eating their crops.

Other times, however, pests arrive in such large numbers that it is like a storm. When this happens, the villagers are at a loss. There are no known solutions, and transportation is too limited to go for help. In Kaledupa and Tomia, an unknown outbreak once spread through crops and destroyed everything some time prior to the 1980s. In Binongko, however, diseases are still a problem. In 2017, small white flies, likely mealybugs, could be seen on the leaves of all cassava plants, and in all surrounding villages too. The destruction was massive.

When the situation is not under control, and when it is impossible to get help from outsiders, the people turn to a special ritual, known as *padongkak*. This ritual, aside from driving away the pests and the outbreaks of disease that kill crops, also protects the people from falling ill, and from illnesses that cause sudden death.

Information about this ritual was found when searching through data about Kulati (Tomia), Wali (Binongko), and Derawa (Kaledupa). In some ways, the ritual was once the same in each location. In other ways, it was very different. Currently, only the people of Wali still keep this tradition alive.

In the opinion of La Ode Karboys, this *padongkak* ritual has long since disappeared, in Tomia. Long ago, however, whenever there was an outbreak of disease or great numbers of pests, the people would construct a tiny sailboat, and fill it with food – snacks for the journey. Then, the villagers would come together in the fields where events are usually held. In Kulati, they call these meeting areas *baroga*.

"I remember an older person. They were hitting the *gendang* and shouting. It was like they were calling Satan. '*Lamari…maimo…maimo…*' they shouted. In our language that means 'come, *kitarang* [the sailboat] wants to leave.' After that, when finished calling, the paper boat would be brought to a special place, a place where people go to pray. We call these places *huwane hutak*, or central Earth, like a holy place," says La Ode Karboys.

Led by one elder, the boat would float out into the ocean. The people believe that all makes of sickness in the village would follow with it, inside of the hull, never to bother the people again.

In Wali, this ritual, to dispel and exorcise illness and pests, was last practiced in 2017. As for illnesses affecting human beings, the last time such an event necessitated a *padongkak* ritual was in the 1980s. "Long ago we would do this often, because we were so far from medical facilities. We didn't know what to do when an illness came, such as mass vomiting[14]," says La Ode Armin.

"Led by one elder, the boat would float out into the ocean. The people believe that all makes of sickness in the village would follow with it, inside of the hull, never to bother the people again."

The boat that is built for this ritual is only about one or two meters in length, which is then to be filled with sticks of incense, fresh water, eggs, and cigarettes – such are the supplies that fishers usually take with them on their trips out to sea. In addition, many nets would be included, packed into the boat, to catch viruses

14 Gastroenteritis, also known as muntaber, is caused by inflammation of the walls of the gastrointestinal tract, especially the stomach and intestines. Gastroenteritis is usually characterized by symptoms such as nausea, vomiting, and sudden diarrhea. Gastroenteritis is commonly caused by viral or bacterial infections in the gastrointestinal tract, although a small percentage can occur due to toxic substances, chemicals, or as a reaction to drugs.

and problems and carry them away. Before pushing it out to sea, elders would lead a ceremony, going around the villages, reading mantras to fortify the village.

"After that, we would let it go. We would point to a small, uninhabited island in the ocean and say, 'Go and stay there, it's better than here.' We kicked the bad spirits out, to go and live off the supplies we packed for them, out there on the island," says La Ode Armin.

The rituals happens when the people decide they are to happen. Usually they start in the early morning. The people of Wali believe, in order to foster results through festivities, mornings are best. In keeping with this, when the sun goes down, after dark, is a time that carries with it unfavourable omens and ambience.

"This ritual is to anticipate problems, such as pests or illness, and to prevent them from spreading. If the ritual isn't done well, crops, and maybe even people too, could wither or die. Despite the importance of the ritual, however, everything does depend on the Creator. We are just people, and we can only try to signal for help," says La Ode Armin.

As with the two previous places mentioned, *padongkak* was carried out in Derawa at a time when too many people fell sick and died. The difference is that, in Derawa, the small boat created by the people was also filled with people – statues of people, albeit. Made of wood, these figures are symbols of individuals who might have passed away due to an illness. Often, one rustic human figure will appear to be rowing the boat, while another will seem to be trying to bail out the water from the hull. "The amount of these wooden dummies would depend on how many souls the disease, or the virus, has claimed thus far. Usually there will be at least three figures," says Maiyati.

Besides small statues, the boat would also be filled with *ketupat* rice cakes, betelnut, *pinang*, and other materials – as preserves for the journey. The rice cakes are prepared by the imam's wife, and other wives of prominent Muslims. Aside from rice cakes, they also make *cucur* cakes, and *wajik*, for the *harua* (offerings that fulfil the ritual's requirements, placed on a tray, which after the ritual's end can be divvied up and enjoyed by attendees).

"The difference is that, in Derawa, the small boat created by the people was also filled with people – statues of people, albeit."

Before being pushed out to sea, the people return to pray around a *koila* stone that rests beneath the stairs of the Mosque. Presided over by the imam, the boat is paraded around the village with songs sung by the women. While making its rounds, the people in their houses take some *srikaya* leaves and stomp them into the floorboards of their homes. This is to drive out all forms of illness and bad fate – so that this negativity will follow the boat down the street, and climb aboard.-

After a trip around town, the small vessel is carried to the ocean. The families of deceased victims of illnesses then push the craft out to sea, and along with it, their troubles and longing. While reading a prayer, the leader of the ritual will recite the names of the dead, now symbolized by the statues in the boat, while saying, "...while you head off to another realm, take with you the troubles of this village." Finally, the boat is set loose. Bad spirits and negativity go along with it. Usually, this is done in the early morning, before sunrise.

This *padongkak* ritual has not been necessary in Derawa since the 1980s. There have been very few diseases or viruses passing by. However, only recently, when a few people passed away from a bacteria of some kind, the people did not feel the whole *padongkak* cycle would be necessary. These days, the people prefer to pray at the Mosque like everybody else does.

The myriad ways that people deal with sickness and pests is deserving of a closer and more detailed report. For instance, coming back to the usage of fire and smoke to encourage corn to grow, which may seem quite unusual, is quite commonplace. Here, it is known as *tokomi*, and it works not because the corn somehow *appreciates* the smoke – but because it drives away small pests. The burning of Frankincense, dried hot peppers, and specific types of leaves work the best, they say. Aside from this, organic farms also employ a pesticide made from entirely natural ingredients, shrubs, papaya leaves, garlic, tobacco, and so on. Up until today, to kill off the *Aedes Aegypti*, the carrier of dengue fever, *fogging* is the common strategy.

The process of *tokomi* begins with a thorough clean-up of grasses and weeds, which are then to be burned. This also helps fertilize the soil. Grasses and weeds draw on the nutrients in the soil, and deplete the resources available to the crops themselves. The problem is solved by removing them, and burning them.

The farmlands of Wakatobi are diverse. In one area, there are multitudes of plant species, all with a specific role to fill in the lives of farmers and villagers. Some are a staple food, others provide flavour, some are medicinal, and others are necessary parts of offerings to be used in rituals. Many of these plants are suitable because they also give off a strong smell, which small pests do not find appealing. Basil, citronella, ginger, marigold, artemisias, garlic, frangipani, and many others, help drive away small pests.

The people also employ traditional wisdom in keeping wild animals away. To keep birds and deer away, the farmers either capture them or hunt them. More often than not, the answer is as easy as making loud noises, and they will leave. The tendency towards this latter option bespeaks a growing awareness of the

"The process of *tokomi* begins with a thorough clean-up of grasses and weeds, which are then to be burned. This also helps fertilize the soil."

importance of conservation among the people – who tend not even to kill pests that eat their food.

How sorghum came to the islands of Wakatobi, and its usefulness in deterring cockatoos, is also worthy of examination. Sorghum is not popular for its flavours in foods here, but rather has a very specific function – aside from being the playthings of children. On Semau Island, where many of the people come from Binongko, sorghum is planted specifically to deter cockatoos (*kakatua),* which like to gnaw on stalks of corn, and other crops. The people of Semau plant sorghum around the edges of their fields. Because sorghum is taller than corn and the other crops, it safeguards them from pests, and disguises the crops. It is the assumption of the writer that sorghum came to Wakatobi specifically to get rid of cockatoos.

The *padongkak* ritual can be seen as a manifestation of farming culture in trying to solve confounding, often unsolvable, dilemmas. This cultural expression involves all individuals of a community, and is seen as a simplistic and symbolic way of driving away pests, though sometimes they may be labelled as the *unseen* – which could very well be a synonym for viruses and bacteria, all causes of deterioration, in plants and humans. However, if we look closer still, there is a deeper meaning to be gleaned. There are indicators here – of the peoples' prostration to the Creator (as La Ode Armin says, above: "… everything does depend on the Creator. We are just people, and we can only try to signal for help"), the humility of the peoples' hearts, when all they can think to do is defer to these ancestral spirits – these are their efforts to interface with whatever is the root of their problems, aligning themselves socially in a unifying yearning to be free of suffering. It is people power against *troublemakers,* embodied as imagined spirits – to solve the crisis that brings them suffering. It is this cultural expression that fosters a spirit of recovery among the people, even when difficulties swarm them in droves, and exploit all of their shortcomings.

"Sorghum is not popular for its flavours in foods here, but rather has a very specific function – aside from being the playthings of children."

The acquisition of knowledge, in the swift currents of information that now envelope the islands, regarding healthcare and farming, is now causing people to question the *padongkak* tradition. For the people of Derawa, living close to Kaledupa and Wangi-Wangi, and the people of Tomia, that often go abroad to find work, these traditions no longer have meaning – not in the face of encroaching globalism. However, for the people of Binongko, far from urban centres, and without much access to these riptides of data, this simple tradition remains meaningful, and remains rooted in their culture.

Aside from the encroaching abundance of *info,* medical technology is also improving, becoming accessible, and there are new solutions to old illnesses, and to preventing unnecessary death. Nowadays there are facilities such as Pusat Kesehatan Masyarakat (Puskesmas), Puskesmas Pembantu (Pustu), and Pos Layanan Terpadu (Posyandu); there are professional personnel posted in villages nearby; there is modern medicine. A good example of this can be seen in Binongko. In the 1980s, islanders here would often become sick with uncontrollable vomiting, but since the construction of a health clinic, these symptoms are no longer observed. As for the *illnesses* that befall a village's crops, it can be said that the problems are solved – in so far as the *educative farmers movement*, Penyuluh Pertanian Lapangan (PPL), have been able to reach the farmers of Binongko.

- **Harvest Time Fun**

Across Indonesia, harvest is always a time to rejoice, a time for fun and games. Oftentimes harvest is celebrated with a party, justified as a show of appreciation for the bounty that they thank the Creator for.

In Wakatobi, harvest time is the apex of rural, farming life. While celebrations are not large, they are an opportunity for all villagers to partake in simple festivities together. This rejoicing spills out into the fields themselves. Everyone who helped in planting must come to receive their fair portion of the bounty.

In Kaledupa, the division of labour in the processes of harvesting is simple and clear. Men pick corn. The selection of seedlings, husking, and storage – as a staple, or dried – is done by the women. As for the transportation of the harvest, this is done by the men, and especially the younger ones.

Meanwhile, in Binongko, the harvest is only to be done by the families of the farmers. Older populations, and usually women, will set to harvesting the vegetables before the others. This is because, in most households, men spend much time out at sea.

Mantras and prayers are no longer commonplace in Wali, but they can still be heard in neighbouring Lagongga Village. Farming families have their own harvest procedures here. Before the harvest, they squat down around the crops of corn and cassava and make offerings of betelnut as they pray.

"Mantras and prayers are no longer commonplace in Wali, but they can still be heard in neighbouring Lagongga Village."

Before they start to harvest, the people must take the young corn, the empty cobs without any kernels that they call *dhea-dhea*, and boil it. In this way, even the underripe plants can be used – in local dishes.

The people of Pajam, namely the *talokundolu* (descendants of *indolu),* there is a

special ritual. As mentioned previously, the corn that is first to be harvested is to be offered to the graves of the *indolu*. It is also this way with the harvesting of turmeric, tamarind, root vegetables, corn, bamboo hearts, sorghum, and *kosambi* (a fruit with a sweet but tangy taste which is soft on the inside, like a longan fruit). All of these must be brought, by the ritual leader (*"juru kunci"*), to these ancestral burial grounds. "In my opinion, the point of the ritual is to provide an opportunity for the elders [ancestors] to eat and drink the bounty of the harvest," says Mursiati.

These offerings are not to be made on Friday mornings, perhaps because Friday is an important day for Muslims to go to the Mosque. On other days, however, the procedure begins when a portion of this harvest is placed on banana leaves in the grass or on the earth. There are no prayers nor mantras anymore, however. Yet similar offerings are made before the planting of corn. Usually, after the offerings are made, tremendous rains will follow. Some say that, ideally, there would also be a single bolt of lightning in the clouds. When the rain has passed, some of the food that had been offered will have disappeared.

"It is folk belief that a single bolt of lightning runs off with the food. They say, if we didn't provide this offering, this same bolt of lightning would claim the lives of one of our offspring," says Wa Ode Hajari.

What is most surprising is that the materials of these offerings are not, after this process, for consumption by the people. If it is eaten then something bad will happen. For example, root vegetables and turmeric will not grow again in the surrounding area.

Aside from offerings to the *indolu*, communities also observe a superstition requiring them to consume the bounty of the first harvest within one season. The first pieces of turmeric, and the first cobs of corn, must be offered up to the ancestors first, by placing small amounts of it on the roof of a house. The ancestors, as the elders, must be the first to *enjoy* the essence of this offering.

In Kaledupa, corn must be stocked in front of the farmers' homes. After being place there for a while, the remainder is placed around the houses of farm hands. As much as half of the harvest is offered up to families and neighbours who had a hand in farming.

"What is most surprising is that the materials of these offerings are not, after this process, for consumption by the people."

Corn is then brought to the center of the village. Long ago, those carrying the corn would use rattan baskets. Nowadays they use small pickup trucks, which can usually manage to get in and out of the fields. These older, rattan baskets functioned to measure the amount of produce within them, whereas today amounts are quantified per kilogram.

Women make sure that corn is set aside to be used as seeds for planting the next season's crops. They will also be tied into bunches, usually using the husks of the cobs themselves. These are then tied up on a piece of bamboo,

or on palm fronds, sticking out from the attic, usually above the kitchens. This ensures that these seedlings are wafted in smoke from the kitchen, drying them out, and preventing their consumption by flies and grubs.

Women help to sort and husk the corn, remove the husks, removing the greener husks from the inside – before placing them in the attic. The heat of the sun on the roof of the houses makes light work of drying the corn. This will be sorted and stored as rations for future consumption.

As for the corn that is left over – small with only a few healthy kernels, or unhealthy and gnawed by birds or mice – it is also husked, and the kernels removed from the cob. During this process, usually neighbours – older people and widows – who depend on this second-grade stock, and so they are allowed to collect and prepare it for their own consumption.

After this, the corn is separated from the cob, in a process called shucking, by hand. A line of corn is stripped from end-to-end, and then to the side. "Shucking is usually done while watching TV or gossiping about neighbours. That makes light work of it, because we get angry, and then our hands move faster," says Mursiati, while shucking corn with an impish grin.

Kernels of corn, once shucked, dry in the sun. The level of dryness is known by the sound of the kernels when the tray they are on is shaken, or when a gust of wind blows them around. This is the traditional way, before there were tools to test the moisture content. Once dry, the kernels are saved up in old biscuit containers, such as the Khong Guan brand biscuits, which are air-tight. "These kernels we'll use in prepping meals, feeding chickens, or in case we run out of other sources," says Yanti. After it's all gone, another few ears of corn will be taken down from above the kitchen, if necessary.

The husks are not to be thrown away, however. Rather, they will be used elsewhere. For this reason, husking and shucking are not to be done hastily, without thought to the next steps. Husks are to be cut in circular shapes at their base, using a special knife, then strand after strand is laid out, neatly tied, and stored. Later, these shredded husks are used as resilient, organic bags, within which to wrap a few cobs of corn for a picnic, perhaps. These traditional wrappers are known as *kandole*. They are valued as ornaments in traditional rituals and ceremonies, perhaps because they demonstrate the ingenuity and thriftiness of the people.

"Women help to sort and husk the corn, remove the husks, removing the greener husks from the inside – before placing them in the attic"

"For those without farmlands, or whose allotments fail to produce corn that season, it's normal for them to ask for corn husks from their neighbours when a ritual is ongoing," says Yanti.

The cobs of corn are stored and dried. Sometimes these serve as a substitute for fire

wood, when drying the *kandole*, which requires much firewood – requiring heat for two to four hours.

Farming is much an agricultural process as it is a social process for the peoples of Wakatobi. In planting, harvesting, and preparation, peoples form a collective – as family groups, and as villagers. Aside from solving labour shortages, these all-hands-on-deck processes also unite all in celebrating the local ingenuity and thriftiness, through non-wasteful, thoughtful usage of what nature provides to them. This is the local variant of social solidarity, in which everyone helps each other, and especially those who cannot help themselves, because of their age or physical conditions.

The peoples of the villages of Wakatobi realize in full the logistical limitations of the geography of the islands where they obstinately choose to thrive, and so each and every potential calory is counted and counted on. This can be seen in how they select only the best fruits to be used as seedlings to be planted. Despite the desire to consume the best stock, villagers know that it is wise to eat the older stock first. In the post-harvest preparation of food as preserves, every little bit, even the husks of corn, have a function. This awareness and frugality is the reason why their communities are sustainable – and when it comes to food, they are sovereign.

The people of Wakatobi, long ago, seldom bought or sold produce. They only sold vegetables if there was more than enough to go around, an excess. To fulfil other requirements, such as fish, as a protein, they could barter – more often than not, with seafoods – not vegetables. The value of the items being bartered would be mutually agreed upon (*see the box "Barter System" below).*

Barter System

The communities of Wakatobi are used to bartering harvests and their catch from the ocean. There are a few means of valuation, one of which is known as *tuhura.* For example, if there are eight ears of corn, or eight pieces of cassava, these are counted as one *hura.* As for small fish, these are called *lompa,* and are measured out in cups of uniform size. In this way, the farmer can barter fairly with the fisher -- at the exchange rate of one *hura* for one *lompa.* Though less and less common, this system of barter can still be found in the markets. It can be seen when the Bajo trade with the people of Kaledupa. And when fruits are plentiful, bananas and mangos can be swapped for fish -- *instead of money.* Mangos hold their value here -- at around ten or twenty thousand Rupiah -- and therefore they can be traded for fish of equal monetary value.

Managing Marine Resources

A younger child, perhaps eight years old, walks along with their head bowed and eyes focused at the white sands and the beach, near the village of Wali, Binongko. He briefly bends down to meet the waves that wash up and splay across the sands with a fizz like a carbonated drink. His small right hand lunges out, and he grabs something with his thumb and forefinger. The object appears to be similar to a woolen thread about 5-10 cm long. He tucks it into a pocket. In his left hand is a long bamboo staff. Again and again, he bends down, picks up a scraggly thread, and continues on his way. Never once does he glance out to the vast, shallow sea, which reflects light like glass.

When he's collected enough, the child heads off towards the ocean, until the waters reach his waste. He removes a scraggly sandworm from his pocket and hooks it so that it hangs from a string attached to a bamboo pole. These worms are known as *cipo-cipo,* in the language of Wali. Aside from these, fishers also use grubs, or *kawuwuw,* as bait.

The child tosses the hooked worm out to sea. Soon after, a small fish takes the bait. The boy casts again, and again, and again. In less than two hours, he catches enough fish to share with his household.

"All children in Binongko were like that, long ago. At eight years old they caught fish. They didn't even use a net. This was before we could keep ice. The village didn't have a single ice box yet," says Rozali.

Fishing in this way would only ever attract smaller fish, because the hook and the worms are also small. Besides feeding the household, kids would peddle these little flappers around the village. And the next morning, the children would head to the beach again, fishing and participating directly in village life.

When older, the men of Wakatobi learn to catch different kinds of fish. Though they search for them on land, sometimes they will use fishing nets, sticking to the area of Wakatobi. When they have other responsibilities, as married men with children for example, their catch feeds the family but also goes to market. They no longer go after the tiny fish.

"We aim to catch *sailing fish [ikan laying]*, but any kind of fish will do," says Amursan.

Sailing fish are what fishers call those living in the middle of the ocean. It is as if they sailed there. There are many species of sailing fish, such as the tuna, tunny, white fish, skip jack, *kromo, cucu,* barracuda, *talantala, surui,* marlin, and others.

Aside from sailing fish, the people rely on ordinary bottom-line fish as well. These ordinary

"Women help to sort and husk the corn, remove the husks, removing the greener husks from the inside – before placing them in the attic"

marine animals swim around the vast reefs, coloured like cotton candy, that surround Wakatobi. These are the red snapper, *kameha,* groupers, and others.

If fishers have some money and seek to make a profit, they will employ wooden ships to catch more fish. These boats will go farther, beyond Wakatobi, into different seas, like the Arafura Sea.

Arafura Sea is in the Province of Southeast Maluku, near to Papua and Australia. Arafura is the largest (650.000 km²) and deepest (maximal 3,68 km) sea in Indonesia. Its waters are known to be turbulent, with a rotating current from deep inside. Regardless, the fishers of Binongko try their luck there. It is not a foreign place to them, and they are familiar with its dangers.

Beloro says that the fishing abilities of the people of Binongko, in navigating and catching fish, are legendary in the Eastern areas of Indonesia. In coastal areas of Maluku and Papua, they will surely know the people of this smaller island, Binongko. In lieu of history, the people of Wakatobi are still known as Buton peoples; however, many people assume that Buton peoples are all from Binongko – this is how far-reaching their reputation is. The Papuans call all Wakatobans "the people of Binongko". This is because of the vast breadth of Binongko's fishers' voyages in seeking their catch.

Amursan tells us that, from time-to-time, so many fishers descend upon the Arafura Sea that it looks like a floating city at night, full of quivering lamps out on the water. In the 1980s, before it was forbidden to fish for shark, the fishers of Binongko occupied the front line in the dangerous hunt – only to take the fins and sell them at high prices. In one night, they'd remove the fins of 200 sharks.

"If fishers have some money and seek to make a profit, they will employ wooden ships to catch more fish. These boats will go farther, beyond Wakatobi, into different seas, like the Arafura Sea."

Though shark fishing is now forbidden, Binongko fishers still converge in Arafura. Here they seek out other *sailing* fish, and the eggs of the flying fish. To get these eggs, they use a tool made from bamboo and leaves from the coconut tree.

The fishers' journey, from Binongko to beyond Wakatobi, is necessitated because of changes in the waters around Wakatobi. In the past twenty years, bamboo shacks on stilts, known as *bagan*, have been built in shallow and even moderately deep waters too. "Before these fishing shacks, we only fished from row boats, never far from home," says Rozali.

These changes happened when fishers from beyond Wakatobi, like those from Sinjai and Bone, entered into local waters and built fishing shacks on stilts. Suddenly, the locals could no longer catch fish close to home. They put motors on their rowboats and were forced to go further out.

Aside from interfering people from beyond the archipelago, there is a growing number of fishers in Wakatobi

too. This is in part because of the ease with which fish can be caught. Previously, many men were not interested in fishing, because the only way to preserve their catch was by using salt. "It was tiresome. You come home from fishing, clean the fish, salt it, and dry it out," says Rozali. It's no longer like this, however. Fishers have access to blocks of ice. Fish are stored in Styrofoam boxes full of ice that keep them fresh for two or three days. When they return home, their catch is weighed and put in refrigerators.

Despite new technologies, and despite increased range, and although previous generations employed very simple tools in fishing, present-day fishers do not catch as much as they used to. In just a few hours, fishers used to be able to catch fish around their home waters – enough to feed the family for a day. Nowadays, however, there are fewer fish – because there are more people, from outside, and from within Wakatobi, who are fishers. To catch anything they must travel eight kilometres from the coast, bringing home 10-20 kg after one full night of fishing.

Not all fishers require boats. Some prefer to fish from shore, using a fish trap made from bamboo that can be small or large. These are placed in shallow waters, while larger ones are useful further out. Placement is done when tides are low. They are weighted down with stones. When the tide comes in, the waters flow through, and every morning they will be checked for trapped fish.

Fish traps are popular among people who are not entirely reliant on fishing for food or income. In Kulati and Tomia there are a few fishers who have achieved local fame – for their skills in trapping. They are known as the fish masters (*pawang ikan).* One of these characters is La Ode Karboys.

La Ode Karboys' secret, as a fisher, lies in his understanding of the tides'. On a few beaches around Tomia Island are a few cesspools, or salt-water inlets, that appear when the tides go down. The waters that fill these basins follow a certain path, sometimes carving into rock or sand, and those deeper lines and basins are the lines that the fish trace to-and-fro. This is where La Ode Karboys places his traps.

In placing a trap, La Ode Karboys is attentive to the hills and the land. "In the opinion of our elders, the oceans, the lands, they're connected. The busiest routes of fish are usually between two hills. So that's where the traps go. And if we don't catch anything, we move on. But we needn't go far," says La Ode Karboys.

Aside from such fishing strategies, which usually only supply individuals, the people of

"Not all fishers require boats. Some prefer to fish from shore, using a fish trap made from bamboo that can be small or large. These are placed in shallow waters, while larger ones are useful further out. "

Wakatobi have other ways to supply for a collective. They call the main technique *sero*. This is different than fishing with traps, nets, and rods.

As a technique, *sero* relies on a modified fish trap which encompasses an area of hundreds of meters, usually on a beach. Seen from above, a *sero* appears to be like an arrow that ends in a circle (*see Image 12)*, which is called *futu*. This *futu* is like a large bag that collects fish. The other wings of the trap are known as *kappi*, and the arrow-shaped segments are known as *parojo*. Kappi and *parojo* are like hallways that all lead into the *futu*, where the fish are stuck. The *parojo* can be a hundred meters in length.

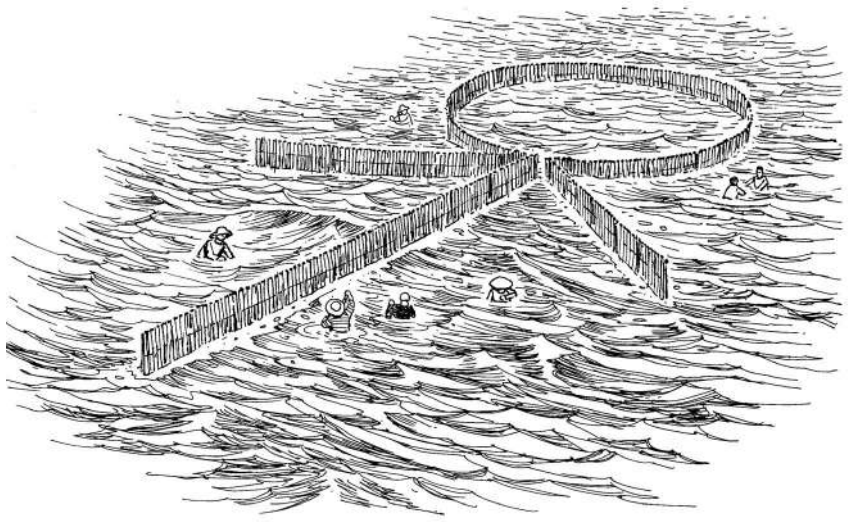

Image 12. The construction of a *sero* fish trap

"Futu, in the local language, has many meanings, such as string, or testicles. Futu inside of *sero* takes on the latter meaning, because they appear to be like testicles," says Mayiati. It's also called this because the fish that become trapped in the *futu* are often many, and of good quality. "Just like a man's parts, they store the best stock," says Mursiati, with a grin.

The construction of the *sero* begins with stacking rocks to create mounds through gardens of seaweed, and into the shallower waters where the high tides reach. The next day, sticks of bamboo are inserted along these rows of stone, before nets are tied up – so that they touch the sands or muddy base. "I say, our grandparents must have been tuckered out, long ago. Even the seaweed had to be cleaned and prepared before the bamboo goes in. Nowadays, things are so much easier. We just use nets," says Mayiati.

The way this fish trap works is, when the waters come up, the fish get stuck in the *hallways*, called *lorong*, *parojo*, and *kappi*, before entering into the *futu*. Trapped, the fish search for a way out. When the tides go down, fishers harvest these fish from the *futu*.

Only in Derawa, fishers still build *sero* entirely from stone. The principle may be the same, but the shape is different. Stone *sero* are built with coral stones, chosen for their elongated, oblong, or elliptical shapes (see Image 13). The organization of these stones is called *tando'a* or *bala futu*. When the water comes in, fish are channeled through the *lorong* of *bala futu* and trapped in the central, stone circle. "Stone *sero* are landmarks here in Derawa," says Mursiati.

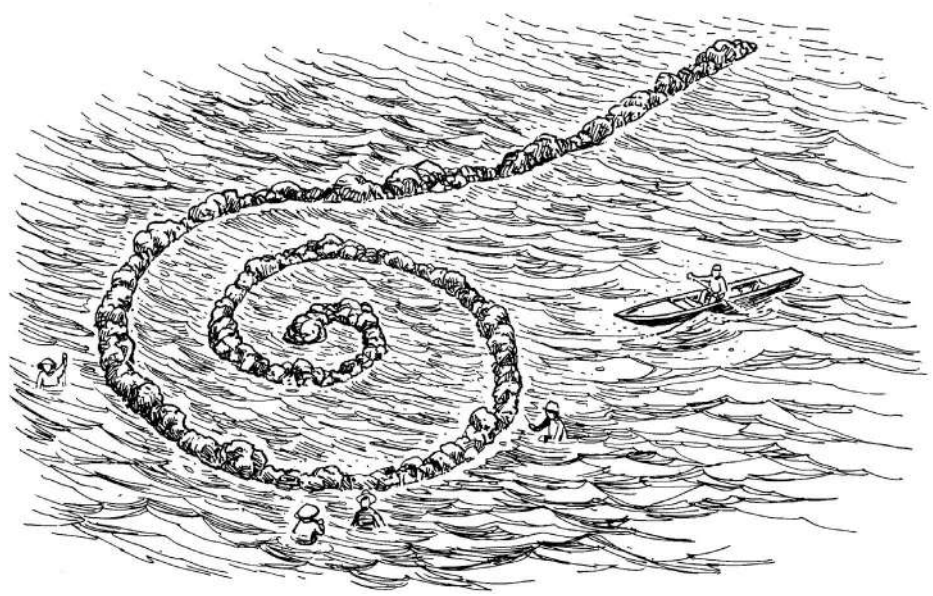

Image 13. The construction of the stone *sero* fish traps

The construction of a *sero* usually begins with a dream. "So, elders used to dream about the arrival of different spirits onto the beach. These spirits might say, 'Eh, I've arrived for the sake of the peoples here. And I'd like to recommend making a *sero* right here'. Usually, the *sero* provides the fish that will be used in rituals," says Mursiati.

These fish traps are only to be built during specific times, and usually when a special ceremony or ritual is on the horizon. The people of one village will catch the fish all together in a crowd. "The Kaledupas come here to have ceremonies and wedding celebrations or castration ceremonies. They often request fish from us, because the Derawas don't build *sero* themselves. They use the normal ways of fishing," says Mayiati.

There are still many techniques of fishing and a diversity of tools that are used around Wakatobi. This is an entirely different area of research, because the topic is vaster than one initially imagines. Forkani once charted fishing strategies and fishers' tools here. A few of these are as follows: *bala (bala filangka, bala*

folio, bala fatu), lamba, folo, sarampa, gasa, fou, kansada, kulu-kulu, foku, sasiri, buani, taho nuura, honofole, pandita, katonda, hekalebo, and *heoluua.*

The women of Wakatobi also catch fish and other seafood, usually from the coastline and on the beach. They gather a great variety of bivalves, like *basika* and *merapau* (*kima* is no longer harvested because it is not forbidden, however). They catch octopuses and *cipo-cipo,* and small minnows, from the fields of seaweed. As for octopuses, the people catch these only to sell, not for consumption. The market price has fallen, however, and so many have taken up farming seaweed en masse.

To catch the smaller fish, the people use a *kadepe,* and a *kulu-kulu.* These two devices are employed when the tide is out. For octopuses, however, they use a tool called a *kai-kai*. This is what is used to hook octopuses and pull them out of their tiny caves on the beach. The animals vary from 5 ounces to 1 kilogram in weight.

For the last two years, the people of Derawa have decided to close down octopus-collecting areas during certain months. Based on their information, from January until March and July until August, the octopuses that are caught tend to be very small. The area is reopened between April-May, and from September-December. Aside from this period of closure, these female octopus-catchers in Derawa can harvest seaweed instead.

The usage of tools and strategies to harvest these *fruits of the ocean* traditionally have been taught to the peoples of Wakatobi by their elders, and their elders before them. These tradition strategies happen to help regulate the numbers of fish, clams, and other creatures of the ocean. Destructive methods and tools that kill en masse are not allowed in the fragile ecotone of Wakatobi. This has been prioritized since the area become a conservation area in 1996 and a Biosphere Reserve in 2012.

"Before it became a National park, fishing with bombs was the norm," says Rozali. There was also rampant destruction of mangrove forests. Though the wood and materials from mangrove forests are seldom useful, they are useful in fixing bridges and mosques, and if ordinary firewood is depleted, it is possible to burn mangroves – especially for a certain few significant rituals.

At first, the people did not appreciate the impositions that come with being a National Park. They perceived the external management as inconvenient and were unhappy with the new limitations. The process of socializing and collaborating with them has taken years, and now they understand and appreciation the objectives of the National Park. "They've got it now. These rules aren't for the benefit of others, they are for the benefit of the people here. All it means is, don't take more than you need, and don't use destructive practices," says Rozali.

"The women of Wakatobi also catch fish and other seafood, usually from the coastline and on the beach. They gather a great variety of bivalves, like basika and merapau (kima is no longer harvested because it is not forbidden, however)."

In fostering collaboration between the locals and the park rangers, Forkani has played a significant role[15]. There now exists a forum between the people of Kaledupa in which fishers and lay-priests are members, and together they are improving the status of the peoples. "In this collaboration we must all have both equal knowledge and equal understanding. If not, some will fall out, and feel victimized," says Beloro.

Forkani also works together with the international organization, The Nature Conservancy (TNC), and the World Wildlife Fund (WWF), who themselves cooperate with the Institute of Social Transformation (INSIST), Yogyakarta. All together, they facilitate various activities and discussions to make sure the communities understand the importance of these endeavours, and agree with them in a non-superficial manner. The various programs between 2003 and 2009 managed to foster a passion that resulted in forums popping up on other islands. One great achievement was having the lay-priests, *pemangku*, who originally were not interested in the program, become part of the forum and discuss the role of people power and collaboration in managing natural resources in Wakatobi. This program has been repeated, through the support of a few parties, including GEP SGP Indonesia, in recent years.

The existence of Forkani and the other forums in Wakatobi function to harmonize conservation efforts with the communities and cultures of Wakatobi. From one angle, the people are involved in the protection of the ecosystem, they do not use destructive methods of fishing, and many of them proactively stand to protect the ocean from destruction (in certain areas more than others). From the perspective of other parties, however, the communities of Wakatobi are granted unusual privileges in being allowed to draw from the natural resources of a national park. This balance is what will result in the continued existence of this unique ecotone, however– so long as it is maintained and supported well into the future.

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15 The Forum Kahedupa Toudani (Forkani) was created on December 25, 2002, by 20 seaweed farmers and fishers' representatives from Kaledupa villages. The name, "Kahedupa," is of course related to Kaledupa, the island; meanwhile, as for "Toudani," this word means "to be missed or remembered." At one point, when Wakatobi had recently become a park, there were many tourists on Hoga Island. Locally, there was much confusion as to why outsiders were managing the local environment so strictly – for the benefit of tourists. To explain and mediate, Forkani was created. Since then, the forum has not ceased. It moves from village to village.

SEMAU

Hui, the Belief System that Disappeared

By: Nirmala Palupi

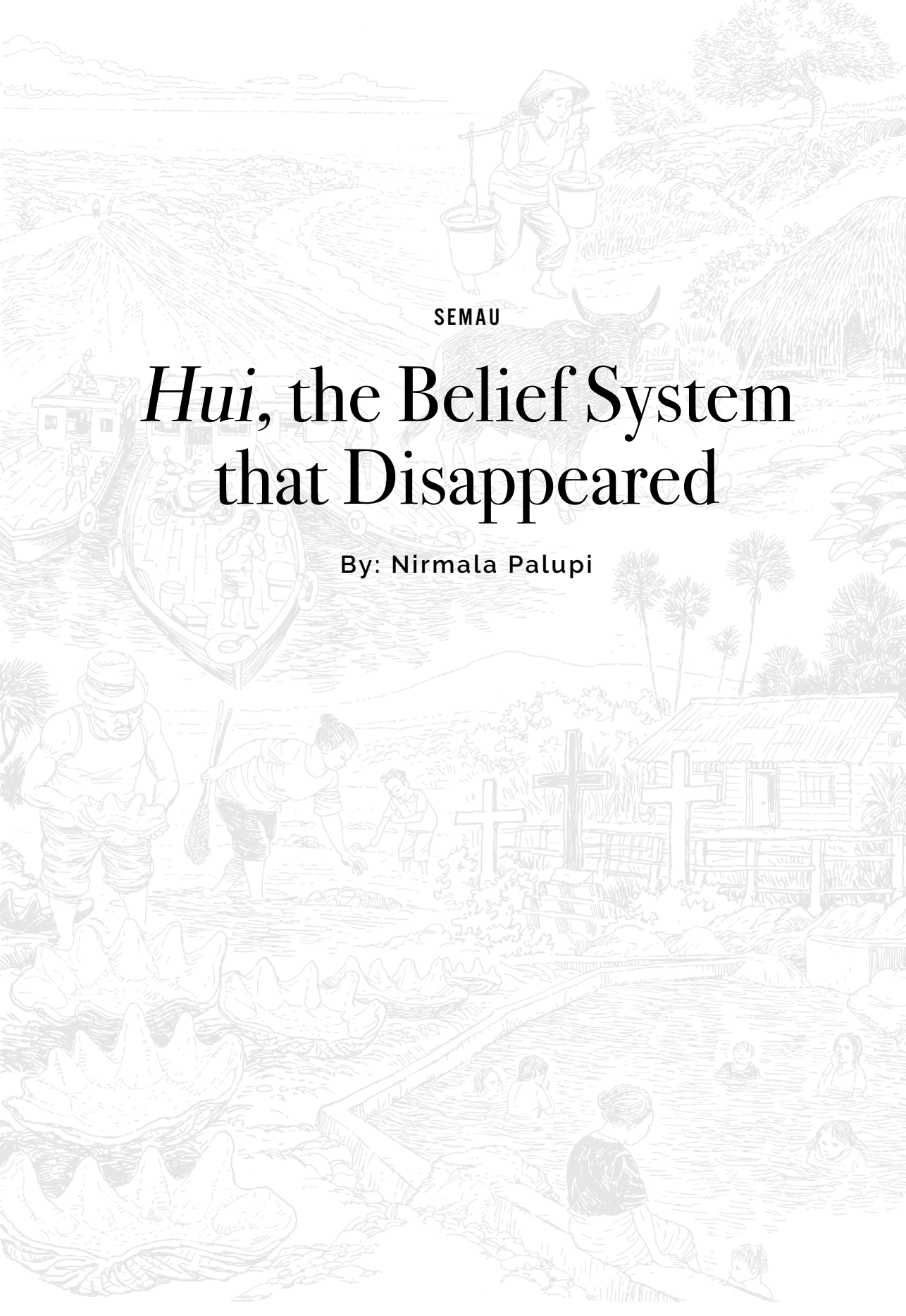

Image 14. A Map of Semau Island

THE wooden fence is tied together at the base and shows signs of having been hit by the motorcycle that sits nearby, caked in red mud.

The hinges of the wooden gate are hanging loose, due to the impact of the motorcycle – when it crashed through, pushing past.

"Boa blingiiiin....boa blingiiiin," a familiar Helong greeting breaks the quiet sound of drizzling rain. In the front yard of this house, which had just been built, a large mango tree drips with rain. From behind the wooden front door of the house, a tall, older man steps out. He is thin and pale, wearing a *sarung* patterned in squares – green, black and red. The *sarung* is bundled up above his knees – in mess of fabric.

"*Boa blingiiin...*come in, come in," says the boy, named Salmun Batu. His brown skin shines, and his eyes appear sharp, but his smile is welcoming. His teeth are straight and his lips are red – a sign that Salmun often chews *pinang*, a mix of betelnut, areca nut, chalk, and tobacco. His jaw is chiselled and strong, and his smooth face has not a single wrinkle – though he is 70 years old or more.

"A *su* rain is here, *kotong su*, it means we should be ready to plant *poteka* (watermelon), *ngae* (corn), *ale* (rice)," he says, while plunking two plastic chairs down for his guests to sit on. His keen eyes dance around his guests as he sits down opposite them, before pulling his chair forwards – to be closer. Even then, he leans forwards to close the gap.

One of Salmun's family members takes a seat next to him. Then, his son arrives to sit on a red plastic chair, holding a box of *okomama.* Hot tea, hot coffee, arrive in the hands of Salmun's wife, who had been smiling and alert since our arrival – from where she stood near some mosquito netting.

"We Semau folk can tell just about any story about this island *e.* Long ago we had a researcher, or whatever, here, collecting data, writing everything down, taking photos or something. It's all gone now though. There's nothing left. See, if the ancestors of this place don't want that sort of stuff to hang around – it's gone. Even memories of Semau will not be left," says Salmun, shifting in his seat.

A weighty silence comes through, and we can hear one another breathing peacefully. One of Salmun's male guests nervously breaks the silence by lighting a cigarette, offering the carton up to everyone present. "In the farm where you work, is there a leader?" asks a guest. "Oh yes. Om Jhon plants the rice fields," says Salmun, pointing to his boy.

In Semau, between years 2018-2019, the rain season *shifted.* It would always arrive in November, downpouring until February, every year. At any rate, in March, the rains would die down. Nowadays, for whatever reason, it is the *opposite.* In March, the heavy rains and winds come every day. "Semau, right now, can't be predicted. Nature is changed now," says Salmun, releasing smoke from one corner of his mouth, stained red with *pinang.*

**

"*Usongkikuk* pahlelo, the *kerontang* is dry. The earth is splitting. Bare feet stir dust with every step. Mangrove tree leaves fall, layered upon the forest floor."

Usongkikuk pahlelo, the *kerontang* is dry. The earth is splitting. Bare feet stir dust with every step. Mangrove tree leaves fall, layered upon the forest floor. Stands of *aren, lontar, gewang* – all that remains are bones, bark peeling away in the heat. On the beaches, the roots of mangroves are exposed by the waves. The hills, savanna, fields of corn, nuts, beans, legumes, sorghum, are shrivelled like pebbles, tossed around by the winds.

At night, the *ngot ulan* birds call like the howls of dogs, connecting through total silence. On that day, at the peak heat of the ten-month dry season, the people were silent in their homes. They were gathering the firewood, stacking it neatly next to the fireplace. From the attic came bundles of tied corn – after three years of being stored – down in the hands of the older women, in a humid silence. Following this, the *laru* that had been stockpiled, closed up in a *nhola*, were opened up again, to be poured into bottles, which were then corked with *gewang.* Pigs and chickens roam listlessly around and beneath houses, breathing heavily. A few are captured, hung up, and tied together. All of the work is done by night, and in a silence, by the sound of distant waves, and without much idle chatter.

For three days in a row the community has been busy preparing assorted preserves, harvested crops, and livestock, for a large festival that they call *hui ulan.* The aim of the festival is to ask for rain during an extended drought – when supplies dwindle and hunger rises.

Beneath a *biuk* tree, a stone is surrounded by offerings. In the middle are wooden *kula*. Rattan mats are neatly rolled up. Pigs, chickens, *laru*, rice, corn, root vegetables, tubers, peanuts, garlic, *poteka*, betelnut, and *pinang* are laid out in a rustic representation, a spread. Nearby, a man with a hard body, lips stained red, sweat on his brow, is surrounded by other bare-chested men. From afar, their chants are clear "*ulan…ulan…*" The man in the middle, with muscles made of clay, begins to move about. The verses of *basan* mantras call forth the rains. The winds cut slowly across the lands, the black clouds roll. Thunder begins to rumble in the far reaches of the sky.

Before the final verses of the *basan* are recited – out to the elements – heavy rain falls like tiny stones, coating dry tree trunks, kicking up a thick dust, and making the leaves on the ground slippery. A pig, tied up in ropes, looks for

Hui

***Hui* is a ritual prayer once observed by communities of Semau. A Hui cycle is undertaken in the vicinity of an *utun bangat*, in the forest, far from the community, or beneath a specific tree ("*biuk*"). The separate clans have their own *utun bangat*, each with its own design specifications. Some are circular, made of stone, and separated into three sections (Putis Lulut clan), others are circular, but with pieces of wood in the middle (Nenobisi clan), and others have small branches, forking off into threes, and are surrounded by stones, and placed beneath specific trees (Tausbelle Kauhlae clan).**

Within these *utun bangat*, the Hui ritual transpires. There are many varieties of the Hui also – depending on the desired ends, which are: Hui Ale Ngae (a prayer for improved harvests), Hui Ulan (prayer for rain), Hui Mukit (a prayer for livestock), Hui In Muki (a prayer for wellness), Hui In Kenang (a prayer for fortification or strength), Hui Ili (a healing prayer), Hui Ikan (a prayer for improved catch from the ocean), Hui Uma (a house- warming / cleansing prayer). The most common Hui that is undertaken is the Hui Ulan (the prayer for rain).

Source : Interview with Salmon Putis Lulut, Barnabas Laitabun, Salmun Batu, March 2018

left to right, left to right. Their tongue juts out to taste the rain water. They drink thirstily, and cry out like a passing train "Auiiiii...uiiiii."

"The full strength of the rain and wind came down before the people reached home," says Salmun. This was a moment that will not be forgotten, and it was also the last time they had to conduct this ritual. The man who presided over the *hui* ritual is descended from the Tausbelle Kauhlae clan, and he is one of few who remain. He is a *dale lamtua* (master of lands) and a *Kaka Ama.* The last undertaking of the *hui* ritual was on Semau Island in the 1990s.

Rain is its own entity, on Semau. It's an indicator that new life is about to begin. Rain becomes the reason why the Tausbelle Kauhlae clan, most of whom are on Semau Island, are ordained *rain callers* – under Fetor Bisilisin's leadership. Fetor Bisilisin even gave the clan allotments of land in the South. "That's the job of the Tausbele. We are rain callers. When the rain season comes but no rain comes, we'll be contacted, and we'll suffer the heat of the sun as we pray for the rain to fall," says Salmun dreamily.

A Great Diversity of Lost Beliefs

Salmun Batu's case and the rain-calling ritual are only a small portion of many related stories – all of which have disappeared. Tens of years ago, before Christianity came, the Helong peoples believed in a God that they called Lam Tua Tuan. In order to meet with this character, they had to build an altar, known as *utun bangat.* They would arrive at *utun bangat* with many offerings, such as *pinang*, cigarettes, tobacco, fruits, and livestock. It was up to the individual. Salmon Putis Lulut from the Putis Lulut clan explains that the *utun bangat* is made of three circles, inside of the other. The smallest circle is deeper set, a step down, and demarcated with black rocks, which separate it from the larger, white circle. "Of the three circles, the largest one is red, because it has been filled with red earth," says Salmon. For the people of the North, however, *utun bangat* is seen as a manifestation of *bungtilu*, which can also be seen in weavings of the Helong peoples. While there are differences between the designs, they are mostly only differences in colour. While the u*tun bangat* is red, white and black, the fabrics of the Helong are red, white and yellow.

"Tens of years ago, before Christianity came, the Helong peoples believed in a God that they called *Lam Tua Tuan.*"

As the story goes, the design for this three-circle altar arose from the dreams of a man named Putis Binongko – a forefather of Putis Lulut. He dreamt that his body was tied up in red, white and black threads. When he awoke, he found that his dream had manifested. He was indeed tied up in red, white and black threads. Binongko decided to get rid of these threads. He rolled them up, dug holes, and buried them. From these three spools arose three flowers, one black, one red and one white, like the thread itself. This was the first location of the *utun bangat* altar. And when construction of the altar

was finished, Putis Binongko moved to Iung Hnoden, where he remained for the rest of his life.

The *utun bangat* of the Putis Lulut clan:

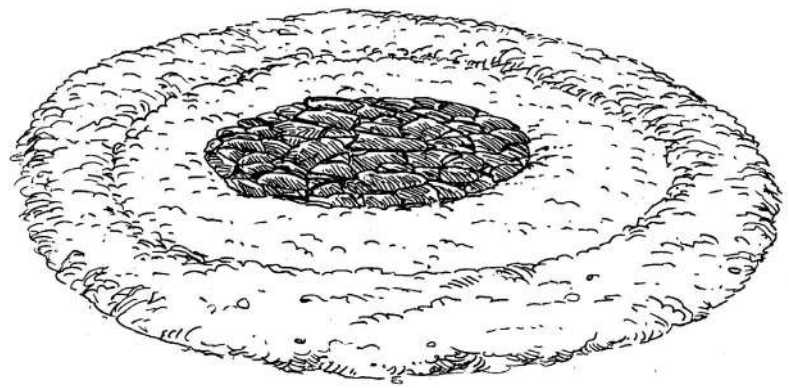

Image 15. *Utun Bangat*, Putis Lulut clan

In the Tausbele Kauhlae clan, the *utun bangat* is a place to pray, and must always be in the forest, beneath a large tree, far from human settlements. Their concept agrees with descriptions of respondents in the South. The *utun bangat* of the Tausbele Kauhlae are always built at the base of a *biuk* tree, specifically. Inside circles outlined in small stones (*batu pelat)*, they place *kula* wood – specifically nodes that branch off (*para-para kayu)*. Meanwhile, on Tabui Island, near to the Liman hills, the Tausbele Kauhlae clan's design incorporates a turtle shell placed in the very middle.

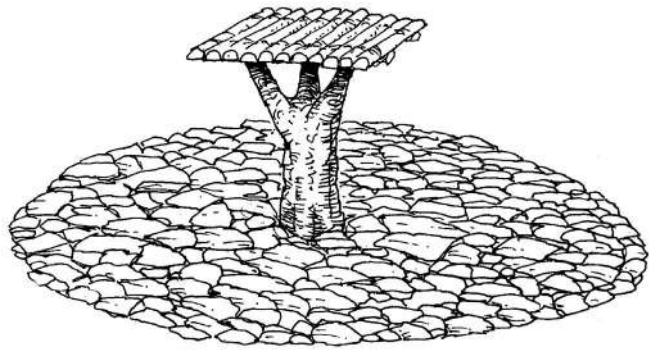

Image 16. *Utun Bangat* of the Tausbelle Kauhlae

In the opinion of Barnabas Laitabun, a prominent figure in the customs of Uithiuhana village, in South Semau, *utun bangat* is a circle of stones, and in the middle *lem* wood (*kalu kanonak / kayu lem)* must be placed. In the area of the *utun bangat*, seven rice plants must be planted (*ale tuwak)* or *waxy* corn (*jagung pulut)* – these specific plants will supply the stock for each planting season.

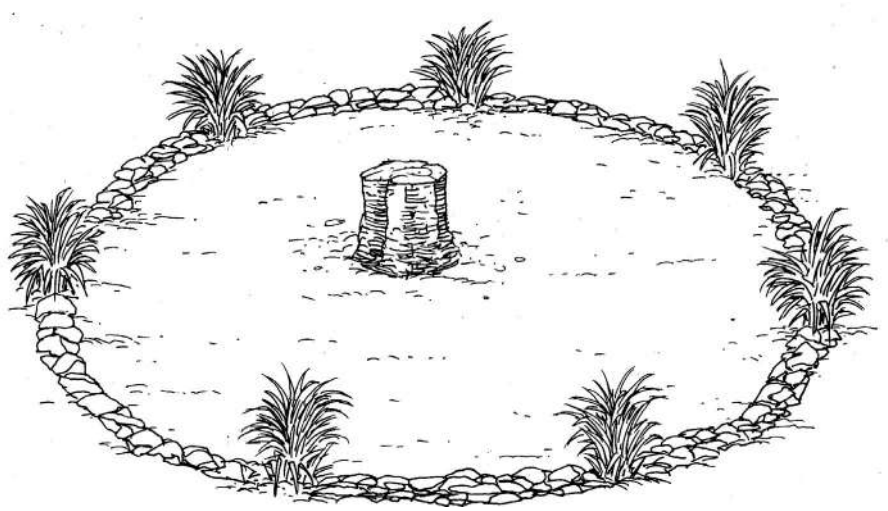

Image 17. *Utun Bangat,* Laitabun Clan

The altars of the Laitabun clan involve the use of large wooden bowls. If rain does not fall, the wooden bowls will be hit, possibly with sticks, to create a knocking sound.

These altars are connective places (*ruang sambung),* between people and higher powers. Rituals are overseen by the figure of the *Kaka Ama.* The ritual is known as hui. Such rituals can have many different purposes, such as:

- *Hui ale ngae* (crop growth ritual) usually takes place as planting of rice and corn commences.
- *Hui mukit* (livestock ritual), is conducted to safeguard pigs, goats, and cows against illness. This is usually done once in a year, between the dry season and the rains.
- *Hui in muki* (ritual for wellbeing) is undertaken by people who seem to be ill-fated.
- *Hui in kenang* (ritual for strength) is a request for fortitude from Lam tua Tuan, so that a person or a community might be stronger or sanctified.
- *Hui ili* (healing ritual). If a person falls sick, their family will undertake this ritual to request that they be healed.
- *Hui ikan* (fishing ritual). A request for greater and larger catch is usually performed during the spawning season of the *uin hnias* fish (at Osalaen Beach), and the *uin lulin* (at Onan Lui and Utun beach).
- *Hui uma* (*housewarming* ritual). This is performed after a room is built and before someone can live there.
- *Hui ulan* (rain-calling ritual) is performed when the dry season does not end when it should, plants have died, and food preserves are dwindling. Hui ulan is the most involved of all hui rituals.

On the island of Semau, there is a governing belief that people should not be too open in telling all of the stories of their ancestors. If ever they were to finish revealing every details, it is thought that perhaps they will die. Barnabas Laitabun confirms this, where we sit in his home. There is next to no record of traditional knowledge and practices here in Semau, because people are scared of dying – naturally. "We could die if we do this," says Bernabas, adjusting his posture.

When the rain dies down, the cold cuts to the bone. That night, Barnabas' house is lit only by a neon light. Though he may be reluctant to reveal everything, Barnabas will talk about farming. Barnabas explains how, after a child is born, the placenta must be hung up near the *kapuk* tree. These trees are usually found in the center, or at the edge, of the village. Each clan decides which *kapuk* tree will be the right one. A stick of bamboo is taken from the surrounding area, and sharpened. The placenta is placed into a sack, known as a *puil hata.* Then it is left hanging there, because it is believed that a child will grow strong and healthy – as strong and firm as the chosen *kapuk* tree.

In farming, Barnabas explains that, before Christianity came, every allotment, all farmland, would have an *utun bangat*, where people would express their desires for greater crops, or for more rain. These altars would be built in specific locations around the rows of crops, as far away from people and the houses in the villages as possible. Seven kernels of corn would be planted inside of the *utun bangat,* and would later be harvested too. The cobs and kernels of these seven stalks would be set aside and preserved for the following planting season. "But since Christianity came to Semau Island, activities like this, the *utun bangat*, have been left behind," says Barnabas.

Under the governance of Priest Ibrahim Haking Laiskodat, the altars were destroyed, because they had nothing to do with religion, in their opinion. They are sacrilegious. It is idol worship.

As for other beliefs that have passed through Semau, the people of Helong once believed in a Sky God, *Lain Dui,* or *Dui Dapa.* This figure was described as the Creator, a steward of all life on Earth. Prayers to this figure tended to revolve around crops, rain, sunshine, health, and wellbeing. The people of Helong also believed in *Dui Dale,* a partner of *Lain Dui,* but one whose power is mostly within the Earth itself. Prayers to this figure would encourage richness of soil – capable of producing more and better crops.

"On the island of Semau, there is a governing belief that people should not be too open in telling all of the stories of their ancestors. If ever they were to finish revealing every details, it is thought that perhaps they will die.."

Long ago, healing traditions would be overseen by a *blipa*, like a shaman. These shamans have supernatural strength and knowledge of medicine – which roots, stems, leaves, flowers, and fruits to consume for health. The *blipa* also know which animals' meat should be eaten or avoided in order to heal. They could help sick people, possessed people, and individuals being troubled by something *unseen* (*makhluk halus)*. Depending on their specialties, there were once many different kinds of *blipa*:

a. *Blipa in heda*: These *shamans* would be called on to heal all makes of illness in which symptoms seemed to emerge from within a person (diabetes, cancer, kidney problems, tumours). It is believed that these individuals could heal any wound made by a sharp object, a bullet wound, scrapes from falling, high temperatures (fevers), burns, wounds from boiling hot water, and restore possessed individuals to themselves. As such, all procedures would begin by asking for the person's name, then tracing and examining their veins, or specifically the area where the patient is wounded, and checking their body temperature. To treat the patient, the *blipa* would often gather plants and roots directly from the forest. They would boil these in water, before they themselves would drink the mixture – before spitting out the chewed roots and plants -- and placing it, like a bandage, onto the wounded area of the patient. For illnesses caused by witchcraft, they would use the *kumus* tree, *boa es momodo, blua muti, delima, uta po kluit*. For kidney-related illnesses, they would use *besa anu kunis* and *kuluhan* trees. For tumours they would use *kai abdapa, babat muti.* For cancer they would use *tope* and *sapi kluit.*

b *Blipa in tehen*: This second type of folk hero is believed to be able to heal and treat patients of extreme injuries, such as broken bones, or even crushed limbs. The technique with which they diagnose these illnesses is simple touch, carefully around the broken bone. After this, patients would be given traditional medicines from plants available in the forests – to be drunk or placed on the afflicted area of the body. These folk cures often included *nila, mhaba mitang,* and *klae*.

c *Blipa in lumikidan*: These *blipa*, it is believed, could heal a person with careful and attentive massage. With repeat visits, a person could be cured of joint pain, gout, soreness, or sprains. The only materials required would be coconut oil mixed with herbs, plants and roots from forest plants, such as the *hang batu* tree, *kais bikloben, hahaet bikloben,* and *nghais bikloben*

d *Blipa imblingin*: *Imblingin* healers specialized in treating pregnant women, helping the birthing process, and caring for new-borns. These *shaman* must always be women themselves. If a woman is pregnant and in her first month, an *imblingin* will inspect the stomach of the patient in the early morning. Following this, the patient would be given a mixture of local plants and herbs from the forest to ensure the foetus stays healthy until they are ready to be born. For this sort of treatment, an *imblingan* will usually give a pregnant woman *malus alas, mhaba mitang, mhili huin, kai bung mea, halat, kai bua, kai ab dapa, utapa kakai mea, hai lelat,* and *tatasi.*

e *Blipa in laso*: These people are not healers but rather they are gifted at controlling people and using poisons to make others sick or die. These poisons and spells can be put in a person's food, drink, or cigarettes. Aside from this, these *blipa* can detect who in a village has run off with stolen goods. They can spot a thief. These are what they gather from the forest, and from the ocean, to do their work: *baut boe, mol ahun,* and *bahan mea* root.

In the opinion of Satyananda and colleagues, in the book *Kearifan Lokal Suku Helong* (Traditional Wisdom of the Helong Tribe), there are still a few people playing a *blipa*-like role among the people today. That is, apart from *imblingan,* and others whose roles have already been usurped by government health programs. The sacredness of these *blipa* is well known in the area – as far away as Timor Island, Bali, and Java.

These *blipa* and their varied services survive until today, and have done through varied means of transference. A *blipa* often passes their knowledge down through generations to children – through the chewing of betelnut and areca nuts (*pinang).* If a *blipa* believes their child may be a potential apprentice, they will give pre-chewed *pinang* to the infant. At that moment, the strengths of the *blipa* are believed to be passed down. Automatically, it is said, this child will come into their teacher's talents. This technique of passing down responsibilities is known as *mamaloa.*

Taking up a *blipa*'s role begins with close observation of nature, and recognizing the sacral areas of Semau Island, the caves and the flora and the fauna that also serve as medicine. There are a few *blipa* who routinely meditated in these caves in order to obtain the constitution required of a healer – to gain knowledge from nature that would allow them to utilize the plant and animal diversity of Semau to help people (roots, bark, woods, leaves, flowers, and the fruits of a certain tree).

Long ago, healing traditions would be overseen by a *blipa*, like a shaman. These shamans have supernatural strength and knowledge of medicine – which roots, stems, leaves, flowers, and fruits to consume for health."

"These *blipa* and their varied services survive until today, and have done through varied means of transference.

In continuation, the regeneration of the *blipa* is also achieved through apprenticeships.. This is the less common route as the clans of Semau are quite stern and certain about their own societal roles, as per their clans. What's more, because it is less natural and more of a choice of the individual, this method takes longer to produce more *blipa.*

As long as their services are engaged, a *blipa* will suggest their patients stick to specific diets. This is because, aside from using traditional medicines, *blipa* also believe in supernatural forces that will aid in the patient's healing. Aside from dietary restrictions and fasting, a *blipa*'s patients will not be allowed to go to sea, or to cross rivers, mourn the dead, or consume marine fish, eat hot food, or consume excess salt.

The *blipa* cannot request compensation, but they also are not allowed to refuse whatever they are given by the patient – if it is given unconditionally. Their roles are spiritual functions and to ask for remuneration would diminish their strengths.

Reading Signs of Nature

Similar to other areas around Indonesia, traditionally speaking, the people of Semau recognize signs from nature. They can count seasons based on the lunar cycle. In the local calendar, there always were 12 moons in a year and seven days in a week.

"At the start of the rains in the month of *Ngul Esa* (November), and then in *Ngul Dua* (December), *Bul Mesa* (January), *Bul Dua* (February)," says Salmon Putis Lulut.

During these months, the soil is prepared to receive seeds and seedlings. Each day, starting from *Leo Mesa* (Monday), *Leo Dua* (Tuesday), *Leo Tilu* (Wednesday), *Leo At* (Thursday), *Leo Lima* (Friday), *Leo Enang* (Saturday), the people will plant various plants, like corn and onions. "Apart from *Leo Minggu* (Sunday). On Sunday nobody plants," says Salmon. Sunday is seen as time to rest, and after Christianity came through Semau, Sunday also means Church service.

The locals' ability to discern the subtle difference of seasons comes from their ability to read the signs of nature – such as the stars, the winds, the smell of the ocean waves, the temperature, and animal behaviour. In Batuinan, Semau Regency, most people still can read the signs that rain season is coming. When these signs are legible, they ready themselves, they tidy up the areas where they will plant crops.

These signs include the *rain bird* (*manu ahang)*, whose distinct call can be heard around the village; the temperature of the environment becomes hot up until midnight (this is called *mulung* in the Helong language*).* The other signs include the sudden growth of new shoots on trees in the forests (*kai mula)*, three-meter-tall ocean waves, and an acrid smell spreading out from the beach, coming in land for about two kilometres (usually in November), and most telling

of all is a mysterious urn, located in Leten Baut Ngala (Huilelot Village), which fills up with water – even before the rains come.

Aside from this, other signs include a big *meting* (when the waters go down and leave the beaches and river banks unusually dry). If *meting* occurs three times, then the first rain will come soon, and will be called *ten dael puhu* – "the rain that only falls in order to quench the thirst of the dry earth." This sort of rain is not celebrated, however, because it is usually followed by a week or two of greater dryness. When these droughts occur, the *rain bird* calls later and later into the night. These birds, like dogs, cry out from West to East, or in reverse. The rain bird signals the coming of the second rains, which is accompanied by distant bursts of lightning. After the second comes the third rain, known as the "planters' rain" (*ulan in hai ngae).*

The Helong can also tell when the rain season will end. When the *kula* tree flowers, and at the same time a type of grass on the savannas of Semau Island also comes to bloom – the rain season will soon end. The flowers emerging from this grass are red, and they appear at around 20-30 cm high. "If these plants bloom, this marks the end of the rain season indefinitely," says Salmon.

Aside from these signs, there are a few others that indicate the end of the rain, such as the appearance of the Morning Star. "You can see the star at the

Names of the Months

The names of the months, called "bul," consisting of 12 months, are as follows:
Month 1 (January): Bul Mesa
Month 2 (February): Bul Dua
Month 3 (March): Bul Tilu
Month 4 (April): Bul At
Month 5 (May): Bul Lima
Month 6 (June): Bul Eneng
Month 7 (July): Bul Itu
Month 8 (August): Bul Palo
Month 9 (September): Bul Sipa
Month 10 (October): Ngulu
Month 11 (November): Ngul Esa
Month 12 (December): Ngul Dua

Source : The traditional knowledge of the Helong Tribe, the Director General of "the Cultural Values Preservation Center" of Bali, 2013

start of day, usually in July or August. Then the plants stop receiving rain, says Salmon. Harvest season is near.

Stars are not only an indicator of seasons, but also predict the harvest, what plants to plant, and when to be wary of pests and illnesses.

To insure a good harvest, the best indicator are the *bais toha* stars, which translates to the "pig nostril" stars. These two stars emerge in the South and can only be seen when the skies are clear, or when the moon is waning and dark, when planting season has begun. When one of these stars is higher up than the other, this indicates that it's time to plant. When the other star is higher, it's the time to plant corn, and so this one star is sometimes called *bintang jagung,* "corn star." When this corn star is higher than the other, the one that is lower down indicates the perfect time to plant rice, and is known as the "paddy star." If the corn star shines bright it means the corn will prosper, and if the paddy star is bright, it means the rice will grow well.

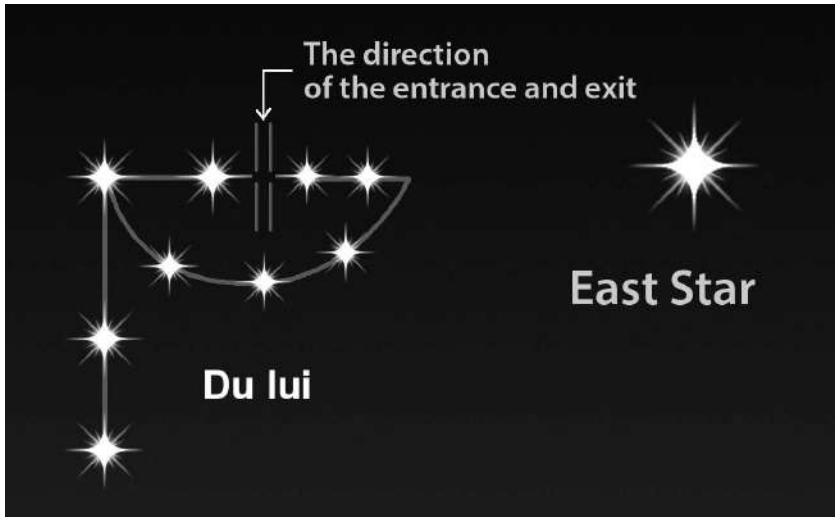

Image 18. Bais toha "pig nostrils" and du jahat – the stars at even height

The *Kula* Tree

The kula tree is endemic to Semau Island. Its flowers are yellow on the edges with red centers. Kula trees are considered sacred and can be found in the *utun bangat* of the Tausbelle Kauhlae clan. Three branches of the kula tree, within the *utun bangat*, are surrounded by stones.

In predicting pests, the *du jahat* alignment of these two stars is an indicator. These stars appear in the East, and are *eye-to-eye,* or of even height. When these appear, it is feared that wild boars will get at the crops – though other animals could also be doing damage.

When looking for an auspicious sign for when to build a home (*Um Nukneo)*, the people of Helong seek out the *du lui*, the "boat constellation." The village's Kaka Ama reads these signs for the people. The *du lui* boat constellation consists of nine stars with seven more in the shape of an elbow, an angle, and three more in a half-circle. This boat constellation sails through the skies between June and August, which is the first dry season.

If this *boat* is spotted, the upper-most star is the main indicator – if it points North, any buildings constructed should also face this direction. If it points South, these projects must face South.

However, the front, middle, and back doors of a house are not allowed to be directly aligned. As such, the rule is that, the front door of an East-facing house cannot open directly to the sunrise. The front door of a South-facing house cannot open directly to the South. This is said to be for the safety of the inhabitants of the house. If these stipulations are not considered, the inhabitants may often fall ill, have domestic disputes, have bad luck, or, at worst, they may not live very long.

Semau houses are known as *um nukneo,* and are mostly square. Rounded houses are also made, with four central posts made of the *kula* tree. The walls are built of the *gewang* or *lontar* tree, and the roof is made of *gewang*, which has a thickness and lasts longer.

When it is decided which direction a house will face, the people will work together to source the wood required from the forest, as well as materials for the foundation (*leo lais).* The construction itself is usually done all together (*gotong royong / nusi).* The owner of the house will provide food and drink for the workers until the house is completed. Afterwards, the *kula* wood or red wood will be raised as the central supports (*galing).* One of these posts, located in the Northeast, will be used for rituals within the home. Other considerations inform where a family will tie their horses, and certain measurements must be specifically *even numbers.* Aside from this, the wooden joints must also be interlocking for added strength.

"When it is decided which direction a house will face, the people will work together to source the wood required from the forest, as well as materials for the foundation (*leo lais*). "

Interiors must be open, though considerations have to be made for little girls and the heads of the family. Aside from this, behind

the houses there must be another structure – the kitchen (*uminhosa).* Above the kitchen is a storage space for preserves (*hopoh).* A small space, like an attic, the *hopoh* only stores so much. A larger attic, for storing larger quantities, is known as a *bibisi.* After a house is built a *pisoko* ceremony is required, involving the slaughter of a few animals, and the chewing of *pinang* – in gratitude. This *housewarming* is overseen by a Kaka Ama.

Image 19. Du lui and East Star

The people of Semau still read the stars. Those who can read them well, however, are few and dwindeling in numbers. Many of them are aged 80 and older.

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The Origins of Semau and Land Distribution

Generally speaking, the people of Semau are of two separate ethnicities. There are the Helong and the Rote. The Helong are believed to be the original inhabitants and the Rote are newer to the island. In villages with a majority of Helong, the people also recognize separate clans, also different *lords of the land*, or nobility.

Research conducted by Pikul in 2014 suggests an efficient and simple style of governance. The authority and function of governance is in the hands of these lords of the land (*Dale Lam Tua).* These individuals hold the patrilineal rights from the oldest of all clans. Because of this, they are in control of the lands of the *Dale Ngalak* clan. This includes the villages (*ingu)*, farms (*klapa),* and forests (*alas).* However, a lord's clan could be made of newcomers who received the land through barter. Due to this, sometimes one *Dale Lam Tua* will preside over more than one village. Another minor complication is the division of land, even separating the ownership of areas of central villages -- a decision by these lords of the land. An alternate authority emanates from the Kaka Ama, the head of a clan. Even newcomers to the island are required to recognize a

Kaka Ama. Unlike the *Dale Lam Tua,* a Kaka Ama is chosen by clan members themselves. Kaka Ama tend to be male. They do not play a role in governance, however. Rather, they preside over customs and solve any problems related to rituals, or traditional knowledge. They oversee the process of rituals for child birth, marriages, funerals, and issues surrounding the home and village.

**

It was late at night. A pair of big frogs hopped around the damp yard, brushing up again dew and rain water. Cold comes in like a pest, making the body's flesh feel tender. "The actual name of this island is Nusa Upulahi, or 'Crocodile Island' (Pulau Buaya)," says Lamek Pong Nenobisi, lighting another cigarette.

In the opinion of the Nenobisi Clan, the name came from Batu Upu, a place where crocodiles live, and a place where the oldest clans of Semau once found peace and shelter. Like crocodiles, some people lived on the hills, like crocodiles on the banks of a river, and others lived below, like crocodiles on the shores of a body of water. Batu Upu is in South Semau, now known as Uithiuhtuan Village.

The clans who live higher up in Batu Upu are the Tausbele, Putis Lulut, Slena Sabu, Mukeo, Balsomang, Klena Muli and a few others. Klena Muli presides over the clans who reside on the hills. As for the clans down below, they are the Kud Laut Moneng and Situ Sado. The separate clans, though nearby, no longer recognize family ties.

At one point in history, under a full moon, those residing above swooped down and made off with the wealth of those residing down below. This is known as the Ama Taup Nai battle. "This was the first battle between clans in Semau," says Lamek.

The *lower* clans could not retaliate, because the *upper* clans blocked the only path with a large stone. The lower clans requested the assistance of other clans in Kupang, the Nenobisi and Laikopan. Nevertheless, rising up was impossible – but for the help of a *meo,* a figure from Rote, whose name was Am Taup Nai.

Upon arriving in Semau, Am Taup Nai cracked the stone open and the clans above began to come down to confront them. The Klena Muli clan fled to Naikean. Having just passed Liman Hill, a Klena Muli woman went into labour at a place now known as Kolhua. In the

"In the opinion of the Nenobisi Clan, the name came from Batu Upu, a place where crocodiles live, and a place where the oldest clans of Semau once found peace and shelter. "

Helong language, "*kolo*" means "to open" and *"hua"* references maternity. Other clans escaped through Akle, while the Tausbele, Balsomang, Putis Lulut, Mukeo, Slena Sabu, Laikopan fled to the North.

In the North, another battle occurred between the Putis Lulut and the Mukeo – over a difference of opinion. The Mukeo wished to share their lands with the tausbele and the Laikopan, but the Putis Lulut would not allow it. As a result, the Tausbele and Laikopan were forced to migrate to the South. The Tausebele settled in Kontema, Uithiuhana. The Laikopan settled in Utu Lail Baha, in the Bokonusan area. The distribution of these clans, following the battle of the split stone, can be seen in the following image.

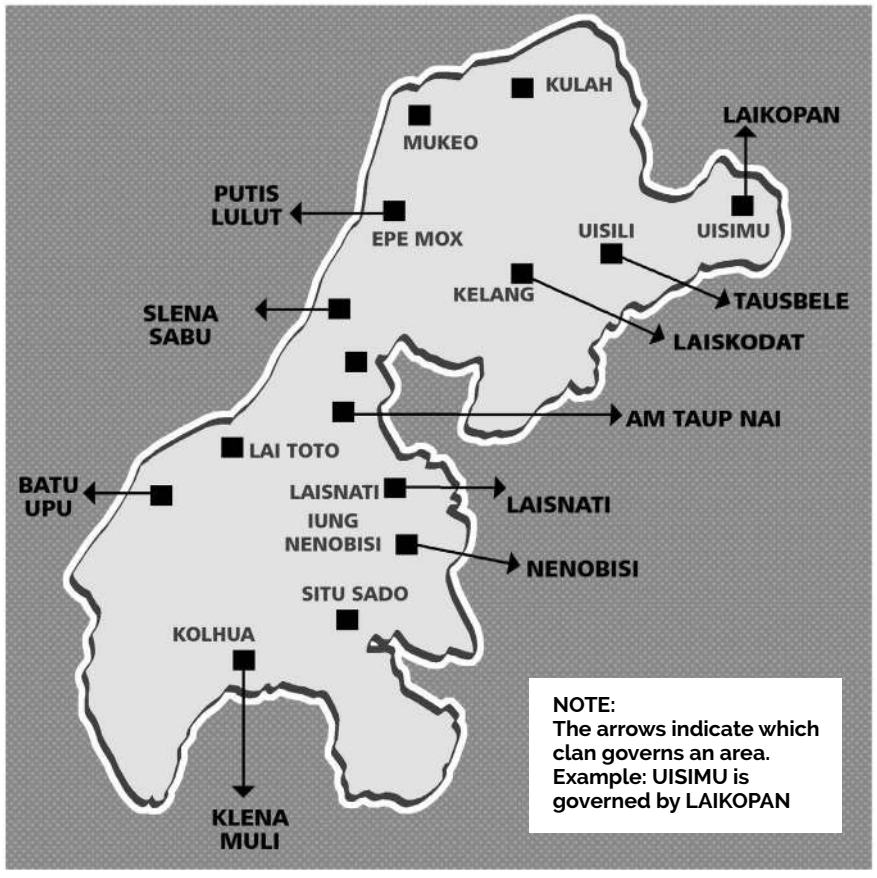

Image 20. The migrations of the clans after the *battle of the stone*

The stories of Lamek Pong Nenobisi are affirmed, for the most part, by those of Salmun Batu. The stories have been passed down, and according to the Tausbelle, long before any human child, Semau Island was only one stone

rising above the ocean.

"Long ago, Semau Island had no land. It was just a big rock, and the peak of it stuck out of the ocean waves. Our ancestors were on that tiny piece of rock. There was Ama Kauhlae, the mother of the Tausbele, and Kuin Mani, the mother of the Putis Lulut," says Salmun Batu, setting the scene.

"Ama Kauhlae had a daughter named Sa. The little girl needed more room to play, she needed land and grass, and so she asked an eagle to make it happen," he says. In return, Sa gave the eagle a *muti* necklace. Sa thought this an acceptable trade. The eagle took off, and from other islands, they snatched up three large talon-fuls of dirt. These three clumps were placed around the stone of Semau, becoming vast fields. The three *clumps* are now known as Blulu, or Kambing Island, Bun Hill, and Liman Hill. Together, these three islands are known as *Buntilu*, or the three "clumps." "*Bun*," in the Helong language, means "clumps," while "*tilu*" means three.

When the waters around the single stone of Semau began to recede, a crocodile grabbed hold of young Sa. Unable to resist, Sa was in the mouth of the crocodile – when the two of them were transformed into a large stone. From this story comes the name of Semau – a combination of the girl's name, Sa, combined with "*mau*," meaning the desire or wish of Sa. The island of Semau was all that she had wanted.

The people called the stone that represents Sa and the crocodile *Batu Upu*, or the "crocodile rock," and the surrounding area is known as Nusa Upulahi, meaning "crocodile island." Though this Batu Upu was no longer surrounded by water, Kuin Mani and Ama Kauhlae remained on top of it. A Raja named Sonpay came to Semau, thinking to expand his territories. Kuin Mani and Ama Kauhlae refused, thus starting a war. Sonbay tried various tactics to win them over, but did

The Bisilinis Clan as Fetor

When the Dutch controlled East Nusa Tenggara (NTT), the Bisilisin clan of Kupang was promoted – as the fetor – as recognized by Dutch-established churches. These fetors were responsible for collecting taxes and restructuring the social structure of the communities. Fetors were considered the new rulers of their respective areas, though one below the *usif*, or the leaders of the village or area. The Bisilisin were the fetors of Semau. The area controlled was vast, including Timor Island, all the way to Rote Island. As the Bisilisin clan has close ties to the Tausabele clan, the Tausabele were automatically given more respect, by association.

not succeed. Finally, Sonbay contacted a *meo* from Rote, named Kuru Samaledo. Samaledo struck the stone of Batu Upu, and it split. Ama Kauhlae and Kuin Mani were forced to descend, settling in the northern area. Ama Kauhlae lived in Uisili and finally passed away there too. Her second child, Manfau, went to the South, to Ponemas, where they stayed a while before heading to Kontema, which is now Uithiuhana Village.

When Bisilisin became Fetor, in Semau, a woman from Bisilisin named Sus Dean Bisilisin married a descendant of Manfau, Obang Panas I. As a result, Obang Panas I received special treatment from Bisilisin, and was given the responsibility of dividing up the land to other clans for settlement and management. "The Tausbele began from here," says Salmun. Their responsibility, to divide up the lands fairly, continued up until the independence of Indonesia in the 1940s.

When lands were first distributed, one of Obang Panas I's siblings, bearing the name Kuin Mani, a matrilineal descendant of Ama Kauhlae, travelled down from the North. Obang Panas I called on her to delegate the decisions involved. Obang Panas would divide the Eastern lands, while Kuin Mani would divide the Western areas. This division, in the East, can be seen in the following image:

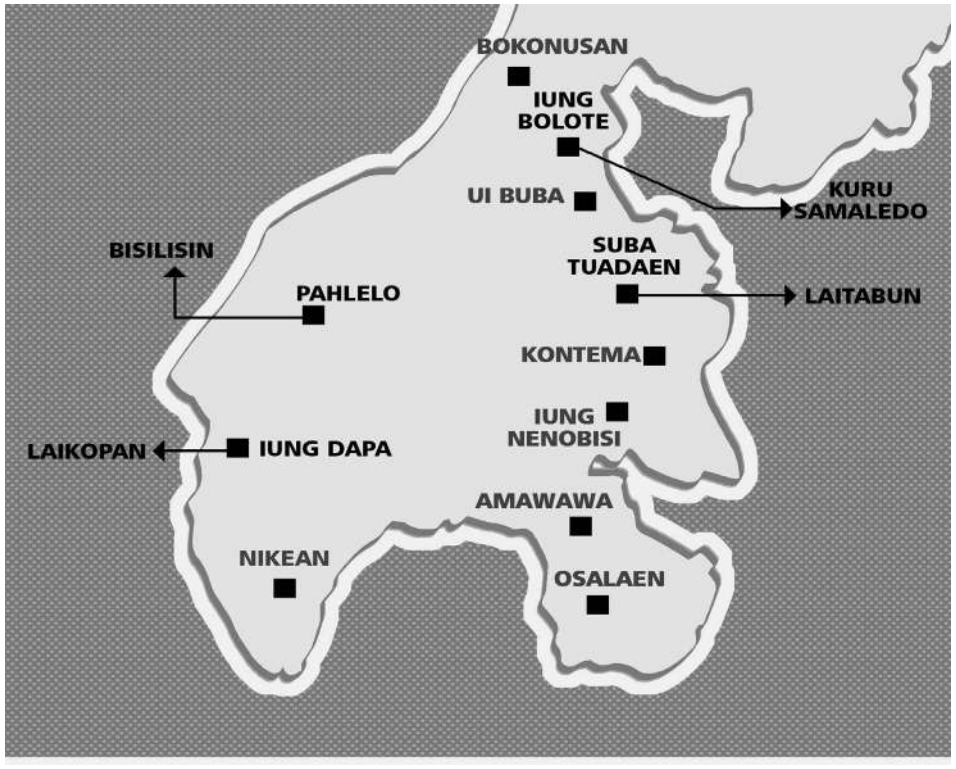

Image 21. The location and distribution of the clans of Semau, in the East, by the clan of Tausbele Kauhlae

Salmon Putis Lulut tells a different account of ancestry and the lands. In around the sixteenth century, the ancestors of Seram (Nusa Ina), Ambon, and Binongko Island (who became the Putis Binongko), partook in a quest to fight in the Goa-Tallo war. The long voyage brought them to an uninhabited land. "Long story short, over time more and more clans began arriving in Semau," says Salmon.

It is the assumption of the elders that, their ancestors voyaged to the island during a war. Semau was a vacant island. They arrive on the North coast and went inland. Baha Butung is the name of lands where they first stepped onto the island. In the Helong language, "*baha"* means "a sandy port," while "*butung"* is what the Helong call the people of Buton, Sulawesi, who also landed there. Baha Butung, therefore, is the port of the Butonese.

After arriving in Baha Butung, the Putis Binongko went up to Kulun village, and settled there. Given this history, it is unusual that Baha Butung port should have changed its name to Putis Binongko. The name change happened because of a marriage between the Putis Binongko and the Koes Lulat clan that eventually settled in Maulafa, Kupang City. Though a popular story, there is not much evidence to support it.

When other clans settled and prospered here, wars broke out over who arrived first, and who should be the ruler of Semau. As long as this war lasted, between the Tausbele and the Putis Lulut, the Putis Lulut were helped by a *meo*, which were the Mukeo, Slena Sabu, Holbala, and Lainusa. The war finally came to an end thanks to La Hendang, a commander from Sulawesi. The two clans finally agreed to negotiations on top of a stony hill, which is now in Huilelot Village. All of these clans, together as one *meo*, were invited to negotiate too.

In order to make peace, it was decided that Semau would be divided into two areas, North and South Semau. Putis Lulut would control the North and the Tausbele would control the South. Following negotiations, all clans wrote their names on the stone, which was given the name *Baut Ngala*, the "Name Stone."

After this, La Hendang drew a line from the eastern beaches to the western coast – and along this demarcation happened to be a large stone, which is now known as *Baut Ton* ("border stone"). This is an indicator of the middle of both South and North regions. The border stone rests in Slikut Village in the village of Bokonusan.

After the Putis Lulut were given control of the North, Am Taup Nai was responsible for the

"In the opinion of the Nenobisi Clan, the name came from Batu Upu, a place where crocodiles live, and a place where the oldest clans of Semau once found peace and shelter. "

division of the lands among the *meo* who had come from far off to help them in the conflict. The central point of this separation would be Uitao Village, where Am Taup Nai would settle and finally be buried. This grave site marks the central point of the land division among the *meo* allies in the Northern region. The separation of these areas, by the Putis Lulut clan, can be seen in the following image:

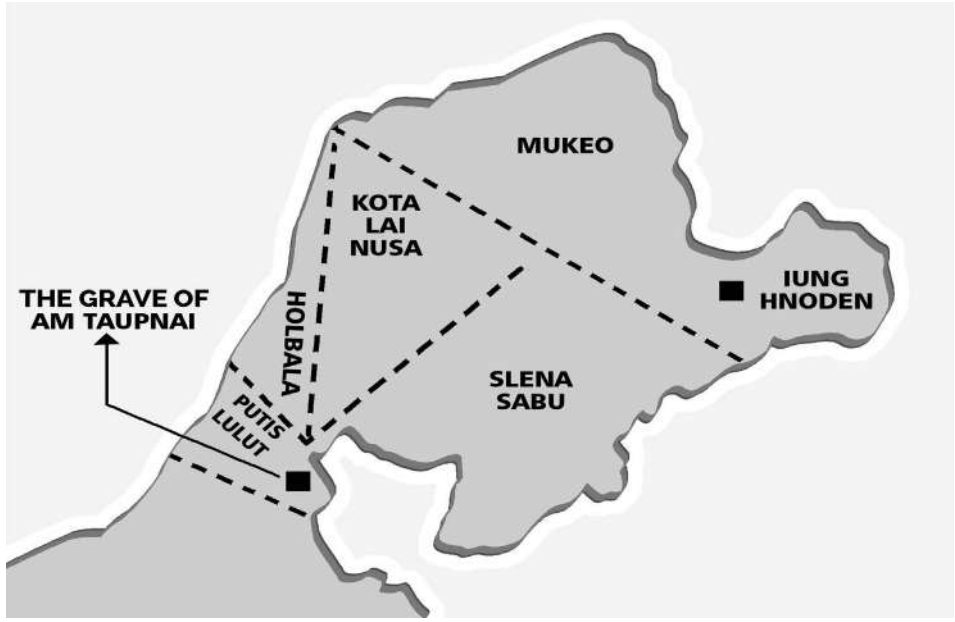

Image 22. The distribution of land by the Putis Lulut for their *meo* allies

President Soeharto was Indonesia's most impactful leader. The New Order government mapped the landscapes of the nation according to their function. Ownership was shuffled once again. Since that time, land usage has changed from providing a social function to providing an economic one. The lands that were once managed by the clans and families of Semau and designated as Indigenous forests were taken over by the government and listed as National Forests, becoming protected. As a result the people can no longer grow plants, forage, or cut down trees to meet their needs. Many inhabitants remain unsatisfied with these new rules. When gathering, or foraging, from the forests inevitably does occur, the people joke sarcastically that they are "stealing from their own forests." However, the people do not feel that they would be able to challenge these designations.

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The Erosion of an Agrarian Culture

The pathways between villages are rutted and fill with water. From time to time, garbage, people's belongings, or even broken bicycles can be seen, stuck in pits. The ugliness of these trails contrasts with the great, lush green of the forests, and the sweet smells of petrichor. Lontar trees, *aren, gewang, kusambi, mimba, bidara, lamtoro, asam, enau, hnunang, kaijawas, kedondong*, fir, *randu*, mango, and banana trees – they do not seem to stand on their own here. They are supported by wild-growing shrubs, also. These forests are much greener in the rain season. However, the roads are also much worse. Slipping, sliding – these are inevitable. January to March are the best times to see the flora of Semau – but one must anticipate storms, winds, and heavy rains.

That evening, in the middle of March 2019, Salmon Putis Lulut greeted his guests – by kissing them, just a peck, on the nose, which is a Semau tradition. Together with his son-in-law, Amos Tanu, Salmon ushered his guests to their seats – wooden chairs with long seats beneath a *kedondong* tree, next to the house. The garden is completed with two frolicking goats, one black and one white, approaching Salmon's visitors. Legs crossed, bare feet wrinkled, Salmon thrusts a plate of betelnut, areca nut, chalk, and lime to his guests (*pinang)*, while he himself lights a small white pipe.

Salmon Putis Lulut is the head of the Putis Lulut clan of Batuinan Village. Most other important figures have vanished, deceased, or moved away. Salmon is the only clan leader of the Putis Lulut who has control of the land in the North. "Kotong pung is a story of how the ancestors came here from Binongko. How the Putis Binongko clan came about," he says.

His checkered shirt hangs open at the buttons. His *sarung* wraps around and cuts off at the knees, not quite covering his pants. Salmon admits that he does not know when he was born, but he figures that his age is around 71 years. He can remember clearly when the first democratic elections were held, and when the government began taking any livestock that was not caged or restrained – and the election of 1971, where everybody knew they could only choose one party. Salmon remembers clearly when pesticides were introduced in tanks, branded either Nusa Hijau or Asam Jawa.

Batuinan Village is an old village in the Semau Regency. There are only around 155 families, as tallied in Otan Village, 2005. From this place, the special abilities of the *suwanggi*

"Salmon Putis Lulut is the head of the Putis Lulut clan of Batuinan Village. Most other important figures have vanished, deceased, or moved away. Salmon is the only clan leader of the Putis Lulut who has control of the land in the North"

and the *blipa* emanate. For this reason, many people avoid this area, because the road twists and turns through a vast savanna. In the area is Letbaun Beach, great forests and hills, caves believed to be sacral – the homes of the *unseen*. Sometimes, people catch a glimpse of a woman with long hair and a terrifying face with long distended breasts.

"A few years ago, few people would travel alone through Batuinan. What's more if it were night," says Yurgen Nubatonis, the writer of *Semau Beta,* who often stands in support of the people of Semau. "If you're skirting along the narrow road there, and you see a large tree on the righthand side, do not look towards the caves. Unseen Roh are capable of pulling people in towards themselves," says Yurgen.

"From this place, the special abilities of the suwanggi and the blipa emanate. For this reason, many people avoid this area, because the road twists and turns through a vast savanna. In the area is Letbaun Beach, great forests and hills, caves believed to be sacral – the homes of the unseen. Sometimes, people catch a glimpse of a woman with long hair and a terrifying face with long distended breasts."

In his time, Salmon was a lord of the land and a Kaka Ama with a fair amount of wealth. He did not only manage tens of hectares of land, he also had horses, cows, buffalo, pigs, goats, and chickens. He also had the necessary skills required to read the signs of nature, and the behaviour of animals – as it relates to the best times to prepare for planting, and he was once also very familiar with traditional medicines. He was considered a *mebaha* (a *reader of nature* and leader of ceremonies). Salmon himself, however, never wished to be praised for all of these qualities – as a *reader*, a *mebaha*, or *blipa.* He would ask to be called *Opa* – a farmer, a cow herder. Only that.

Salmon's many talents – in medicine and other areas not often mastered by most people – was fostered and encouraged by his own parents. "Opa followed their leader, but he doesn't want to boast about his talents," says Amos. "If a person falls sick, Opa will go to them. That's because he wants to help. His hands will be full of plants and herbs."

When he was younger, Salmon enjoyed farming and travelling around the island. He was usually together with other members of his clan, planting, harvesting, and moving elsewhere to start again. Ever since the division of the land was decided upon among all clans, the descendants of the Putis Lulut have been making good use of the lands in the North. They clear forests if necessary, burning brush, and build fences, plant seedlings, and throw away the weeds.

Long before sewing crops, they are there, caring for the soils before planting for three to four months. Here, one growing season lasts three to four months. After this, they move on to a new location. Three or four months later, they will move once again. They believe that, by shifting their

activities, their activities won't drain the soil of nutrients, nor the forest of its animals and its bounty.

The first step is always clearing new lands and driving back the forest (*ngulun klapa),* and burning down the brush when there are no productive plants growing there, before the rain season. Before this first step, however, a bit of ritual / ceremony is in order – by means of offering *pinang* and asking for permission from the Creator and Roh. Once completed, they set in on driving back the forests – with ropes and machetes. Branches and shrubs that are cleared are then taken to be cut, collected, and burned.

They also manage the lands and fence off certain allotments. The purpose of these fences is so to keep pests, sometimes large roaming creatures like boar and deer, from entering.

If the land has already been cleared and rain begins to come down once, twice – they proceed to the planting phase, usually in November (*Ngul Esa).* During this time, seeds and seedlings are wrapped in fabric and undergo the blessing of a *soko haile* ritual / ceremony, which also involves *pinang* and humbly asking for permission from the Creator.

If plants have been planted and start to grow, they maintain the crops by weeding. "Watermelon can be planted with corn. There are also chickpeas, pumpkins, and rice. Three months later we celebrate *hopong ngae,* expressing our gratitude to the Creator for the harvest," says Amos.

The next phase is the storage of the harvest and the cooking of corn. While the corn is heated, people usually enjoy a few slices of watermelon. "Cook the corn, eat the watermelon. That's the culmination, and it's the best," says Salmon.

The people of Helong have a rule. They cannot use anything of their harvest before the first items of the harvest are offered up in thanks to the Creator. During this ritual, they must express their gratitude by giving young corn, vegetables, and fruits – which can later be taken home and eaten by the people (unless they are first taken by the Creator). As for the corn harvest, this is done only when the corn has matured – usually in April. When plump, the corn is tied up to be preserved through smoking, and to be stored in the attic. Smaller ears of corn will be preserved in the ash of the *kusambi* tree.

"The first step is always clearing new lands and driving back the forest (*ngulun klapa*), and burning down the brush when there are no productive plants growing there, before the rain season."

Before corn was grown for economic purposes, farmers only farmed as much as they needed to, for their own consumption (subsistence), and the actions of picking the corn, tying it in bundles, and preserving it were done to feed the village. As a result of this change of

directive, the harvest festival *hopong ngae* has now changed. What's more, because the Helong are now Christian.

Decades ago, *hopong ngae* involved many families. The husbands and fathers would check to see if their in-laws corn was ready to consume, and everyone would eat together. When their wives' siblings said it was time to eat, everybody would come together to celebrate *hopong ngae* and enjoy the harvest.

A day before *hopong ngae,* seven stalks of corn would be chosen. They would have to be plump – and they would be taken to the *utun bangat* altar as an offering to the Creator and to ancestry.

The women would choose which corn would be boiled the next day and separate the ears of corn to make *ngae hungi.* This treat is derived from corn that has been ground down and steamed in pumpkin leaves.

On the morning of *hopong ngae,* a long table is constructed. The men then split themselves into two groups. One group goes to the forest to collect firewood, the other goes to find fish. A smaller number heads off to fetch a pig or a goat to be slaughtered. Older women prepare *titi* corn dishes. Afternoon till the late evening, everyone is busy fulfilling their roles, preparing the late night feast.

As the sun sets, *hopong ngae* is officiated by the Kaka Ama reading the *basan* before giving thanks to Lam Tua Tuan. The festivities go on into the night and until the next morning – as the men drink *laru* and enjoy themselves.

When the festivities are over, all of the corn is gathered. Smaller ears of corn are separated from the others. This involves everyone in the village – siblings and clan members and neighbours in the area too.

"Decades ago, hopong ngae involved many families. The husbands and fathers would check to see if their in-laws corn was ready to consume, and everyone would eat together. "

Utilities that are required include the *para-para,* a structure made of wood that appears like a table and is 2 m x 2m and 60-70 cm tall, with its feet planted in the soil. It is covered at the top with sticks that are tied together, but there are 5 cm-wide holes in between these sticks. Corn that is tied in bundles will not fall through, but single ears of corn do. The para-para must be able to hold 500 kg of weight. Otherwise, a *haneno* is also required, which is a large dish-shaped piece of wood.

Beneath the para-para a large rattan mat is placed (*haneno).* Here, select ears of corn are husked down to the cob. Corn that is to be cooked remains on the *haneno.*

To select the right corn, the men climb the para-para. Using an *antan* or an *alu*, made from a long stick, they begin to prod the ears of corn within the *haneno.* Kernels spring off of the cobs, and these remain inside the *haneno*, while others fall through the cracks. The women gather the corn from beneath the *haneno* and sort the cobs and the kernels too. If the kernels are stuck in the cob, they will be shucked. The

men take turns pounding the corn above the para-para while playing rhyming games with the women. Once shucked, the cobs and the kernels are sundried before being placed in a silo made of *lontar* leaves or *gewang*.

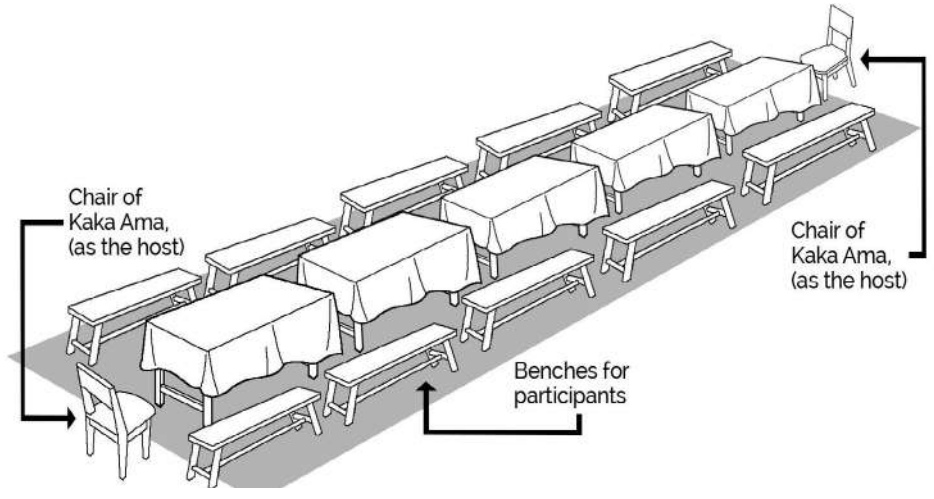

Image 23. The Position of Hopong ngae

The process of *lobot ngae* is required when so much corn has been harvested that it needs to be preserved for years to come. Families will request help with the *lobot ngae* process, offering food for anyone who can help, and inviting neighbours to stop by to pitch in. A local beverage, *laru*, is offered up, and contains only a small amount of naturally fermented alcohol.

A stage in the process of cultivating that is most anticipated is the *li ngae,* or the preservation of kernels and cobs. This is the last step in the cultivation of an abundance of corn. As the tedious work is undertaken, and as laru is consumed, the men and the women strike up a rhyming game (*pantun*), and so there is a healthy association between *li ngae* and courtship.

Three days before this final process, a person requesting a *li ngae* will invite neighbours and family – even those from other villages. The owner of the house will prepare some treats for a simple party. The menu will surely involve laru, yellow gourds and coconut milk, *titi* corn dishes, and *bose* corn (pounded corn).

To prepare for preservation, a large rattan mat (4 x 5 m) is unrolled. A large box is placed in the center. The ashes of *kusambi* wood are spread around the mat – up to about 2 or 3 cm. It is mixed with sea water so that it does not quickly dissipate as dust. The ash and corn kernels is then downtrodden under foot, pressed down and evened out. Usually children love the process. Once caked in ashes, a circle of helpers, men and women, toss the corn into the box in the middle of the mat.

Image 24. The Li ngae Dance

The process of preserving corn becomes like a dance – as it is started with a rhyming game between the participants. This becomes a song as the circle goes around and around the box of corn and ash. They sing "titi lena lae, nobo nobo lae."

As they answer each other's silly rhymes, they continue encircling the box, at least five and up to ten times – before taking a break to collect the kernels. "Five times around, or ten times around, either way it's tiresome. We break, we gather the corn into the center, we add some more ash, and we go around again. It's like that until the corn is all mixed together," says Amos.

"So while we dance around, the laru flows freely. The women drink the laru too. Everyone does. From seven at night until the morning sun rise. If the work's not done, the work is continued the next day. Nowadays, the *li ngae* has been adapted. People do it on the beach, not just as a harvest festival," says Amos.

Apart from the jocular recommendations within the verses of the *li ngae* rhyming games, Calvin Massa explains, the verses that are repeated also reference a few local dialects.

"During the era of Japanese occupation there were a few people from Alor, Sumba, Rote, Flores working in Semau, working in Kupang. Sometimes these people worked in the streets. One of them, from outside Timor, asked 'Where is the *futi* fish?' A Timorese person answered, 'Oh, the *futi* is here.' This simple exchange could become part of the game. A silly recommendation for others. 'Looking for a *futi* you can ask the Timorese. Whether they wish to or not, they have to do what they do.' The second sentence indicates that, like it or not, people must do what they need to do to get by," says Calvin.

"There's another one called *'malu sope puat'* (a place where one chews *pinang).* After a day of work, we sit together in a circle, and we chew pinang

and make these recommendations. It makes people laugh. In general, people involve regional dialects, because it is even more fun. In Semau this tradition revolves around prepping corn for storage. Playing the rhyming game really relies on spontaneity," says Calvin.

The rhymes, which sometimes become songs, are adapted to the process of pounding the corn. "There are three main movements in the *li ngae.* First of all, people move in a rough manner, then gently, and then even more gently. The songs follow this pattern," says Calvin.

Corn that's already been mixed together will be gathered in the center of the circle. This continues until it's all thoroughly mixed together – the ash and the corn. Once finished, the corn is put into a *tong leo,* a silo made from *gewang* leaves, like *kendil / gangsing.* Lobot ngae is practiced alongside *li ngae,* because the corn that is preserved has to be selected first.

Within the process of *li ngae* is embedded a sort of folk tale that informs a perspective of the Earth and the sky. "Beliefs of long ago mentioned a God of Earth (*te dale),* and a God of sky (*te dapa).* There was a meeting between the sky and the Earth. That's the tale. But it actually did happen once. That's why it's been passed down. Like the folk tales of the ape and the mongoose, the story of the seven beautiful maidens, the story of why the moon has a black hole in it, these are folk tales, and they exist," says Amos.

These stories are often told while villagers gather to tie ears of corn together. "The laru keeps coming. We'll do hundreds of bundles. If the corn still has leaves, we'll tie it up. The men tie them up in braids, the women leave a little bit of leaf to be used as a handle," says Amos. Sometimes, one bundle of corn will have twenty ears of corn.

Salmon and Amos agree that corn preserved through the process of *li ngae* has a different flavour than corn that is prepared otherwise. "It's different. The flavour is different. It can last three to four years. No chemicals. And it doesn't get eaten by pests and ants. In three years, the kernels will be a little different, but the exterior husks will remain the same," says Amos.

If a person does not have the budget to host a *li ngae,* they'll have to settle for smoking the corn inside their homes. It is not tied up or preserved in ash. After smoking, it is placed in the attic, or above the kitchen.

"Corn that's already been mixed together will be gathered in the center of the circle. This continues until it's all thoroughly mixed together – the ash and the corn. Once finished, the corn is put into a tong leo, a silo made from *gewang* leaves, like *kendil/ gangsing.*"

Drought Comes, Time Stops

When it's time to harvest, the people of Semau head to the beach to catch fish, gather clams, seaweed and squid using simple tools, such as the *soro*, *lika* (fish trap), and *sampan.*

There is also a method of fishing in which the people fish in a crowd, known as *nahu tali.* As a team they herd and trap the fish, and this is done but once a year during the hot and dry season. Each clan partakes once, and if they do it twice, they must choose a different location. This usually takes place in October.

Decades ago, fishers used long strands of *gewang* leaves to form a rope of around 100 meters. Every 30-40 cm would be tied an offshoot, also of *gewang* leaves, and at the end of each a small pebble would be fastened. This great rope of leaves and stones would be set loose in the high tides – and wrangled into a circular formation. The leaves of the rope would catch the sun, and fish would automatically shy away from the bright sunshine, and they would swim to the center of the circle. Finally, when the tide lowered, the fish would be beached. This strategy was only for consumption. If a fisher caught more than they need, perhaps then they would bring the catch to market.

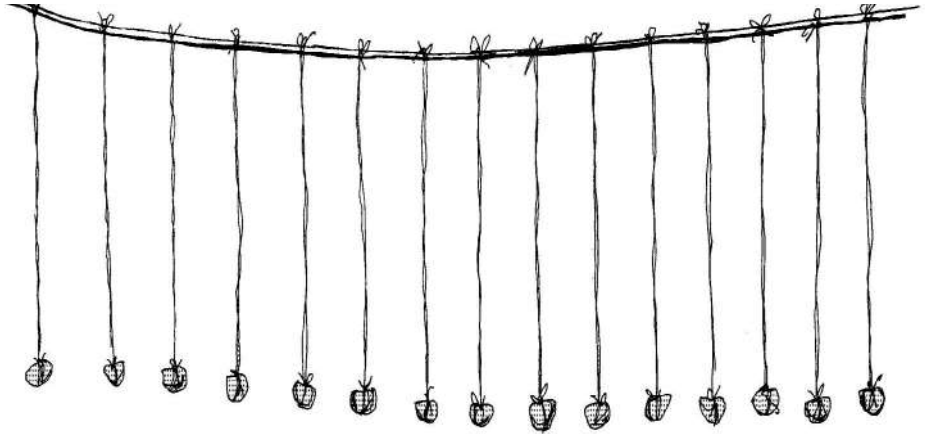

Image 25. The nodes of the Rope of gewang leaves.

Aside from trapping fish this way, the people of Semau also remember how to use a circular fence to capture them. This technic is known as *uinlulin.* If anyone is caught fishing in or around an *uinlulin,* they would be punished according to customs. Some would have to surrender livestock or food from their crops. This would be decided by a Kaka Ama. When the time comes to collect the fish from the *uinluluin* trap, the Kaka Ama would preside over a ritual known as *hui ikan* to ensure the even distribution of the catch. The largest of such traps is on Onan Beach and Utun Beach.

Since the 1970s fishers started going to the ocean in large numbers. This was facilitated through Churches and held on certain days, such as Reformation Day (Hari Reformasi). However, since the 1990s the people no longer partake in the method known as *nahu tali,* fishing with a great circle of rope made of leaves.

In many villages, while the people travel en masse to the beaches to catch fish during the hot season, it is no longer an especially important or integral activity. However, in Uiboa Village, South Semau Regency, this communal activity remains essential, and a top priority. In Uiboa, the people depend on their squid-catchers.

Yohan Lilong is a squid-catcher in the straits of Semau. This is a role he has fulfilled for more than ten years. In his home village, squid and honey are popular exports. Buyers from Jakarta and Surabaya dry the squid in buildings that line Onanbatu Beach. The fresh squid is dried and shipped off and away from Semau.

Yohan and other catchers recognize a few signs that indicate the best times to catch squid. They confide in their instincts, which tell them when these squid will be at *play.* They head out to sea in the evening and come back to the beaches in the early morning.

"These sea folk, they carry on the older practices of our ancestors. They have refined instincts and can read nature. Being ocean-going is all about how tough you are at heart. If the heart is truly mature, even in the middle of a storm, it will not fear," says Yohan. Not all seasons present them with their catch, however. During rainy season, the squid catchers head to the fields to sew crops – corn, nuts, pumpkins, maybe root vegetables too.

Aside from catching fish and gathering the fruits of the sea, other activities during the hot months of the year include heading into the forests to find wood, rattan, root vegetables, traditional medicines, wild boar and wild chickens too. Products of the forest are bartered for the bounty of a harvest, for example. Bartering remains a common means of redistribution within clans and between them. "Long ago we would swap everything. There wasn't any cash involved even. What was important was that we all had our betelnut leaves," says Salmon.

Three times a year the people climb up a lontar tree and fetch the leaves they need to make sweet *tuak* (palm alcohol). "The elders, if they didn't have coffee with sugar, they'd just go up a lontar, cut some leaves, and save them

"In many villages, while the people travel en masse to the beaches to catch fish during the hot season, it is no longer an especially important or integral activity."

for later. For a week the sweet leaves could substitute for sugar. That was just for personal enjoyment. And if someone were walking by, they'd call out, 'Hey you should have some of this.' These folks also provided laru for rituals and ceremonies," says Calvin. In one village, there are usually around five to eight people willing who climb a lontar tree.

Barn Keepers, Seed Buffers, and Families who Provide Sand & Soil

"Kreek kreek kreeek". The 40 year-old woman carefully navigates the bamboo stairs. She rests against the brown kitchen wall. Above the kitchen is a lengthy attic where bundles of singed ears of corn rest.

Along the wall are *tong leo* containers and a few small silos full of kernels. Near the back, an assortment of natural, household necessities are stacked – from *gewang* and lontar leaves, tied and sort into near stacks. "Kitchens are where women belong," says Mama Poni, the wife of Amos Tanu, while passing down bundle after bundle of corn.

In the Helong culture, a wife is also the *head of logistics*, and as such, the storage of these precious bundles above the attic, and their descent, must be done by her. If a woman needs to make a trip, before she goes she must take down enough corn for the needs of the household – either that, or she should delegate the task to other women. Traditionally speaking, women are also in charge of storing seeds and seedlings. No other can do the jobs of these women.

"In the Helong culture, a wife is also the head of logistics, and as such, the storage of these precious bundles above the attic, and their descent, must be done by her."

Thertulianus Pong, the former head of Uiasa Village, says that the women of Semau are the *rulers* of the food supply, the selectors of the seedlings for the next planting season. "The women of Semau are the rulers of seeds and the bounty of a harvest. Whoever requires some seeds or a portion of the harvest from storage, the mothers need to consent. No one can undermine their importance when talking about seeds and seedlings and logistics," says Anus Pong, with a straight face.

"These women must parent their young girls and teach them how to do these things themselves. If there are no daughters to be taught, the women can delegate certain responsibilities to other women. Long ago, almost all people here could do these things," says Mama Poni. Together with her mother, Mama Poni is very capable at gathering leaves and bundles of corn, nuts, pumpkin, all above the kitchen ceiling. "Cooked corn gets smoked and becomes the best for planting. After about a year or more, they'll be stuck into the soil," says Mama Poni.

Once she's brought down a few bundles, Mama Poni takes a piece of corn in her hand. It has yet to be prepared. Mama Poni and Oma Salmon will host a *ngae hungi.*

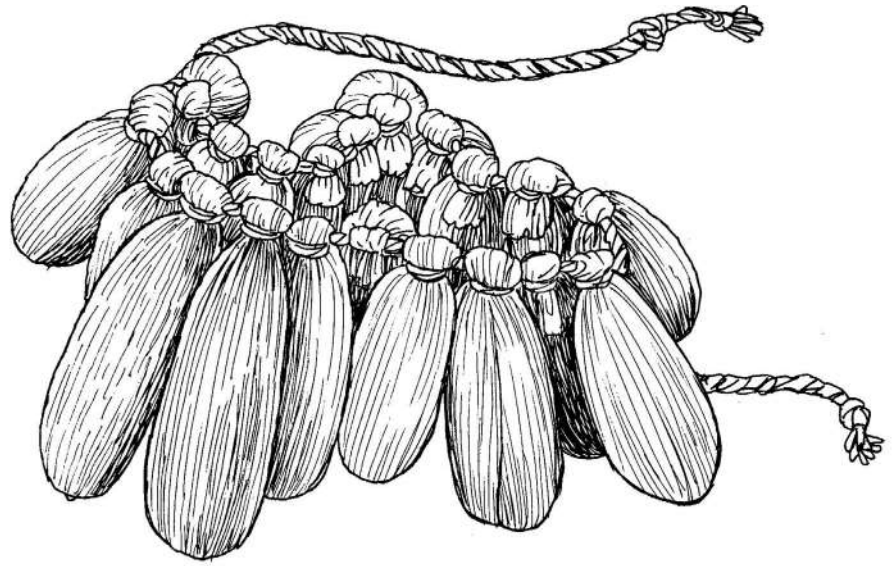

Image 26. Planting crops from the kernels of bundled corn

The preservation of stock is not just for corn, but for all types of plants that are planted, such as *ngae kuin anak* (mini corn), *ngae kuin tuan* (large yellow corn), *ael bulu* (a type of rice), *ael kakalo* (thick dark rice), and *ngai ina* (short red sorghum and short white sorghum), *ngae in ehe* (white sorghum four meters tall). This great diversity was common long before the people had heard of hybrid plants.

These special, local varieties are propagated within the circles of an *utun bangat.* To make these seeds better, a farmer, and usually a woman, must plant the rice, corn or other seeds in the *utun bangat* first.

"The *utun bangat* is crafted in a certain corner of the farm. It is shaped like a circle, marked with many stones. Within these circles are the seedlings. Seven kernels of corn will grow to become seven stalks of corn. No other seeds are allowed to be planted within it," says Barnabas Laitabun.

These seven stalks will be planted before any others, but they will be harvested afterwards. The kernels of these seven stalks will be saved and preserved apart from the others, supplying the kernels for next year's planting season. These kernels can only come from the plump mid-section of a cob of corn, meanwhile the kernels at either ends will be preserved for later consumption, mixed together with the rest of the harvest.

Everything Changed

Seedlings are no longer pre-planted in the *utun bangat*, however. These days, local plants, though easier to care for, though resistant to local pests, have been exchanged for foreign hybrid varieties. The rice fields have disappeared. The changing times have brought the end of local plants. The people want an easy life. If the harvest is bigger, they just go with that," says Barnabas.

Another catalyst for change would be the New Order government and the "Green Revolution" (*Revolusi Hijau)*, in which foreign input, such as hybrid plants and pesticides, was welcomed and left a significant mark. In 1988, herbicides entered Semau for the first time – along with the program "Asam Jawa," facilitated by the Province of East Nusa Tenggara.

This program, Asam Jawa, was part of "Operation Green Nusa," "Nusa Damai," mandated by Governor Ben Mboi. These programs and operations also came along with "Village Development Movement" (Gerbades), mandated by Governor Hendrik Fernandes. However, the program most remembered by the people of Semau would be Asam Jawa, because this was their introduction to the tamarind tree.

"To plant a tamarind tree in those times, the land had to be cleared using chemicals to kill the grasses. When the people of Semau first tried these chemicals, we thought it was great. We didn't really stop to think," says Amos Tanu, translating the sentences of his father, speaking in the Helong language.

Salmon Putis Lulut was the first to travel to Kupang and purchase herbicide so that he could offer the service of clearing wild grasses. "At that time I had many horses and cows, and I sold a few so that I could buy this stuff," says Salmon.

Up until the 1990s, only Salmon had these herbicides. Then it took off. The people of Batuinan bought entire tanks of it. It was seen as the practical choice. Aside from this, it was increasingly available. Sometimes it was bundled with hybrid corn kernels in one single package.

In 1982, chemicals and hybrid corn seeds came to Semau. "Since then, many people stopped using local seeds. If you buy the stuff, it produces. Harvest it, you have a buyer in Kupang. We no longer needed to stock kernels for the next season," says Salmon.

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"The rice fields have disappeared. The changing times have brought the end of local plants. The people want an easy life. If the harvest is bigger, they just go with that."

The Weavers

In Semau, the women are not just the head of logistics, family, and the keepers of the seeds. They are also talented weavers, and this is how they put fine clothes on their families' backs.

Long before synthetic fabrics, the women of Semau made cotton into threads with a tool known as *sunanbingan.* This traditional weavers' tool is made of *kula* wood or *lem* wood. It is shaped like a rectangle, and it is tied together with a *kanonak* thread.

When a weaver passes on, her *sunanbingan* is returned to her living relatives, preferably her parents, if they are still around. By giving this tool to her family, the woman's husband is handing them the responsibility of taking care of the funeral. If a woman does not weave, then a coconut tree, a cow, or something else, will be returned to her family after her death.

Woven fabric is made with simplicity. Sometimes it is referred to as Helong fabric. These weavings have three colours – red, yellow, and white. As for the motif, there are three kinds:

a. The motif of *butukil apu palikaka* (triangular motif, interconnecting). This motif signifies a strength of friendship between Helong tribespeople, for daily life and for customs as well.
b. The motif of *suki toka apa* (the motif of mutual support) signifies the requirement for mutual support among members of a tribe.
c. The motif of *sapa mambai selikun* (motif of people touching each other) – this one signifies that even when a person of the Helong tribe travels far from Semau, nevertheless they are still bound by their familial ties to Helong and Semau.

Woven fabric belts of Helong are for ceremonial use. There are different motifs for women or men. For men, they will use a two-meter long belt, and a sort of head-cloth. Women, on the other hand, use only one piece of woven cloth as a belt. If the belt is tied on the left, it means that they are still children. If the belt is tied on the right, it means that a woman is already married. If the belt is tied behind her back, however, it means that she is widowed.

The same rules apply when wearing a hand-woven sling. If the sling hangs on the left, then the person is still a young girl. If it hangs to the right, then she has already married.

"Long before synthetic fabrics, the women of Semau made cotton into threads with a tool known as sunanbingan."

Long ago, women had no difficulties gathering cotton and the plants required to create natural dyes, such as *pinang, talung (*indigo), *kərondo*, *makas* (mango), *lu* (conifer tree), *kaijawas, kai kula* (kula wood), or *kai sapi* (*kusambi* wood).

Together with their husbands, they'd venture into the forest or the fields of brush. "You can usually find *talung* where the forest meets the field. As for *pinang,* it's usually in the fields," says Amos Tanu.

To make a single piece of fabric using natural dyes requires two to three months. For this reason, naturally dyed fabrics are quite expensive. A single cloth can fetch around one hundred American dollars or more.

"But for now, people want what's practical, whatever's easy to get. In the seventies there were still many women weavers. They harvested cotton, then dyed it with *pinang.* In the eighties, there were fewer, and in the 2000s, fewer still. It feels like, since then, it's hard to come by weavings. Most people wear foreign fabrics now. It's easier, but it's a tragedy," says Amos.

The shift from traditional cotton and natural materials to synthetic threads is inseparable from the availability of the essential supplies, the ease and availability, and furthermore, the system of farming, which once employed shifting cultivation, but is now fixed and covered in pesticides and herbicides. Weavers who used to farm have now been able to give up the loom and farm for their family's needs. Traditional crops, such as corn and peanuts, and horticulture, has now been replaced by any sort of product the people of Kupang City will purchase.

"Some farmers head off with corn, nuts and onions, then they come back with synthetic dyes, fabric, pots and pans, soaps, and others stuff," says Amos. Over time, the mobility that the market offers affects the people, and the people affect their own culture.

The women of Semau are adept at spicing food with what is available in the environment. They utilize pandan leaf, *gewang* leaves, and lontar, to flavour food, and also for rituals / ceremonies. For the latter, women only require *gewang* and lontar leaves to create containers, such as baskets. For this reason, many homes will have a supply stocked in the attic. Other homes, however, have replaced even these materials with synthetic, plastic, aluminium, or stainless steel containers.

"These days, the women do not make baskets often. This is because usage and demand has changed," says Calvin Marthen Massa, a head of customs at Uiasa Village, Semau Regency.

Weaving of baskets is usually undertaken where the corn is harvested at night and under a full moon. "The women make containers in the fields while others pick corn. At night, the women do not have anything to keep them busy, so they weave. They do a little bit of rhyming too," says Calvin. "When weaving, we have to choose the right leaves at the right season too. Between April and May, we use corn husks. In the morning, it's covered in dew, and that's also good

for some purposes. Often, it's taken and dried up in the lofts. Once it's dry, at night, it'll even be more flexible."

The leaves that are selected for weaving are usually of a certain shape (*kuncup).* In an assortment of lontar and *gewang* leaves, the long and smooth ones are chosen. If they're fresh, they're split and torn up, sliced, and dried – so that they will go limp when the dew clings to them. Some of these leaves are boiled beforehand. Others are boiled, dried, and then dipped in natural dyes – like crushed *pinang,* or dipped in *talung.* Other leaves are fine as they are, and are used to weave baskets without prior treatment.

The diversity of these containers and baskets can be used for storing corn, storing the harvest, storing rice, and many other things. The shape and size of these handcrafted bins depends on their purpose. Here is a list of just a few baskets, made mostly of pandan leaves, *gewang* leaves, and lontar:

- *Nehe*: Mats of pandan leaves and gewang. Commonly used for bedding, sitting mats, also for traditional activities and rituals within the structure of an *utun bangat*.
- *Safaik* (*fai* : *fai klulit, fai itin*): Made from gewang leaves, used to store various types of fruits, carrying sand, and as a corn container to be filled while harvesting.
- *Fuli*: Woven lontar leaves sliced into small pairs (forming the cover) *safaik (fai).* A *fuli* is about 1 cm high and can be filled with 1 *blek* of rice (the size of a Kong Guan biscuit tin).
- *Dihang*: A small, round tray made from lontar leaves. Used to filter corn, rice, or other grains.
- *Didit*: A smaller tray-shaped *nyiru* (*dihang* are as big as a plate). Made from lontar leaves that are woven into small pieces and used to separate rice that is large, rough, and smooth.
- *Lakak*: A mesh of woven lontar leaves made small so as to shape red sugar into a disc-shape.
- *Kapisak:* Woven lontar leaves used for *tuak*, a fermented alcoholic beverage.
- *Hope bitin*: A closed round webbing made from lontar leaves that is used to store rice, corn, or *titi* corn / powdered corn. These food preserves are used if there are guests (to entertain), or for celebrations after the birth of a baby. *Hope bitin* usually has a rope so that it can be hung on a wall or pole. It can fit one to two kilograms.
- *Boba*: A contraption like a cage that is made from lontar leaf stems.
- *Nhola*: Woven *gewang* leaves are shaped into baskets and commonly used to protect hens when laying eggs, or to protect fermenting *laru* or *tuak.*

- *Nhola aleng*: Woven *gewang* leaves to be filled with charcoal and ash for preserving peanuts.
- *Hope blain*: A tray on which *pinang* (betelnut and areca nut, and others) are offered up, customarily.
- *Tuwas*: The tiny, square, box-shaped containers that contain *ketupat* cakes.
- *Popos*: Woven and cone-shaped, made from *gewang* leaves; commonly used to cook rice.
- *Kipas:* Woven from lontar leaves, it is rectangular, octagonal, or has twelve sides.
- *Seko:* A type of *bubu*, the seko is woven from the resilient middle stems of lontar leaves. The *seko* is used to catch or prepare fish.
- *Tudi bubat*: Woven lontar leaves to be used as a sheeth for a knife.
- *Hela bubat*: Woven lontar leaves to be used as a sheeth for a machete (*parang).*
- *Kakapi*: Fine woven lontar leaves with a lid. Used to store betelnut and areca nut (*pinang).*
- *Dhidung*: Umbrellas made from *gewang* leaves.
- *Ahlaten*: A rougher webbing made of only two gewang leaves that is used to move garbage.
- *Lotong fai*: Woven hat made from *gewang* leaves. This hat looks like a cowboy hat.
- *Hungi*: Webbing made from cone-shaped lontar leaves and used to cook rice (*ngae hungi).*
- *Kayang:* A woven mat of leaves used as a room barrier.
- *Nahan:* Sandals woven out of lontar leaves.
- *Lutung*: Another take on the *hopo bitin* but much larger. A *lutung* stands about 50 cm, has a string, and can be used to store *cucur* cake.
- *Tong leok*: Webbing of lontar leaves or *gewang* leaves used to store preserved corn. Can store five to ten sacks of shucked corn that has been preserved in the ash of *kusambi* trees. The diameter is about 1.5 meters with a height of 80-90 cm.
- *Nhipi*: Webbing of lontar leaves used to store tobacco. The size is small and usually put in *kakapi.*
- *Lotong Pola*: Woven hat from lontar leaves.
- *Hnodet*: Woven from *gewang* leaves, this handicraft takes the shape of a spoon for serving vegetables.

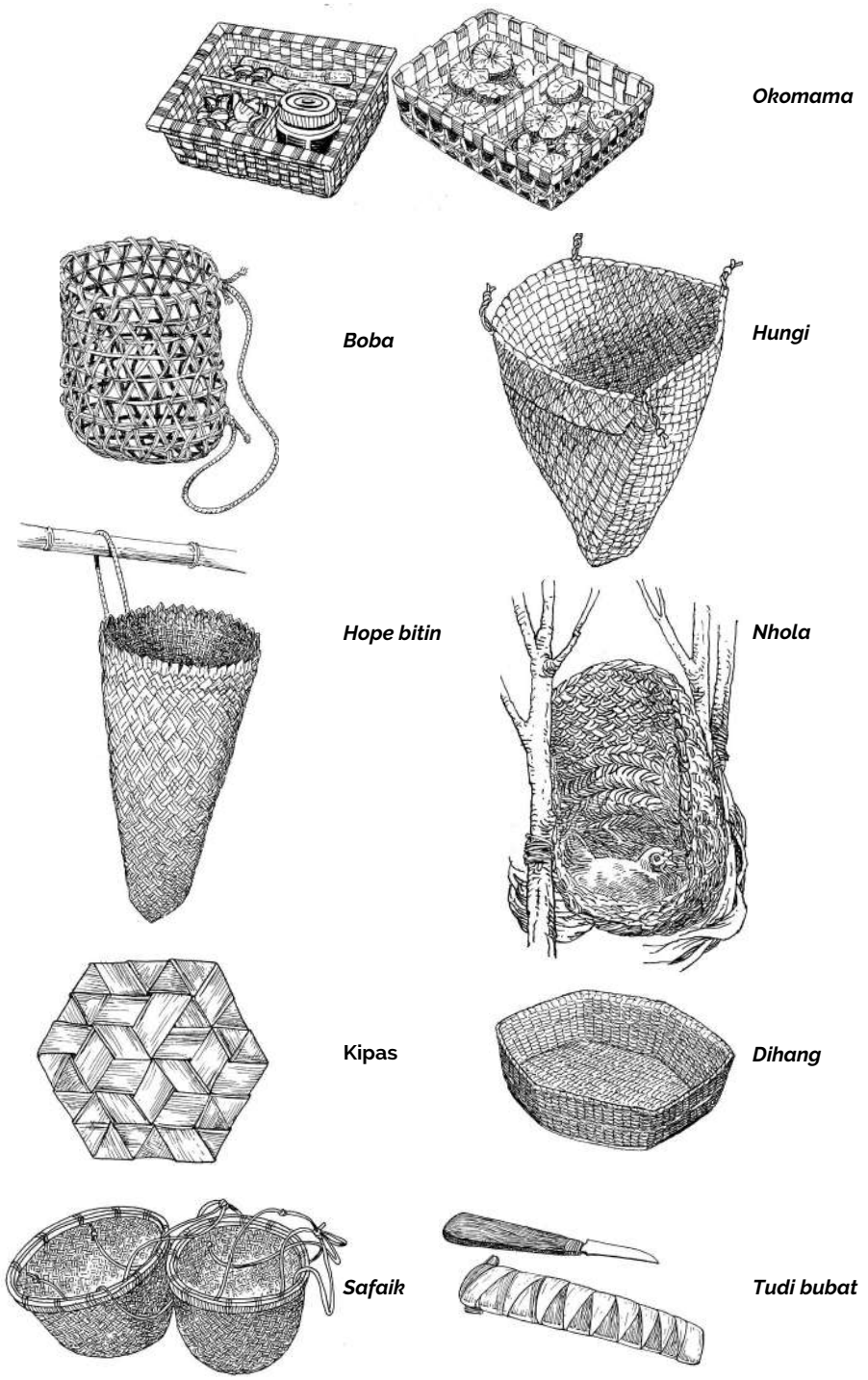


Image 27. Types of woven crafts from Semau

Materials needed to create these utensils come from the forest, or from fields and yards, or from the beach. To obtain the leaves required, a woman will send her son or husband up a tree to fetch lontar leaves or *gewang*, usually in the early morning – before the sun is at eye-level. "If you climb a tree before the sun is that high in the sky, the climber could fall, or never return," says Mama Poni.

Protector of Life

Indeed not only managing logistics, nor only the inner-workings of a household, the women of Semau also bring forth the next generation – by caring for babies and also each other, throughout pregnancy. Yuliana Pong, a brown-skinned woman around 75 years old from Uithiuhtuan, is an *in blingin* -- one of few remaining in Semau. It is unknown just how many children she has helped into this world.

"I do not recall. Since I was eleven or so I would shadow my mother in helping the others give birth," she says in the Helong language (translated by her son, Mitu Salah Lote). "Nowadays, pregnant women don't want an *in blingin* around. There are now midwives and specialists. So these days I just shower the baby and take care of them."

For tens of years Yuliana has been an *in blingin* in this village and the surrounding areas. She practices what she learned from her own mother. "It's a practice. You cannot just up and facilitate births and care for mothers," says Yuliana. Not everyone has the skills or the talents. It has to be in one's lineage. "You can train, but usually they don't achieve the likeness of a real *in blingin*," she says.

"Indeed not only managing logistics, nor only the inner-workings of a household, the women of Semau also bring forth the next generation – by caring for babies and also each other, throughout pregnancy. "

Yuliana explains that it even took her a few years before she was useful as a helper for her busy mother. "To start with, I just followed my mom. Eventually I could hold the babies, help out, and supply the boiling water mixed with *tatasi* wood. I passed the coconut oil one day, and she said that I was ready. I was ready to hold the babies," says Yuliana.

An *in blingin* has many difficult responsibilities. They must be able to source natural, traditional ingredients from the forest to create an assortment of specific medicines. They must also be humble people, by nature. They handle pregnant women, and help look after the baby all at once. The *in blingin* believe that, by helping people, they themselves will be helped. "If I help struggling people, then I will also be helped and protected too," says Yuliana with a subtle grin.

An *in blingin* would ideally be in contact with a pregnant woman from the third month of pregnancy onwards. They will routinely massage the stomach with thick coconut oil.

After a massage, the women will be bathed in hot water containing a hint of *tatasi* wood. The goal is to strengthen the mother, and make her feel strong and prepared.

A month before childbirth, a pregnant woman will be asked to drink coconut oil to aid in the process. After giving birth, the mother will take a rest – from between eight to ten days – on top of a surface that is heated from beneath with fire, and showered twice a day (morning and evening, depending on her physical condition) in *tatasi*-leaf water. During this time period, the *in blingin* is at her side, preparing whatever the mother and the baby need. When the mother has bounced back, the *in blingin* will still visit her – in the morning or evening. Steadfastly, the *in blingin* waits on the mother and baby and provides for their needs.

An *in blingin* must also be able to help a mother produce milk – by rubbing coconut oil on the breasts of the women, and gently applying hot water. If there is not enough milk for the baby, the child will be given the sugar of *tuak*. "When the baby is three months old they will be given some rice porridge (*bubur nasi)*, perhaps with coconut, or maybe *tuak* sugar," says Yuliana.

In a single village, there will be two or three *in blingin*. All of these are women, and usually they have learned the trade through their parents. This important role, however, has been usurped by government services and programs. Regardless, Yuliana is teaching her children the ways. "Nobody else wants to be an *in blingin* anymore. Nowadays there are well-educated nurses," says Yuliana, with a distant look although daydreaming.

Semau, Nowadays

On that day, the weather was inviting, and the trip to the Tenau peoples' harbour was smooth. A few travellers returning from a trip to distant villages and cities had to unload their motorcycles from the boats, while others loaded their motorcycles up onto the boats. There was no waiting room, no place to sit down for a moment. There was just the branch of a tree, and piles of stones, which was where passengers waited.

"In a single village, there will be two or three in blingin. All of these are women, and usually they have learned the trade through their parents."

To reach Semau, aside from the lengths done on the motorcycle, one must board a few ferries – with stops in Hansisi, Uiasa, and Onansila. If using a motor boat, then it was enough just to arrive in Tenau, and depart. After about an hour, we arrive at Onon Batu harbour. First impressions suggest that the place is incapable of functioning as a harbour. What's more, the whole harbour

was raised, tall above the ocean waves. Apart from the difficulty of unloading goods, women with babies also proved challenging – as they ascend a steep set of flimsy stairs.

Once on land, transportation was not much better. The road was only paved for the first three kilometres, and even that was already crumbling and wavy. This sort of road alternated with connecting roads, which were made of concrete. Where the concrete had broken, there were rifts, large cracks, and it was also slippery.

Public transportation here is the pickup truck. People just hop in the back. There are chairs and a tarpaulin in case of rain. If visitors wish to explore, however, as always, it's best to rent a motorcycle directly at the harbour – and take off into the unknown. Depending on the motorcycle chosen, it can be quite reasonable. The price starts at one hundred thousand Rupiah – up to five hundred thousand Rupiah (around $10 US dollars up to $50 US per day).

Either side of the main roads are pleasant, simple homes. There is significant space in between each house. In front of each are wooden fences – and piles of branches and leaves.

It was still fairly early in the morning. The road was still damp from rain. Calvin Marthen Massa, after retelling the story of Uiasa, adds some more details about this important spring. Mama Rossi, and four girls, two youths, and a Public School student, were having some fun, hanging out beneath a mango tree and chewing *pinang.* There was not much time in between eruptions of laughter.

One of the island's visitors seemed shocked with Mama Rossi bent down to kiss him – a peck, really – on the nose. Following this, the *okomama* tray bearing betelnut came out. "You're not yet in Semau if you've never been kissed on the nose and chewed betelnut," says one of them.

"Once on land, transportation was not much better. The road was only paved for the first three kilometres, and even that was already crumbling and wavy."

The visitor responded by quickly giving Mama Rossi a peck on the nose – before putting down their bag and taking a seat. The visitor took some betelnut from the *okomama* and slowly, thoughtfully, began to chew. They began to salivate, and then added areca nut to the mix. Then, the final ingredient – of ground-down seashells (*kapur)* – was added, following Mama Rossi's lead. The visitor notices that their saliva has now turned bright red in colour. "Wowa, feeling a little dizzy! I can't blink," says the guest. Laughter erupts again – as a woman rushes in with a glass of drinking water.

Betelnut is a traditional way of making a new connection with someone, though it's also for ceremonies and rituals. Through the generations, the chewing of *sirih pinang* has been upheld by the people of Semau, although Semau island has changed drastically in the past few centuries. "Semau has moved ahead. Tourists come here all the time," says Calvin.

The change that Calvin refers to involves development and infrastructure, irrigation projects, electricity, and tourism-related facilities. "There are some homestays around the village office, and some more near the beach. However, they're all empty right now," says Calvin.

Other developments in tourism were started and maintained by Laut Sawu in the North and West, within the National Marine Conservation Area of the National Marine Park. This has been officiated by a decree from the Minister of Marine Affairs – number 5/KEPMEN-KP/2014. The marine ecosystem is right at the heart of the coral triangle, a world renown conservation area.

Semau is in the same administrative regency as Kupang, and its coordinates are 121°30 to 124°11 East Longitude, and 9°19 - 10°57 South Latitude. A strategic enough location, Semau is at the entranceway to Timor Island and internationally important waterways. However, these same waters are also popular as a Tourist Marine Park, Teluk Kupang, with a wild diversity of coral and animal life. These marine creatures are also a food source for the people of the city of Kupang, however.

With rolling topography, at around 150 meters above sea level, Semau has three types of ecotones. There are Mediterranean, latosol, and alluvial environments. Unfortunately, none of these three environments supplies the people with what they need to survive.

Minerals include "boboro" clay, alluvial deposits, and coral. The clay prevents ground water from being evaporated, while preventing fresh rainwaters from sinking in. As for the alluvial deposits and the coral, however, these are porous minerals, and as such water can travel freely through them – resulting in freshwater springs. Every year the land is overcome with brush, which flourishes in the rains. The largest freshwater spring is found in Uiasa Village, and it flows in inverse relation to the availability of water elsewhere on the island, which over the course of a year, provides for just 100 to 133 days.

"There is an interesting story behind the name of Uiasa Village. A pig farmer went looking for their meandering pigs. They saw a hunter and asked if the hunter wanted to hunt pigs with their hunting dogs."

There is an interesting story behind the name of Uiasa Village. A pig farmer once went looking for their meandering pigs. They saw a hunter and asked if the hunter wanted to hunt pigs with their hunting dogs. The pig was caught near a cave, slaughtered, and put on a rotisserie. Suddenly, a flock of *sriti* birds burst out from within the cave with a great splash of water.

Having finished eating all of that pork, the farmer and the hunter ventured into the cave from where the birds had flown. Inside of the cave was a spring. "*Ui! Ui!"* they said, which

means "water." One of them still held a large bone from the pig they'd eaten. In the language of Helong, a bone is "*asa."* Thus, the village of Uiasa could possibly be translated as "bone spring."

Calvin Marthen Massa, after retelling the story of Uiasa, adds some more details about this important spring. The spring of Uiasa does not cease to flow, bringing forth cool and crystal clear water, providing for everybody. Massa is backed up by Anus Pong, as the former head of the village, who was elected in 1983. Since that year, the Uiasa spring has been protected and enjoyed by all.

"When Bapa Anus Pong was in charge, we installed pumps here," says Calvin. In 2002, the Kupang Regional Government gifted the village one water pump and enough pipes to run the water to Nhubuntalung, Hansisi, and Huilelot. However, the pump soon broke down and nobody could fix it. The water did not flow. "No one could fix it," says Calvin.

Uiasa's spring is to the East of the village office. Nearby is a large banyan tree, and a man-made pool, a place to bathe and shower, and a designated spot to fill water jugs. Whoever wishes to take a dip is welcome. There is a donations box at the entrance. "Tickets are manage by the village. The money comes back to the people in the form of a variety of other programs," says Anus Pong.

To start, the spring was once owned Laiskodat-Palo, because it happened to be on their land. However, when the New Order regime entered the picture, the spring was designated a public resource. It was for people and livestock, they declared. At the moment, the waters from this source at Uiasa fulfil the needs of the people of Dusun I Village, Uiasa, and Tutun-Kobalin Hamlet, and Hansisi Village. For a range of around five hectares surrounding the spring, the people have planted vegetables, corn, and onions.

Aside from Uiasa, there are some other springs in Letbaun, Otan, Uitao, and Huilelot, though none are quite so prolific. Aside from the pipes that run water to the villages, the people also receive water from the rains – in large tanks. These were only just installed in the past few years, and were afforded through government programs, such as the "Public Water Supply and Sanitation" (Pamsimas), with contributions from NGO's and individual investors. The tanks are to be used for all purposes, for the everyday needs of the people, also for farms and livestock.

"The tanks are to be used for all purposes, for the everyday needs of the people, also for farms and livestock."

Aside from this, the people often dig their own wells, which have limited success above seven meters. At this time, in Semau Regency, at 126,11 km², divided into eight villages (Bokonusan, Otan, Uitao, Huilelot, Uiasa, Hansisi, Batuinan, and Letbaun) – there are 93 drilled wells. Meanwhile, in South Semau Regency, at 122,55 km² and divided into six villages (Akle, Uithiuhtuan, Uithiuhana, Onansila, Naikean and Uiboa), because there are not many natural springs, there are 600 drilled wells.

To dig a well requires specialized labour, someone who can source underground springs. Not everyone can do this. The people of Rote, however, are specialized at finding water. For some time now there have been no new springs, or underground streams, discovered. Nowadays people rely on technology – a device like a compass, which can detect the existence of water underground.

For villages where water is scarce or unavailable, the people are forced to purchase it at 250.000,- Rupiah (around $25 US dollars), to 350.000 Rupiah ($35* USD), per month. This is for drinking water, for cooking, and livestock. If the water truck does not come, however, the people need to travel tens of kilometres to fetch it themselves.

Aside from limited water supply, electricity is still a novelty in Semau. In a few villages, electricity is only on at night, from seven to seven in the morning. This is provided by the government's "National Energy Company" (PLN) Sub-Rayon Semau, located in Uiasa. Specifically in the village of Huilelot and Letbaun, there are solar farms (PLTS), capable of producing energy to fill the afternoon gap.

Revitalizing Culture in Semau

The way to the old village (Dusun III), in Uiasa, is like all other interconnected roads in Semau. Wavy, potholed, twisting, and slippery when wet. The homes all have large yards here, strong porches – but no roofs. "Welcome to the unbuilt house," says Semaya Thomas Katu, warmly.

"What is this called, Sir?" asks a younger person, indicating a mesh of woven leaves hanging between two branches near the yard. "Oh, that's *safaik.* It's a mesh of leaves used for harvesting, and also for collecting chicken eggs," says Thomas. Beneath these woven leaves, a hen sits on her eggs.

Out on the lawn, the people sit in a circle around a round table covered in cups of tea and boiled corn.

"Here's where I started with Sanggar Melati," says Thomas. Sanggar Melati is an art and cultural collective in Semau. It has been around since the 1980's with the goal of preserving arts and culture in Semau, and reconstructing old customary dances (mainly those associated with agrarian activities) that were erased and replaced by contemporary dancing.

"To dig a well requires specialized labour, someone who can source underground springs. Not everyone can do this. "

Dances that were revived by Sanggar Melati are the Sasando, the Gong, and the Li Ngae (grinding corn). Other dances were important for

ceremonial reasons, such as the Butu Tenun (weavers dance), the Ngot Bon (the catfish dance), and Lobot Ngae (grinding corn). The musical accompaniment of these dances includes the gong, the six-string *sasando,* the *baut muluk* (flute), and the *baut koak* (conch).

The Sasando Dance (Tari Sasando) is a dance that aims to entertain, the rhythm is gentle and it is accompanied by a rhyming game. It is done for marriages, funerals, housewarmings, holidays, and other occasions. The movement of the dancers follows the *sasando* of the Helong (a stringed instrument). The sasando is a musical instrument shaped like a guitar, but without chords. It is played with two hands, but both of them from below the instrument, and both hands move up and down the instrument – left to right, right to left.

The Gong Dance (Tari Gong) follows the sound of the gong. There are two types of gongs that are frequently used. There are wooden gongs and metal gongs. This dance is a popular ceremonial dance, especially during weddings, or for greeting guests. The gongs are simple enough, consisting of the instrument, and a hammer to pummel it with.

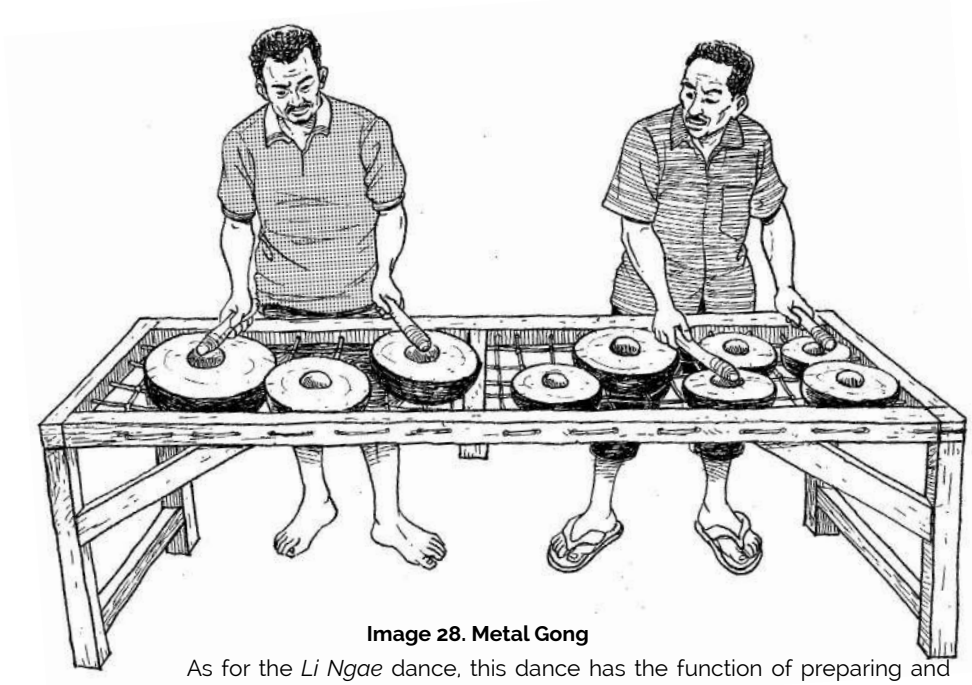


Image 28. Metal Gong

As for the *Li Ngae* dance, this dance has the function of preparing and preserving corn kernels. The Li Ngae, however, can no longer be found on the island of Semau. "Li Ngae is extinct. The people of Semau no longer preserve corn or use the ash of the kusambi," says Thomas, who last saw the Li Ngae performed in the 1990s.

"The kids these days want to leave Semau. They no longer have ties to their customs and traditions. The hope is that, if we can revitilize the old traditions and the arts, a pocket of this generation will be enamoured and stay. A few decades ago almost all Helong men could pluck the sasando, but now only four people can. And those four people live on distant islands for work, and seldom come back home to Uiasa," says Thomas. The Sanggar Melati revitilization initiative remains active in churches, when important figures visit the island, and during festivals.

Creating Hope in the South

That evening the skies around Osalaen Village were overcast. Men and women bundled up the seaweed harvest in ratty old tarpoulins. Young people sat around, relaxing. Some of them helped to bundle the seaweed and tie it together with strings before placing them in a silo, or a shed, for storage. About 30 families of Osalaen village, and hundreds of people from other villages, depend directly on the availability of seaweed, and catching fish.

Osalaen Village is in the South of Semau. This area is predominantly Muslim, and the largest Muslim area on Semau. Daeng Sanda Bolos, the head of village customs, believes that their ancestors are the famous Bugis *boat people* of Sulawesi.

In the 1880s, Kraeng Bolos, together with four friends, on the trip from Rote to Kupang, stopped off in Semau. He was asked to stay for a while, so that the local *fetor* could use his boat for a short but important trip. Each month, Fetor Bisilisin had to travel to Kupang to report to the Dutch officers. The trip took longer than expected, and Kraeng Bolos and his friends settled in, in Semau. Fetor Bisilisin had access to his boat thereafter, and Kraeng Bolos was gifted a plot of land in Kontema, by Man Panas, from the Tausbele Kauhlae clan.

As for the name of the village itself, Osalaen tells the story of some people from Sabu, Semau, on a journey to Kupang, a while after Kraeng Bolos established himself in Semau. The people from Sabu were stuck, thirsty, and begging for water. Kraeng Bolos pointed to a freshwater spring between Kontema and Amanamang. After a drink, the people of Sabu told the villagers that the slow-flowing spring could be more useful if they made it into a well. Kraeng Bolos kept these Sabu peoples well fed. In exchange, the people from Sabu gifted Kraeng Bolos two goats and two sacks of rice. This exchange – of water, rice, and goats – became the name, Ui Laen. "Ui" means water, "laen" means goat. Over time, "Uilaen" was transformed into "Osalaen," because of the local accent.

Before they understood how to cultivate seaweed, the people of Osalaen planted local corn and rice paddies, and also some nuts. Seaweed became popular since 2008. At that time, seaweed seedlings were imported from Bali by Bupati Kupang. Over time, Osalaen became the center of seaweed conservation in East Nusa Tenggara. "Nowadays, you'll find thousands of cultivators here. From all around Semau, they flock to here and plant seaweed. Young or old, man or woman, all of them are here for seaweed," says Sanda Bolos. "But if the

rains come, most of us go back to working in the fields. We plant rice, corn, and peanuts."

It is not uncommon for the people of Osalaen, who have long been cultivators of seawood, to send their children to another island for school. Their children school in Yogyakarta, Surabaya, and Malang. A few of them have built retails businesses outside of Semau.

Adit and Firman, the children of Sanda Bolos – children still in High School,-- nevertheless make time to help cultivate seaweed every day. "In the morning, we sew the seedlings. In the afternoon we harvest. In the evening, we pull it all back to shore," says Adit, who rows the boat with their younger sibling, dropping the sacks and then pulling them to land. Here, Cottoni and Spinosum seaweed is what they plant. Cottoni is priced at 25.000 Rupiah (around 25 cents American), per dry kilogram, while Spinosum is only 8.000 Rupiah per dry kilogram (around 8 cents US).

Local Produce

Ruthless winds, pummeling rains, and the crack of lighting are commonplace in March, and the people of Semau welcome it like a gift. During these times, all community members gather in the kitchen to warm themselves around the fire, fry up some bananas, shred pumpkins and nuts, while telling stories.

When the rain falls, life begins. During these times, it is not hard to find plants in front, beside, or behind one's house. The pumpkins and gourds come first, then the nuts, the spinach, the peppers, the flowers, papaya leaves, young corn, banana flowers, and then more.

Image 29. The produce of the garden

On the topic of food, Semau should be known for its *sambal* (spicy sauce). Sambal is made of sliced hot peppers, red onions, salk, and the tang of lemon juice. The smell and the taste is specific to Semau, and it brings out the flavour of all dishes. It adds *colour* to vegetables and fish. It tastes great on everything. Here in Semau, they call it sambal *lu'at*.

In Semau, rarely are there eateries selling the local foods of Semau. The people usually gather and consume what they plant, in the surrounding area, like corn, pumpkin leaves, root vegetable leaves, papaya leaves, papaya flowers, young pumpkins, unripe papayas, peanuts, nuts, *kerapu* fish, yellow fish, red fish, octopuses, squids, sea turtles, wild chickens, and even wild boar.

From these materials, the combinations and possible dishes are endless, such as sautéed leaves or papaya flowers, sautéed papaya flowers and yam leaves, sautéed pumpkin and pumpkin leaves, vegetable *rumpu rampe*, sauteed sea turtle meat, *octopus sambal*, *sambal nus*, grouper fish soup, spiced chicken soup, and others.

The spices used for cooking are simple enough. It's enough to add some chopped hot peppers, red onions, garlic, salt, sugar, and flavour-enhancers. The papaya flower itself has a very unique taste. It is slightly bitter, but it is believed to stimulate one's appetite. The papaya flower is plucked from the tree only when they have bloomed. These flowers thus never have a change to become papayas, of course. As such, people sometimes call these flowers *papaya jantan* (male papayas) – as opposed to the flowers that are not plucked, which produce fruits, and are therefore female.

As for the fruits of the ocean, such as sea turtle meat, octopuses, grouper fish, yellow fish, red fish, and *nus* – during certain seasons they appear in abundance. The people living on the coast have extensive recipe books for sea turtle and octopus that are believed to increase one's stamina while benefiting certain internal organs.

Aside from this, corn remains the staple (aside from rice), that can be used to make many and sundry dishes. Corn can be fried, boiled, or when it's unripe, it can be steamed and mixed with coconut milk. It can be steamed in pumpkin leaves for a few hours and served up with steamed and spicy papaya flowers. Corn can also be crushed down and mixed with rice.

Titi corn and *bose* corn are also Semau's must-try dishes. Titi, or *ngae biti, ngae bisi, ngae mol*, all involve a process known as *dititi* (crushed and ground in a mortar and pestle or on a rock). The corn used must be local, such as white corn, which has a slimy texture, and has a thin shape.

"In Semau, rarely are there eateries selling the local foods of Semau. The people usually gather and consume what they plant, in the surrounding area,... "

Titi corn does not spoil quickly. It is usually stored in a *hope bitin,* and can be taken anywhere – as a snack in the home, or as an offering for guests. It is often served with coffee or hot tea.

While not difficult to harvest, preparing *titi* corn does take much time. First the corn is fried until half-cooked, then, while hot, handfuls are taken to be pressed and grinded on a stone – until it spreads evenly.

As for *bose* corn, it only has to be boiled together with coconut milk. It's often mixed with peanuts and slices of pumpkin. It is served up with smoking meats and sambal. The taste is *umami,* and it is rich in carbohydrates. The methods of preparation are also quite easy and simple. A boiled porridge of corn, red beans or peanuts, is boiled with salty water until it is sticky. Then, slices of pumpkin, and coconut milk, are mixed in. The boiling of these ingredients continues until everything is thoroughly cooked, soft and gooey. Bose corn is an important dish at large festivals, while also being an everyday staple food among the people.

The Farming Model of the Future

In Uithiuhana, at this time, a new era is emergent in terms of ecological / environmental awareness. It is much more important to the youth that their line of work is in keeping with environmental limitations. One driving force behind this initiative is Wempy Tepa and Uniasis Lafu, a community of farmers from Dalen Mesa. Together as a team they have taken one hectare of land and made an example of alternative methods of land usage and farming.

On this land, they plant a variety of vegetables, pumpkins and gourds, tomatoes, eggplants, chilli peppers, leafy greens, bokchoy, and strawberries. There are also small pools filled with catfish, but with many plants growing within these waters. Above these ponds is a small building that functions as an office. Sacks of red onions hang off of its exteriors. Many of these red onions will become the seedlings for the next planting season, while the others will be sold to those who need them. "They're tied up there so that they stay dry and fresh, last a long time, and don't easily spoil," says Asis. Wempi nods in agreement. Last year, Wempi and their team threw a successful, first Harvest Festival, and they were sure to hold space for a *Hopong Ngae.*

"Nature is giving. It is an endless resource. Some try but do not manage to tap its full potential. They only fulfil the basic needs of the people here. "

"Nature is giving. It is an endless resource. Some try but do not manage to tap its full potential. They only fulfil the basic needs of the people here. If only we could make the most of the land, we wouldn't need to wait for shipments of supplies from the city of Kupang," says Wempi.

For these two men, farming in keeping with nature is the answer to the problem of production on Semau Island.

They spread their knowledge around like a virus wherever they go. If only there were at least seven other farming communities willing to employ their model – farming in keeping with nature.

"Not only are we introducing new techniques, we are also reintroducing plants that were once planted here, and the older knowledge of how to handle them. The proof is in the produce," says Wempi. What these Dalen Mesa farmers are doing is supported by a few community organizations, such as Perkumpulan Pikul, Geng Motor Imut, Kupang Batanam, CIS, Yayasan Alfa Omega, and a few others.

Last Words

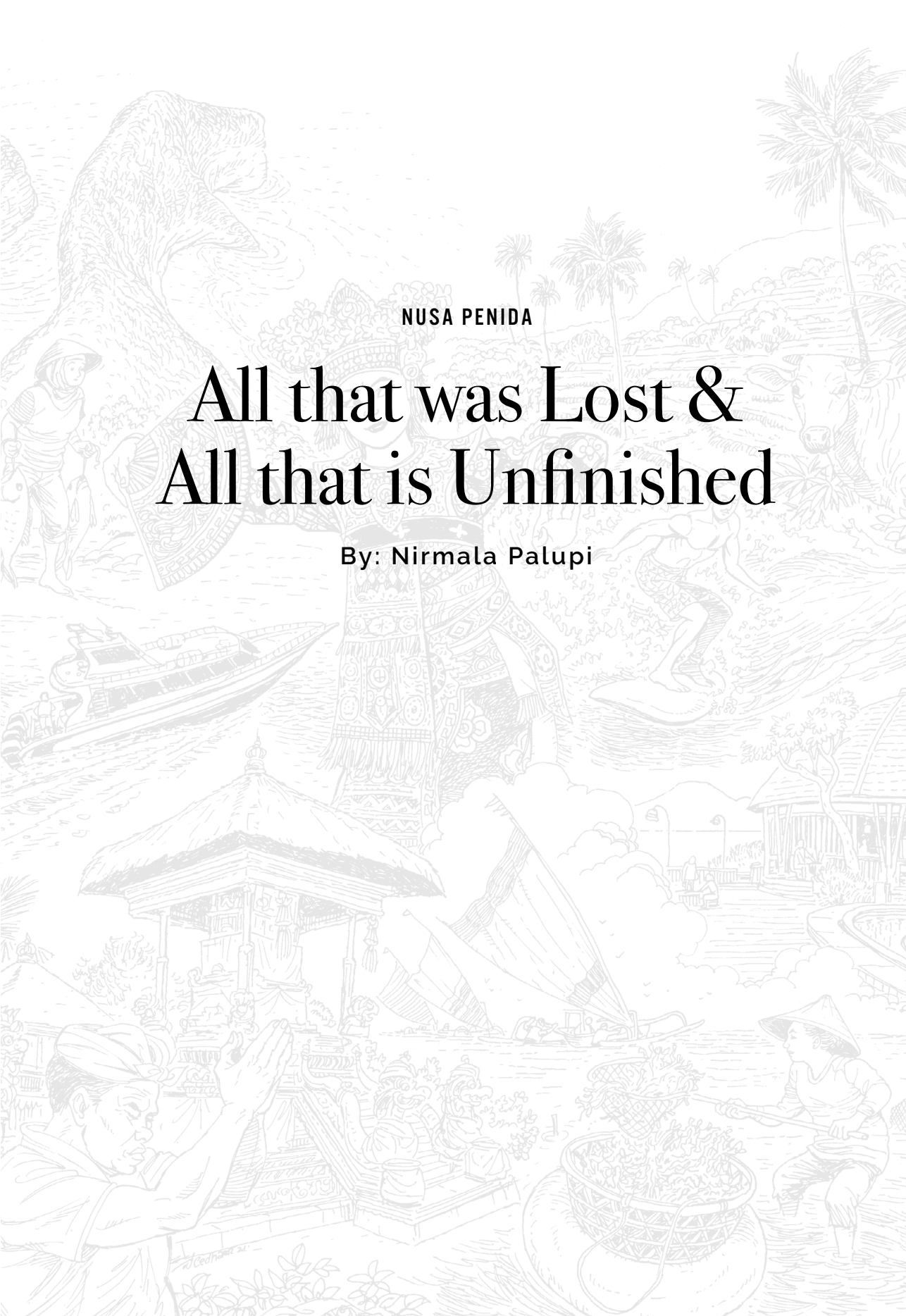
The story of Semau, these days, is a prelude to this new era – of tourism. It is the story of local wisdom that is fading. The story of Semau is the story of the sacral *suanggi,* whose presence and prestige is diminishing. It is the story of subsistence farming on dry lands, freshwater springs, weaving, sewing baskets, women as guardians of life, *bungtilu,* honey, squid, Nusa Hijau and Nusa Damai, and distracted youth. Knowledge affects everything. It allows people to dive into a mound of riches. It allows people to reread and rewrite civilization.

Much local wisdom is leaving us. Much has never been documented either. The disappearance is happening for a few reasons, such as the changing times, to which everyone is struggling to adapt to, and the interference by the government – through Nusa Hijau and Nusa Damai, and Revolusi Hijau – and the dubious gifts of hybrid plants and pesticides and herbicides. The other catalyst is public opinion, national hegemony, which views tradition and Indigenous wisdom as the enemy of the Church, or other religious organizations.

NUSA PENIDA

All that was Lost & All that is Unfinished

By: Nirmala Palupi



THAT afternoon, the 28th of January 2019, the Banjar Nyuh harbour, Ped Village, in Nusa Penida, was bustling. There were a few ships in port and operations were fast. Half of the activity was tourism, people from around the world, and locals as well, on holiday.

Alighting onto the beach, the people are confronted by locals wishing to rent motorcycles. "Motor? Motor?" they say. "Motor rent please, motor rent please," they say – to the slightly *lagging* tourists with their large suitcases and backpacks.

Bu Peni calls out to the tourists. A 40-year-old woman, Bu Peni works in a villa, a fancy rental property, in her home village. "I rent motorcycles, then I head to work at the villa," says Bu Peni, smiling. "Right now, it's busy. Full of tourists since last year. The people's homes are even rented out to tourists who don't mind," she says.

In one day, Bu Peni can rent five motorcycles out. "If my bikes are all rented out, my friends will lend me theirs for rental," says Bu Peni.

Motorcycle rental in Nusa Penida is not as profitable as the same business in Bali (Denpasar and Kuta). The price has been adjusted, and there is no need to check the people's IDs or passports either. It's a small island. If they are finished with the bikes, the rentees can call up the renters and have them come and collect he bikes – and only then do they need to pay.

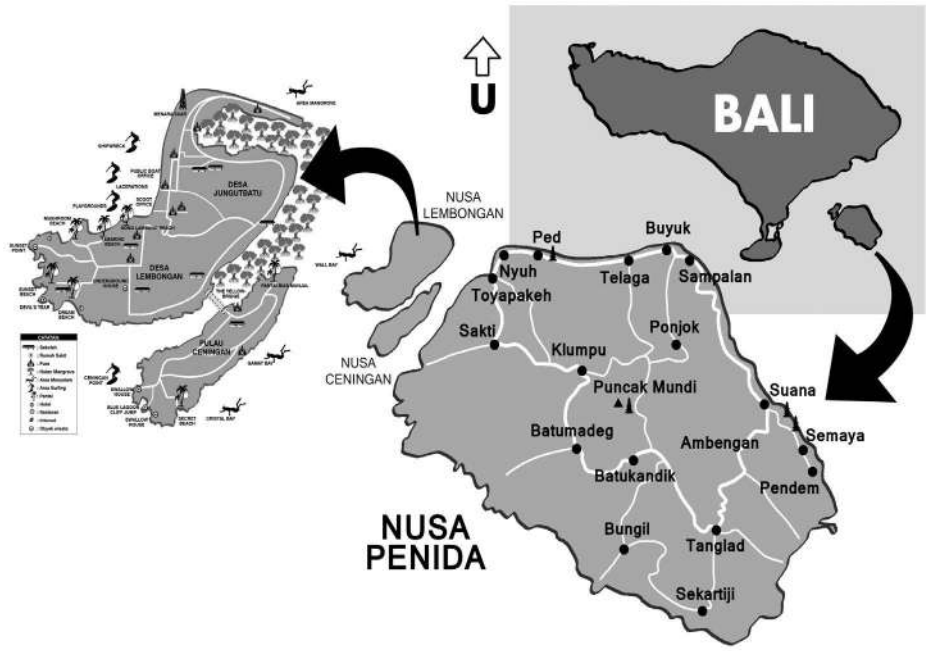


Image 33. Map of Nua Penida Regency

A few steps from the beach and the harbour, there are piles of sand, coral and stones here and there. Signage indicates the harbour, and where the harbour ends. Coconut trees are in a row for about ten meters – forming a hallway either side of the road. One of these trees has been cut down, and there are stumps that indicate that this happens often. A row of vehicles streams out of the ferries and clogs this rural street. When the fast boats from Sanur arrive, the harbour is like a party – a crowd of vehicles and tourists, surrounded by locals offering services and tourist information.

January is the right time to visit Penida. The hills are green and the cows roam the streets with brightly-coloured, shiny coats. The flowers bloom. Nuts and seeds grow, creeping up the stalks of corn, cassava, and other crops in the farmers' fields. A type of stick known as a *turi* is stuck into the earth in the fields, marking the boundaries of the allotment. As the road is long, the sweet smell of blooming plants is stronger. In January, Nusa Penida is an Eden--far from the tiny, dried up, inhospitable island it can otherwise appear to be.

To the Southeast of Bali, Nusa Penida is in Klungkung Regency and is 202,84 km^2 with 16 villages and a total of 45.580 people (see *Proyeksi Nusa Penida 2018*). These sixteen villages are Ped, Kampung Toyapakeh, Sakti, Klumpu, Kutampi, Kutampi Kaler, Batukandik, Batumadeg, Batununggul, Bunga Mekar, Tanglad, Pejukutan, Sekartaji, Suana, Jungutbatu, and Lembongan.

A majority of the people are farmers or care for livestock, and many are also fishers. "That was long ago, a few years ago. Nowadays, farming is not very popular. Everyone wants money. His Holiness the Dollar has arrived. Today, that's all that people know how to worship," says Mangku Wayan Leser, a ritual leader of Banjar Nyuh Kukuh, Ped Village.

"That was long ago, a few years ago. Nowadays, farming is not very popular. Everyone wants money. His Holiness the Dollar has arrived. Today, that's all that people know how to worship."

In the highlands the landscape is less suited for farming, so the people have taken to horticulture, planting corn, *ketela* trees, pumpkins, nuts, bananas, mangoes, *rambutan* – and caring for lifestock, such as cows and pigs (the local variety is grey and black), and chickens. Along the beaches down below, the people fish and collect seaweed. A few of them cater to the tourist industry as guides or transportation, or other.

Statistics, or *data BPS* ("Nusa Penida Regency in Numbers," 2019) states that mountainous / sloped farmlands make up 4.970 hectares (ha), while 4.035 hectares are ideal farmlands, and 5.333 hectares are Indigenous forests. There are next to no paddy/rice fields. The aforementioned useable farmland is primarily in Toyapakeh, Lembongan, and Jungutbatu villages.

On most farmlands, coconut trees stand in a row. In the highlands, however, stand the mango, banana, and cassava trees. Aside from these, there are also vegetables – either

on the side of the road or in the farmers' fields, there are *gamal* and Dutch *jati*, planted in rows. Some of these have been planted alongside *bunut* (a type of banyan) – in the hot season it becomes food for livestock.

"The Nusa people, as farmers, also keep livestock. Planting corn, trees, peanuts, pumpkins, and caring for cows and pigs," says Leser. The activity of farming is inseperable from managing livestock, because both traditions utilize the available land.

That afternoon, the weather suddenly changes. For a while it shower, then it is overcast, and then the rains sprinkles down again. Leser sighs to himself. The wrinkles on his face are inconcealable. His grey hairs stand out. A white sock is tied around his forehead to keep the sweat from falling. He shifts his weight where he rests on a mat made of *pandan* leaves. The mat has torn edges. Leser adjusts his sarung, which hangs to his knees. "Why would you want to come here, to Nusa? Nusa is already full. It's not Nusa anymore," he says.

In front of his house, which faces the main road, the cars inch past. "That's progress. Every day, a headache. We don't have a moment's rest," he says.

Since 1950 Leser has been away from the place of his birth, Lembongan Village. Since he was two years old, he's been in Banjar Nyuh Kukuh, Ped Village. He has kept records of change and transformation. He remembers it all clearly.

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Nusa Penida Long Ago

"The coral rocks are scattered through the farmlands. One of these stones is an alter where rites of passage are to be celebrated, and it's now covered in shrubs."

Image 31. A field with stones scattered around.

Long before Nusa Penida became a tourist destination, nature was in command. Inhabitants lived close to nature – to learn Her secrets – to survive (*bertahan hidup).* The island is many mounds of rocks coated in a thin strip of dirt, and nothing will grow outside of rain season. Surrounding the island, there is a vast brim of coral reefs. Bare hills roll and whatever grows on them throughout the wet season dies when it's dry.

The *bunut* and *bingin* (types of banyan) put down the thickest roots. There they stand, watching the animals at work and at play. A few pigs, the piglets known as *kucit,* squeal and fight for milk in the *bangkung* pig pen. Not far from the large trees that lume above, in the shade of coconut leaves, some cows graze, unphased when the land owner comes to return them to their enclosures.

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Farming Systems and Agrarian Traditions

"Pok pok pok hoooo...pok pok pok..hoooo...pok pok pok hoooo...".

This is a familiar sound around Nusa Penida. I Made Rama, the former head of Adat Tanglad Village, is pulled back into a distant memory of life – on the benches of his Public School. His father was a farmer and a livestock owner, and Made was often brought out into the fields with his father and friends.

In the early 1970s, Made and his father and grandfather planted *gage* rice in those slanted fields, in Tanglad Village. Aside from planting rice, they also planted corn, pumpkin, *bleleng* (sorghum), cassava, and nuts – using a *tumpeng sari* system, where one plants many types of vegetables in one plot. "Since long ago this is how we do it. We plant a variety and harvest a variety," says Rama. For nuts and beans alone there is a vartiety. There are peanuts, red beans, *lindung*, *undis*, green beans, *komak*, soya beans, and *kara.*

"Families with plenty of stored vegetables have storage areas that are separate from their homes and kitchens. Families who have little merely hang their produce in the kitchen, or in the cubby hole above it "

The harvest is used to fulfil the needs of the community on a meal-to-meal, day-to-day basis. The leftovers are saved in a *gelebeg* or *jineng*, a sort of storage silo for harvested crops – useful for when dry seasons seem to never end. Families with plenty of stored vegetables have storage areas that are separate from their homes and kitchens. Families who have little merely hang their produce in the kitchen, or in the cubby hole above it. Corn, *bleleng*, nuts and beans and legumes, *ketela* tree, *gage* rice, and other seeds to be planted later – are all stored here.

An unpredictable climate and intermittent rains has shaped the people of Nusa Penida to understand heat, anxiety, and drought. Farmers may only plant once a year

here. If the weather is favourable, they might be able to manage a second round. Aside from these brief windows, for four months the farmlands sit empty. The people focus on their livestock – namely cows and pigs. These animals are usually tied up in the fields or in their enclosures. In one field there may be three cows, a *bangkung*, and a few *kucit.*

Cow dung is used as fertilizer. "What's more, in Tanglad. Here the rains are very seldom. The heat drags on. Sometimes ten months a year. In the nineties we ran out of food once. After that, hybrid corn," says Rama. He continues, "When I was little, there was no corn. It was hard to find. We ate *ketela* tree, split that up between us. What we had all came from the earth."

The type of rice known as *gage* is not only in Tanglad. In the highlands, such as Batukandik and Batumadeg, gage rice is also planted. Before 1995, Batukandik was the largest area compared to Nusa Penida's other villages. The farms also produce rice. However, since then the seasons have become unfamiliar, and they cannot be predicted. This type of rice does not grow well anymore. The birds who relied on it no longer have anything to build their nests from. Quick in adapting, the farmers began intercropping their plants. This was a good workaround, but it still only produces one harvest each year (if planted during the rain season). Meanwhile, in Suana and Sekartaji, the planting of cassavas only happens once every year.

Chemical Fertilizers

In 1995 there was a drought as a result of a lengthy dry season that lasted ten months. Even afterwards, however, the amount of rain remained less than usual. Eastern Nusa Penida receives less rain than the Western half. While one half of the island remained relatively dry, in the West, farmers had to worry about excessive dampness causing root rot and mold.

In Tanglad, Sekartaji, and Batukandik, the soil has become hard and grey, or black, and is no longer fertile. This has transpired due to chemical fertilizers, required in increasing amounts each year in order to produce *anything at all*. This has been a widespread problem starting in 2005. This dyer situation coincided with an increase in the population of an unpopular pest – the long-tailed macaque monkey – and a drop in younger people interested in becoming farmers, like their parents.

In Batumadeg, Klumpu, and Penida, corn is planted once or twice a year, depending on the length of the rain season. For personal consumption, corn that has already been ground down is mixed with rice that has come from the market. Generally, cassava remains a staple food here, while soya beans and corn are available all year round for harvesting. The end product is just enough to fulfil the needs of the communities of Penida for six to seven months. That is if the local produce is mixed in with storebought rice or corn. To purchase other foods, the people sell their livestock, and some work as labourers, doing construction and heavy labour.

Managing Fields

To make use of a hilly and rocky terrain, the people use traditional tools such as *kikis* (made of bamboo with a metal handle so that it can be stabbed into the dirt to open it up), hoes, axes, machetes, and sickles.

The farmers go to the fields early in the morning. At around seven in the morning they are already in the fields feeding the cows. After giving food, they clear the land of shrubs and brush – until mid-day.

"At around twelve we take a break, eat some of our wives' food. We eat together in a place called the *megibung,* and then work until sunset," says Rama. Those with cows also use them to help clear the fields. "If not cows, then it has to be people power."

Cows and buffalo can help out before planting commences. After that, when the plants come up all the way until harvest, everything is done by hand. "Here there's no way we could use modern machines because of the conditions of the land. We have to do it by hand, because it takes great care to manage these plants – like corn that has just been planted two or three weeks ago. If the cows were doing the work, the fields would be almost bare," says Rama.

"Cows and buffalo can help out before planting commences. After that, when the plants come up all the way until harvest, everything is done by hand. "

To process the earth for the planting of *gage* paddy, this must be done when the hot season is almost over. The soil needs to be free of brush, sticks, and the earth needs to be treated, opened up, and mixed with organic fertilizer, such as cow dung.

Planting begins in the sixth month of the *wuku* Balinese calendar, exactly two days after Anggara Kasih Kulantir (an observance on said calendar), in order to be successful. If planting begins too soon, perhaps one day after Anggara Kasih, the plants will be more likely to be damaged by pests, or eaten – according to local wisdom.

In one year, *gage* rice can only be planted once – during the rain season. The rice itself can not be older than six months, also. Another characteristic of this rice is that it does not last long, and the rice plant does not grow very tall.

Various Equipment

Various equipment used by the community in all farming activities includes:

1. ***Metekap* equipment (plowing)**
   This traditional utensil is placed on the necks of two cows that are then tied to the *tenggala* and *lampit*, which plows the fields.

2. ***Tambah* (hoe)**
   Used for digging, clearing the ground of grass, or leveling land. It is still in use today. For larger jobs, people usually use a plow. Hoes are usually made of wood and iron.

3. ***Petakut/lelakut* (scarecrow)**
   ***Petakut* or *lelakut* are usually made from bamboo sticks wrapped in straw and made to look like a person in the middle of a field. The goal is to keep birds from eating crops, especially yellow rice seeds.**

4. ***Ranggon***
   A hut in the middle of a field, a *raggon* is used for shelter and to store farm equipment.

5. ***Peralatan Panen* (harvesting equipment)**
   a. ***Ani-ani/ketam***
      is a small knife used to harvest rice. With an *ani-ani* the stalks of rice grains are cut one by one. This process takes a lot of work and time, but the advantage is, in contrast to the use of a sickle, not all stems are cut off. Thus unripe grains are not harvested.

   b. ***Arit/sabit* (sickle/scythe)**
      are used to cut rice in paddy fields. Made of cast iron, these resemble a crescent moon, which is the meaning of *sabit*. In the past, sickles were much larger. Sickles are typically made of iron or used steel, traditionally forged, and given a wooden handle. Sickles are versatile tools for cutting grass for livestock, clearing fields, slicing coconut or palm sugar. They are also useful for harvesting rice. There are also many types and varieties of sickles, depending on your needs, from small to large, such as a scythe for slicing grass, scythes with jagged edges, and larger scythes for cutting down larger branches.

c. *Gerejag/gebotan*
is a tool used in the harvesting process, where the function is to remove the rice seeds from the stalk by means of swinging the rice stalks on the *gebotan* so that the rice seeds can be separated from the stalks.

d. *Keranjang* (basket)
is a handmade object for the accumulation of agricultural products, such as fruit, vegetables, and also to store animal feed, such as grass.

6. Tools for harvest and storage

a. *Gelebeg/jineng* (rice barn)
is a building that serves as a place to store the harvest. Long ago, farmers never sold all the rice and produce to the middleman but kept it all in the *gelebeg* or *jineng*.

b. *Ketungan*, mortar, and *elu*
a package of tools used to separate husks of rice. *Elu* (the pestle) is made of wood, its shape is elongated like a tube with a diameter of about seven cm (depending on the size of the mortar).

c. *Nyiu* (rice sifter)
is a woven mesh of bamboo in a round shape commonly used for winnowing rice, separating the middle (dregs) and the sheath. With the help of the wind, the *nyiu* is swung so that the waste can be separated from the rice. It can also be used for drying goods beneath the sun.

d. *Paon* (traditional kitchen)
a place to cook using wood as fuel. Equipment in the *paon* includes the *cublukan*, *kuskusan*, *kekeb*, frying pan, *ingka*, and others.

7. Other equipment

a. *Kulkul (kentongan)*
is a traditional means of communication between members of the community. Generally made of wood or bamboo with a long slot carved into the hollow center. There are four types of *kulkul* that are known to the public in Bali, namely: *Kulkul Dewa*, *Kulkul Bhuta*, *Kulkul Manusa*, and the ornamental Kulkuls.

b. *Tika/Adult Ayu* (Balinese Calendar)
- these inform one when it is a good, or favorable, time to undertake the sewing of seeds, the clearage of waste, or the harvesting of crops.

Harvested using *ani-ani*, the rice is then set out to dry, and tied up and saved in a *jineng.* If it's stored well, *gage* rice can last for two years.

For most people, *gage* rice carries a prestige. It could even be called a delicacy. There are also red and white varieties of *gage.* "Whoever plants *gage* is the person who owns it," says Rama. At that time, the people of Nusa Penida used red *gage*, and consumed it, on large festive celebrations, such as Galungan or Nyepi, Hindu New Year's. "Gage is a delicacy. Therefore we can only eat it on special days," says Rama.

Approaching harvest season, planters spend all of their time in the field. Whole families are involved in caring for the rice fields – against mice and birds, mostly. They scare off the mice with noisemakers, and also make offerings. As for birds, a traditional device called a *pok-pokan* is all they need. It is called this because of the noise it make, "*pook pook pook"* – when it is shaken. It is made of bamboo and it makes a sound like a *kul-kul* or *kentongan.*

"I was still in Public School. I had to wait on the birds that eat the rice. Waited on the land, using *pok-pokan.* Nowadays though, nobody plants rice anymore. People plant corn, cassava, and peanuts," says Rama, reflecting.

Like *gage* rice, the *pok-pokan*, and other traditional tools used around the farm are becoming harder to find. In many areas, they have all but disappeared.

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Rituals, *Awig-Awig*, Taboos, and Superstitions

In Nusa Penida, as in Bali, everything is a ritual. Partaking in agriculture and agrarian life is in itself partaking in a ritual, or a succession of rituals – a few of which are:

a. *Tumpek Uduh/Wariga/Pengatag*, the ritual that kicks off the planting season.
b. *Tumpek Kandang*, a ceremonial blessing of livestock that takes place every 210 days.
c. *Tumpek Kuningan*, a ceremonial blessing of animals in general.
d. *Piodalan*, a ritual recognizing the birth of a *subak* tributary of rivers and waterways feeding into an area.
e. *Segehan/Nyegehin*, a ritual undertaken each year after planting has finished. The goal is to give thanks to God for the rain. During this ritual any seeds or seedling that remain unplanted are planted – but as an offering. Aside from this, there are also *perani* (offerings of harvest bounty, or gathered fruits, uncooked rice, corn, *jaje uli* (traditional cakes made from *ketan*), *tipat* (*ketupat* cakes), and others.
f. *Bumi Suda* is a ceremony held in *sasih kanem* (the sixth month) of each year. This procedure involves a thorough cleaning of a village center, ridding the area of all makes of beings, seen and unseen,

that could bring illness or disturb people.

g. *Caru Brumbun* is a ceremony in honour of Dewi Sri, the Godess of rice. Usually this procedure involves the offering of *banten* (large offerings), requiring a chicken with red, white, black, and / or yellow feathers.

h. *Nangluk merana* is a ritual undertaken to drive out pests and illness. Usually it is undertaken during the specific season of *pancaroba* (December or January), and concludes with the terrifying performance of a sacred, ritual performance / dance known as Calon Arang. This usually only happens once a year with the goal of abolishing pests and dangers, while praying for rain to come.

i. *Nyepi Jagung* happens in the *sasih kesanga* (ninth month) of every year. In general, it is similar to the day of Nyepi, the celebration of the Hindu New Year and renowned day of silence. As such, nobody is allowed to work in the fields on this day, though it takes place right before harvest season (*purnama kaulu)* each year – when corn has just ripened. The preceding festivities are known as *Tumpek Uduh* and *Tumpek Pekelem alit* (a small ceremony) – and they take place the day before *Nyepi Jagung.* At the start and finish of this day of inactivity and reflection and self-restraint, the *kul-kul* instrument is struck a number of times.

j. *Nyepi Segara* takes place during *purnama kapat*, the month of October. People are not allowed to head out to sea or even fish for a day.

Genetic Resources

Balinese people have long protected certain *genetic resources* that have been theirs for hundreds of years -- through utilization in economic, environmental, social and cultural activities -- including the performance of traditional and religious ceremonies. In the past, people made their own offerings using local ingredients, such as local varieties of corn, red beans, *gage* rice, local fruits, and a variety of local flowers (such as *gumitir, nusa indah, sandat / ylang, cempaka, jepun/kamboja, pudak / pandan*, etc.)

Source: I.N Rai, et al*., in the book Fruits Bali, 2016*

k. *Pekeleman alit* is observed by every person each year during *sasih kaulu.* It is undertaken as a request to God so that the seaweed will be abundant and fertile. Usually, *melasti* (a ceremonial offering to the ocean and cleansing) happens at the Pura Batu Mas Kuning in Loloan.

All of the above observances (ceremonies / rituals) will require separate *banten* (large offerings). In each one there are a mixture of local products, such as leaves of coconut trees, bamboo, *andong, gage* rice, *bleleng* corn, local corn (white corn, yellow corn, *kukur/clicih,* or what is known as *mrawan* in Tanglad), cassava (white and yellow), *bebungkilan* (*isen/galangal*, *cekuh/ kencur*, *tabia/* chilli peppers, ginger, turmeric, lemongrass, *base/* betelnut, *jambe/* betelnut and areca nut, *et al.*, *kesuna/* garlic, red onions, *pangi/*keluwek, *tingkih/*kemiri, dll), *keladi/*talas, *tehe*, *nyuh/*coconut, sugar cane, peanuts, fruits (*jerungge/* grapefruit, *poh/*mangoes, *delima*, *biu/*bananas, *gedang/*papayas, *sabo/*sawo, *wani/*kemang, *salak*, *muna/srikaya*, *buluan/rambutan*, *manas/*pineapples, *nyambu/*guava, *silik/*soursop, *bekul/bidara*, *boni/buni*, *juwet*, and others). Aside from these, there will inevitably be chicken eggs, duck eggs, *wild* chicken eggs, and pork.

Times have changed. Recently, because of practicality, the people bought *banten* offerings pre-made, containing only generic organic materials as offerings, from a *Srati* (one who understands what an offering must consist of). This is not thought to change or affect the rituals undertaken. For example, nowadays *gage* rice has been replaced with normal white rice. Red beans have been replaced with long beans. Local fruits have been replaced with imported fruits. Lontar leaves have been replaced with dried lontar leaves imported from other islands (these are only used during cremation ceremonies (*pengabenan*)). As for flowers, only standard ones from the markets are used. Even wild chickens (*ayam kampung)* and pork (*celeng*) for these offerings have been replaced with broiled chicken and imported pork.

"This is the challenge. The people these days feel entitled to cultivate fruit trees, local flowers, and *ceremonial plants* that were once used for *banten* offerings. However, *banten* are sacral offerings to God. But before they are given to God, they are first received by the people, in the form of agricultural products on farmlands," says Rama.

In the process, the people must follow *awig-awig* (rules), which bind all individuals. These rules are strengthened by taboos and superstitions that are common among the

"All of the above observances (ceremonies / rituals) will require separate *banten* (large offerings). In each one there are a mixture of local products,..."

people. Some of these have been written down. Others may never have been recorded.

When it is time to plant crops, the intervals between planting, weeding, and harvest are decided by the *dewasa ayu* (the lucky days on which to do these things), on the Balinese calendar. It also informs when a ritual should be done, whether it should be small or large.

The rules are different at every village. They have been adapted to the conditions of the people and the environment. In Batukandik Village, planting begins with the sound of the *kul-kul* being struck with a wooden mallot. Nobody should plant before this happens.

There are also specific rules concerning chickens in regards to the harvest. Eleven days after the crops are sewn, chickens must be couped. If not, the offender must pay a fine – in rice (about one kilogram). These *awig-awig* rules, though not written down, are feared and respected. If fines are not paid, the offender will be more publically prosecuted. As for the chickens, they are able to roam free again when it's harvest season.

"For so long in the past and until recently these rules were not written down," says I Made Gata of Bendesa Adat Batukandik. "Since 2004, however, they have been. And they have even been officiated."

Taboos and superstitions also apply to cremation grounds (which are not to be in the forests) and temples. The people cannot take anything from a cemetery or temple. The taboo is written as follows, "*sing dadi nyemak ape di setre atau pure dalem, yen ade nyemak ape bise gerah, men sing ubuh-ubuhane mati*" (individuals are not allowed to take anything from the cremation grounds, or the Inner Temple, and if someone does, they could become sick, or perhaps their animals and livestock will become sick and die).

"When it is time to plant crops, the intervals between planting, weeding, and harvest are decided by the *dewasa ayu* (the lucky days on which to do these things), on the Balinese calendar."

"There was once a person who shot a wild chicken (*ayam hutan),* but the chicken did not die – it grew in size," says Rama. Aside from wild chickens, there are also taboos and superstitions that forbid the use of swear words, or the killing of monkeys.

In Tanglad, one is not allowed to use firm and direct language, or to express vitriolic or hurtful thoughts. The fine for this is 24 thousand *pis bolong* (old coins with holes in the centers). "And nowadays, if one is caught committing adultery, the fine is 75 million Rupiah (around $7500 USD).

If somebody uses harsh language towards a monkey, it is said that person could become sick or have an accident. As for those who dare to shoot and kill a monkey, it is said that their cows will die -- *in a tree.* "*Bojog sing dadi dipisuh*. The monkeys of Tanglad are all *tenget* (protected). If shot, one's livestock will pay the price. For this reason, the people

are fearful. A resting monkey should not be disturbed, and to an extent they are even allowed to bother humans. At times they can be found raiding people's houses. Their populations have grown, because their food is disappearing. They swarm temples and kick the clay tiles off of roofs," says Rama. In his opinion, all that people can do is shoe them off, repeatedly.

"The monkeys weren't always this vicious. Once, if they were scared off, they wouldn't come back. Now, they're brave. They challenge you. If they're scared off with wood, they'll grab the end of the stick. What they need is more forest, and the fruits of the forest, to come back," says Rama.

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Apart from designating a time for a ritual or ceremony, to decide when farmlands should be opened, when pests should be taken care of, and all the way until the final harvest, the communities of Nusa Penida are informed by signs in nature. The appearance of certain constellations, the direction of the winds, the shape of clouds, and the movement of animals – are all indicators to be read by observant farmers.

"In Java we follow *pranata mangsa*, and in Nusa Penida, we also have something like this. Long ago, at certain times, we would observe the shapes of constellations. We already knew, from a long time ago, what needed to be done in the fields," says Bendesa Adat Panca Mekar Sari (Klumpu Village), I Wayan Susilia, when meeting in his home.

When a man understands these signs well, he will be called a Jero Mangku, and he will be able to explain the meanings and cycles of a few constellations – as indicators of what needs to be done next in the community. If the *tengalan /*

Subak Abian / The Abian Irrigation Group

Ceremonies, and the ritual aspects of agriculture, are usually taken care of by Subak Abian. Subak Abian is a traditional institution/socio-religious organization, in the village of Pekraman, that takes care of the fields (dry land). If there is any help from the government, Subak Abian distributes goods to the *krame subak* (members of the same irrigation system). They do not take care of the protection of biodiversity, especially local plants, however. Lately, the role of Subak Abian, in terms of distribution of government assistance, such as hybrid seeds, chemical fertilizers, and agricultural tools, has been almost entirely replaced by collectives of farmers.

orion stars appear in the East, this means the rains are coming. Lands should be opened and readied for seed.

The arrival of these stars almost inevitably means that certain trees will drop their seeds (*genitri, meranti,* mahogany, or *pregiding)* – those which grow on the hills and in the forests. This happens in coordination with a southern and western wind. "That's the sign that it's time to ready lands for planting," says Jero Mangku.

The constellation of *tengalan* consists of seven stars and three others that are bright and are aligned in a row. This line points from East to West. When it appears in the West, however, it is a sign that the dry season is nearing. Along with this change, eagles that often circle around the coastline, or *rajawali,* will circle and call out once or twice. The seeds of the *angih* and *ipil* will fall from the trees due to strong winds from the South. The eagles will start to circle about the Pura Puser Saab and Pura Puncak Mundi. They will call out with a strong and long cry – a sign, it is said, that the hot season will be a long one.

To find true North, usually the *kapal* (boat) constellation is used, while for the South there is the *layangan* constellation (kites). The emergence of a comet is a sign that something unforeseen will happen. Aside from these few signs, there are also indicators of when one should plant crops or trees. It is believed that anything planted during an eclipse is going to die.

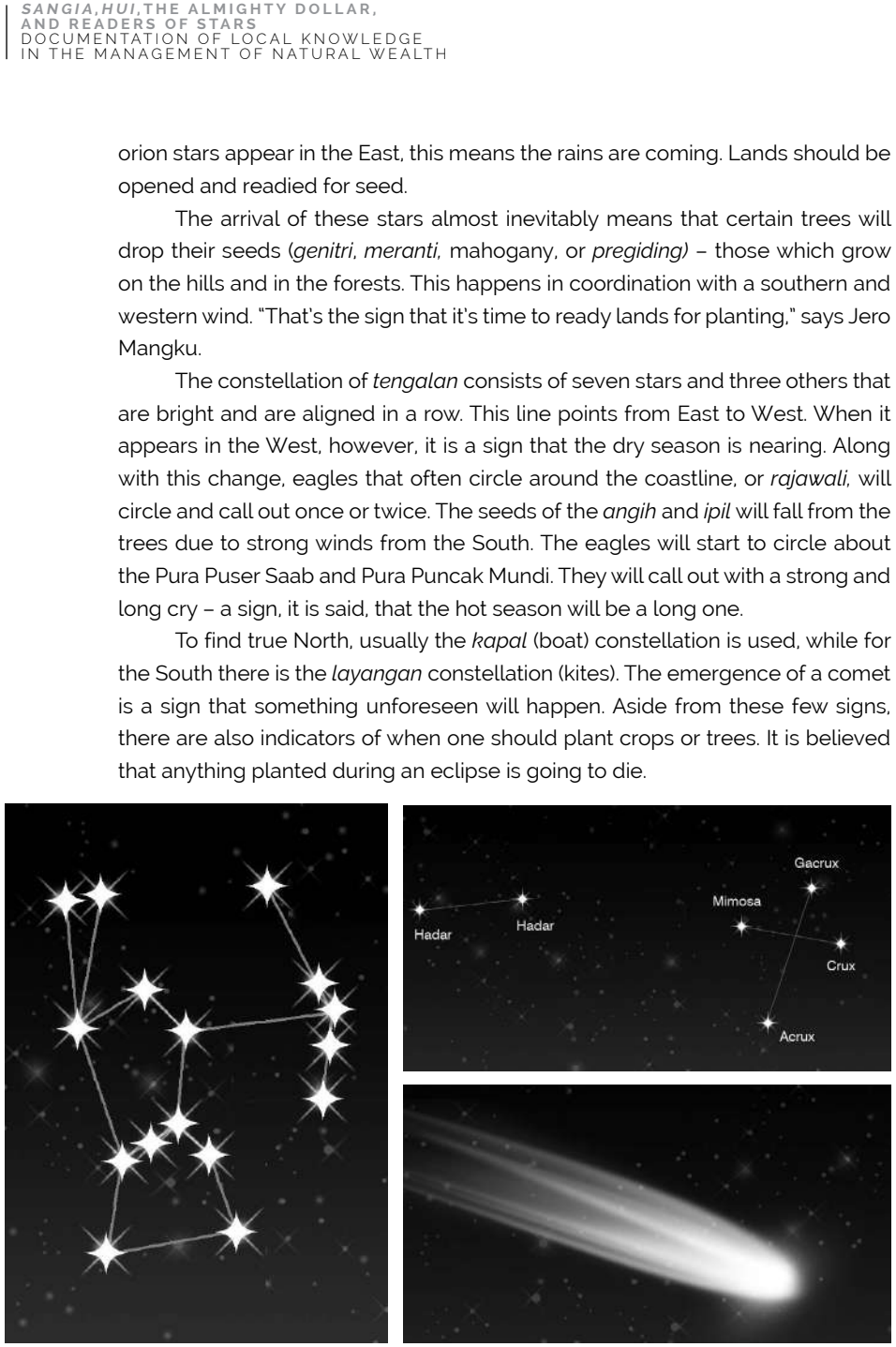

Image 32. The *tengalan* constellation, the *layangan* (kite) constellation, and comet.

"The activities of reading nature, *pekelem,* and ceremonies connected to planting, are all written on lontars. These are called *awig-awig,"* says Jero Mangku. However, the activities of reading nature are not practiced anymore.

Seasons cannot be predicted. As a result, there are many pests, such as ants, mice and monkeys within the earth, *tibre, bedude, nyungah,* and *kuwawung.* "Maybe because nature is now imbalanced, these ancient practices no long happen, and so the pests come in numbers. Bananas, coconuts, everything is attacked. Roots are eaten, leaves are stripped from trees, seeds are gone," says Jero Mangku.

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"Cubang" & Farming Dry Lands

Before systems of pumps and pipes, Nusa Penida restored dry lands using stones and directing the waters to areas where it was needed. The length and depth of these stone creeks varied greatly. People will often dig two *depa* (about three meters in depth), by one meter wide, but with calculated variations in this width here and there. These will fill up when it rain. Nusa Penida is a dry island, and so collected rainwater in these basins is how the people get by.

Image 33. Water reservoirs

Water and staple foods – these are the primary concerns of the people to this day. How can the rain water, which falls for only one or two months a year, be enough? Over time, people have found ways to collect the water in abundance. Reservoirs have become the answer. These stone basins are like pools, and they are shaped like large jugs sunken into the ground. The elders tell stories of the creation of these basins in the 1970's. Before this, people stored water in crock pots, making the most of creeks, and even using fruit skins to keep as much water as possible. "Since the Dutch came, we have learned how to work together as a village. We often run out of barrels, however," says Rama. The barrels made of concrete and the crock pots made of clay were introduced to Indonesia by Dutch colonizers.

Apart from storing up the rain, the people also seek new water sources – in Guyangan, Sekartaji, and all the way to Atuh. Two times in a day they fetch water and use this water for their cows, to clean, to shower, cook, and have a drink. "After a while, after cement became popular, we started to make these basins," says Rama. At that time, *bak* "tubs" became popular. However, stone basins remained preferable. Tubs required more resources and more time to construct. For a *cubang* stone basin, all that was needed was a hole, some stones, and cement. They kept water better than the tubs anyway. The stone basins are better overall.

To create a *cubang*, one must understand the contours of the location, and this requires experience. Not all people can dig in the soils of Nusa Penida – there are many stones in the way. The initial hole should be three meters wide by three meters deep. Down a ways, there needs to be one meter extra space – for additional storage.

Stone basins are quite different from wells. Basins are only for storing rainwater, and the pipe leading out of the basin is cemented over. As for wells, natural ground water is used, and the flow is not restricted by a closed pipe, for example. The size of one of these stone basins depends on the financing from the community. In 1996, one basin would have to be *depa* (three meters), requiring 25 sacks of cement, two sand trucks, and around two hundred thousand Rupiah ($20 USD) to dig. The walls would be made in three layers so they would not break easily.

"To create a *cubang*, one must understand the contours of the location, and this requires experience. Not all people can dig in the soils of Nusa Penida – there are many stones in the way. The initial hole should be three meters wide by three meters deep. Down a ways, there needs to be one meter extra space – for additional storage."

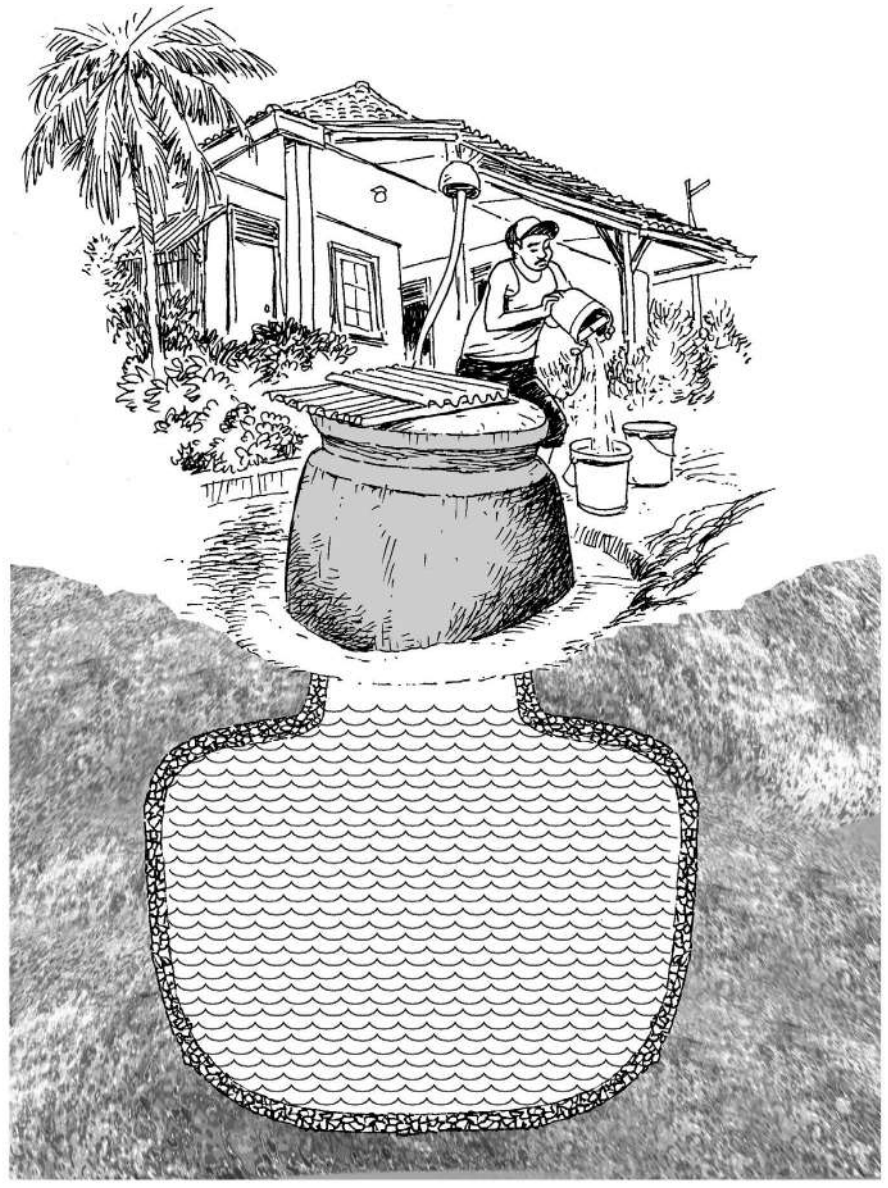

Image 33. An illustration of a basin -- or "*cubang*"

Over time, most families came to have at least two stone *cubang*. One would be near the house, another near the crops. The one near the house is used for cooking, showering, and drinking – for one entire year. The farm *cubang*, however, is used to water plants and for livestock.

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The Meaning of Water and Forest Conservation

"One...two...three...four.....seven hundred and four...uff ufff uff..."

The 27 year old held their stomach, and then gave it a gentle punch. They limped along, stopped in a rocky area. Their face was red from exurscion. Sweat ran down their face, soaking their neck. In their left hand was a small shaft, a tree branch, sharpened at the upper end. In a flash, their shirt was off, and the video camera was placed on a stone and "*byurrr,"* they sunk into the cool waters of a foamy green pool. "Wuuu...uuuu...Guyangan," they exclaimed, tossing their wet hair back – before going under again, again, and again.

As evening approached, Guyangan springs was bustling. The metal pipes continued to output crystal-clear water. Tourists descended the steep steps and slipped out of their hot clothes and footwear.

Guyangan springs is the largest freshwater spring in Nusa Penida. It is located in Batukandik Village, and it difficult to reach because of its location – at the bottom of a coral stone shelf. Once the freshwater reaches the surface, it then trickles into the ocean.

This freshwater spring is now tapped. A large pipe with a hydrolic pump brings it uphill – since the Soeharto era. "Beginning with Pak Harto till 1998 the water was a reservoir, but it didn't yet come right to our homes," says I Made Gata. From the spring, the water climbs 339 meters to the top of the hill. On the hill was a reservoir, and here the people collected water for their needs. "Back then, you had to take it manually. You had to carry it home. Then it was dumped into tubs at home," says Gata.

Segara Kidul

Batu Kandik Village is the largest village in the Nusa Penida District. It is located in the middle of the island, consisting of 8 hamlets and 8 traditional *banjar* (similar to neighborhoods). There are 502 households (data from "Batu Kandik Village," 2019) who inhabit the village. In this village, there stands Guyangan springs. Guyangan springs is the largest freshwater spring on Nusa Penida Island. By local people, Guyangan spring is called Segara South. The fresh water arises from a bed of stones. It is estimated that it is the end of an underground river. Since 2012, the water source has functioned as a place for *melukat* (a purification ceremony). The mythical figure of the Queen of the Southern Seas is symbolized by a statue of a goddess, dressed in green, believed to be the guardian of the waters. In 1996, the central government carried out a reforestation program around the springs, planting acacia trees.

In 2014, the water was connected directly to the houses for free. In 2019, families began paying a tarif according to how much water their household needed. "In 2019, the people had to pay through the meters on their houses," says Gata.

The people recognize that Guyangan springs has been here for a very long time. In dry seasons, the people would brave the descent to collect water. In the rains, the people would make do with the *cubang* ground basins around their villages.

Aside from Guyangan, there are a few springs in the *karst* stones – some large, some small – including Penida springs, Seganing, temeling, and Pelilit.

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"If you'd like to help the environment, just do it. You'll be picking up some good karma as well."

Many of the people of Penida also believe in Balinese Hinduism (Siwa-Buddha), and honour the concept of *Tria Hita Kirana,* the concept of relations between God, humanity, and others (*pawongan),* as well as people and nature (*palemahan).* This belief in Balinese Hinduism instructs how to maintain harmony between these entities. "Nature must be conserved. People must be humble and make offerings to a Higher Power. People must *menyama braya,"* says Jero Mangku. Within these beliefs, there are communal practices for conservation arising from local wisdom.

The Balinese Hindus have *awig-awig* (rules) about what can be seen as acceptable within this harmony between people, nature and God, whether written or unwritten. For instance, in building temples, a certain type of wood must be used, such as *cendana, genitri, gaharu, majegau, wangkal, pule,* and *nangka.*

"Now it's quite hard to find those types of wood. In building a temple we must wait for second-hand wood to become available, only then can we start. Because it's hard to find, we use other woods instead," says I Ketut Sutama, the Chairman of Pantia Pura Puser Saab, Batumadeg Village.

"When these woods are used for ordinary buildings, they don't last. When they become the *pelinggih* of a temple, after tens of years they're still solid," says Sutama.

In general, the wood that is required only grows in the forest, and few are brave enough to cut them down, especially if they have been wrapped in the sacral cloth of *saput poleng.*

"The Balinese Hindus have *awig-awig* (rules) about what can be seen as acceptable within this harmony between people,"

Kadek Jiwa and Made Betet, who are usually in the area of Puser Saab Temple, also tend to the forests and the sacred trees within it. "If people have bad intentions, heading into the forest to take something, they'll get confused. They'll find it hard to find the way out of the forest," says Betet. "Only Pak Kadek is brave enough to go into the forest, because he is on a familiar basis with all that is in there," says Betet, returning Pak Kadek Jiwa's smile.

In Kadek's words, there are certain observances if one wants to head into the forest. One cannot use foul language; one cannot ask others which path is the right one to take; one cannot take anything without first asking permission with a small ceremony; one should not shout or leave garbage; even if one sees a snake, one is not allowed to shout or tell other people about it.

According to data from BPS, the Puser Saab Temple forest is around 11 hectares, and is a protected forest. From the conditions of the forest and the soil it is clearly primary forest. There are many types of trees, and many that are tens of years old, such as *genitri*, *meranti*, *kemiri (*hazelnut*)*, *pangi/pucung/keluwek*, *kepah*, *pregiding*, *majegau*, *angih*, and *gunda*. Rattan, lontar, bamboo, mahogany, and *ipil* also grow here. This makes an ideal habitat for long-tailed monkeys (macaques). The felling of trees is not permitted; even the leaves are not to be used for the feeding of cattle. Within the forest are three temples. Puser Saab Temple, Batu Para Temple, and Ratu Gede Dalem Slimped Temple. Puser Saab Temple is included under the umbrella of Sad Kahyangan Temple (the three main temples) of Nusa Penida.

Aside from the forest of Saab Temple, there is also Tembeling forest in Batumadeg Village, which is also protected. The forest is 20 hectares and its protected status is due to the existence of a freshwater spring that exists within it. This spring is an attraction for *melasti* pilgrimages undergone before Nyepi day. Around the spring there are a few groups of long-tailed macaques. In this area is Kahyangan Pancuhan Temple, and since 2018 the *awig-awig* regulations of Pancuhan have been in effect here. These regulations forbid the taking of wood or trees, or even the taking of food for livestock. If anyone breaks these rules, they will need to pay a debt in rice. If one kills an animal in the forest, such as a monkey or a bird, they will need to *pay* 100 kg of rice to the village.

"According to data from BPS, the Puser Saab Temple forest is around 11 hectares, and is a protected forest. From the conditions of the forest and the soil it is clearly primary forest."

Aside from these two places in Batumadeg, other forests here act as reserves of unique tree species, cumulatively forming habitats for unique animal life. Tunjuk Pusuh Village (Tanglad Village), Guyangan spring (Batukandik Village), Puncak Mundi Temple forest (Klumpu Village), and the forests of Sakartaji Village are especially important habitats. It should be clear now that the forests of Penida are not a single, uniformly blended tropical forest.

The Chronicle of Nusa Penida

Excerpts from one interpretation of the Chronicle of Nusa Penida, an anthology of mostly spoken stories, is used to instruct and guide the Bendesa Indigenous group on the island.

In the Saka year 43, the God-like Ida Batara Guru came down to Earth, bringing followers to the Mesaab Temple. In the Saka year 50, Ida Betara Shiva descended to Earth with Goddess Uma, and his followers, on Mount Mundi or Mundi Hill. And on Mundi Hill, Dewi Uma was reincarnated as a mere human being, known as a *pendita*, or a Hindu priest. Betara Shiva transformed into a man, known as Dukuh Jumpungan. Thus, the name *Nuse Penide* was formed. The wife of Dukuh Jumpungan was named Ni Puri. Beyond Mundi Peak, Ida Betara Shiva also descended upon Tunjuk Pusuh (located in Tanglad) -- in Saka year 55. At Puncak Mundi Temple, there stood the palace of Ida Dukuh Jumpungan. The Dalem Sawang War had an army that attacked others using a sort of germ warfare. Known as the Wong Samar, they spread disease so that the people of Nuse were afraid and that incident. Hyang Toh Langkir, who resides on Mount Agung as the King of Bali, became concerned against the Nuse people. He plucked up some blades of grass, called Padang Kasna, and fell into a deep meditation so that the Padang Kasna changed form -- into a chivalrous boy who was named Dalem Dukut. It was Dalem Dukut who freed the people of Nuse from misery. Finally, Dalem Dukut fought against Dalem Sawang. Dalem Dukut wore the Queen Ratna Kencana *kris*, which he obtained by sailing on *tehep* leaves and anchoring on the coast of Bias Muntig (in Banjar Nyuh). And Dalem Dukut continued the journey to stop at Bodong Village (East of Banjar Nyuh). Armed with a *kris*, Dalem Dukut walked towards Sukuri to the place of the Dalem Sawan Kingdom. And finally Dalem Dukut and Dalem Sawan agreed to a one-on-one duel in the Sukur area. The second duel was held in Bukit Mundi. Dalem Dukut couldn't beat Dalem Sawang. Dalem Dukut's wife was sent to Nuse with a Pencok Sahang *kris*, which comes from the beak of a divine bird -- a gift from Ida Hyang Toh Langkir. He only needed to look at the *kris* and Pencok Sahang Dalem Sawang admitted defeat. Dalem Dukut Temple was established in Saka year 260 after Dalem Dukut passed on, and he is now venerated at another castle, in Pura Dalem Dukut. Pusering Dalem Dukut Temple contains the palace of Ide Dalem Dukut. Meranting Temple is the palace of Sang Hyang Ardhanareswari.

The Origin of Nusa Penida

Mount Temeng is a fragment of Mount Agung, and it has the shape of a female body. Its height exceeds Mount Agung. On the other hand, Toh Langkir (Mount Agung) is thought of as a male figure. He is thought to be a very wrathful and angry character (*murka)*. When Toh Langkir got angry and kicked Temeng, she fell in two directions: Southeast and Southwest. The one to the southwest became Mundi Mountain. The one in the Southeast became the Tunjuk Pusuh. It's called Tunjuk Pusuh because, in ancient times, the mountain began to roll. 'Ooo it's a running mountain, a running mountain,' they said. The people pointed ("tunjuk") at the peculiar mountain, and it got its name. Finally, however, it stopped moving. At the same time, Sang Hyang Pasupati also descended to become a *pandita* (holy person). Holy people are often called *manusa pandita*, or playfully called Dukuh Jumpungan. Over time, because of the fast dialect, "*manusa pandita*" changed to Nusa Penida. Sang Hyang Pasupati (Dukuh Jumpungan) had a wife named Dewi Uma, who, when she came down to Earth, became Ni Puri. Dukuh Jumpungan and Ni Puri had a son named I Merca who liked to meditate with his father. His father was called Dukuh Jumpungan because he was also a sacred balian who was able to heal the sick. I Merca later married Ni Nada and had a son named I Renggan.

Like his father and grandfather, I Renggan also liked to meditate in quiet places. Once upon a time, I Renggan remembered the story of Mount Mundi being a mountain that was kicked by Toh Langkir. I Renggan then asked his grandfather to make a boat. The grandfather made a boat from magic wood in the forest -- while continuing to do yoga and meditation. Finally, the boat was finished. To lower the boat into the water, the grandfather made a *tukad* or *loloan* (river). It took him seven days and seven nights to create Tukad Penida.

I Renggan then boarded a boat and was given supernatural powers by Shiva Baruna. To test the magic of the boat, I Renggan crashed the boat into Nusa Penida. Nusa Penida then split, created a small island named Batu Kite. Still not yet believing in the magic resilience of his brother's boat, I Renggan crashed his boat into the island once more, and off came a smaller island called Klumbung. Now certain that the boat was powerful, I Renggan wanted to crash the boat into the great Agung Mountain.

Toh Langkir, who is a god, knew that I Renggan would do such a thing. He asked Betara Indra to revoke the boat's supernatural powers through Shiva Baruna, insisting that I Renggan not be killed in the accident, however. Once the powers were lifted, at Tanjung Kuning, Betara Indra smashes I Renggan's vessel, which sank. At Tanjung Akuh/Cape the yellow boat of I Renggan later became Nusa Ceningan and Nusa Lembongan.

Now shipwrecked, I Renggan was exhausted and stranded in Bias Muntig. Still with his wife, Ni Merahim, I Renggan made a rule – to never ascend Puncak Mundi again. I Renggan and Ni Merahim had a son named Gede Mas Mecaling and Ni Tole. Later, Ratu Gede Mas Mecaling married Sang Ayu Mas Raja Bumi and was awarded Kande Sange by Shiva. Kande Sange caused Ratu Mas Gede Mecaling to grow fangs. Because of the magic of Ratu Gede Mas, Nusa Penida (including Ped Village) is now free from all kinds of diseases (namely cholera). People from outside Nusa Penida also came for treatment in those times. Society developed, moving forwards. From this story, Nusa Penida became known as a magical island. Its soils and rocks are lucky. Various kinds of plants that are in the forest are as gifts.

In Ped Village, in memory of I Renggan, the *taru* tree is still preserved. There are currently only nine of the great boats left. Taru wood boats are usually used for making the masks of Barong and Rangda.

Apart from Puser Saab Temple Forest and Pura Puncak Mundi Forest, the flora of Nusa Penida is wildly heterogenious. There are a few trees of wide girth and also some small ones, all the way down to the shrubs. Many of these are used for ceremonial purposes and customary rituals, traditional medicines, and for making local handicrafts.

The Descent of Siva and Dewi Uma

In the month of June, the sun scorches, but at night the chills sweep in and through. A little rain falls, but it's not enough to dampen the roots of the trees of Mundi Peak. The way up this hill is windy and dusty. On the left and right, trees stand in rows, while far below there are rows of corn, banana trees, nuts and beans, growing here and there, disorganized. Parts of this old farm have been overcome by shrubs and brush. A small forest of bamboo shoots, in Banjar Rata, gives shade and gives off a cool breeze. Further up the slopes, passing small villages, there are some caves carved out of *karst* rocks, a few *cubang* water reservoirs, and enclosures with cows within. On the Eastern hill there are eight windmills spinning. A few of them are rusted and broken. The Southern slope appears rocky with rows of *gamal* plants.

At 521 meters above sea level, this is Mundi Peak. The area has become iconic, a spiritual place of the island – aside from Ped, Giri Putri, Batu Medau, and Saab. In this region, the deity of Siva appeared together with Dewi Uma, and they descended, for the first time, to be among the people. Siva transformed into a priest named Dukuh Jumpungan, while Dewi Uma became a character known as Ni Puri. "Hence the name of the island, Nusa Penida, coming from the term *Manusia Pandhita* (the priests)," says I Made Gata, reading a translation of *Babad Nusa Penida.*

From this story, Mundi Peak, along with its three hectares of forests, gained *sacral* status. In these forests, the large trees, green all year around, are the *bingin, tingkih, pule, cem-cem, pregiding, angih*, and others. The macaque monkeys are taking over, and they gather around a freshwater spring that flows freely – straight out of an old tree. "The people believe that water to be sacred. Sick people can be healed if they drink it," says Made Jagat, who works as the head of Tiagan Hamlet, Klumpu Village. Jagat warns against people entering the forest without purpose, or with bad intentions. People who go into the forest without permission will not be able to find their way home, and a few times they have become lost forever, inside.

Mangku Leser speaks of the sacralness of Mundi Peak, Nusa Penida's namesake, *pageblug*, and sacred places. Then, he speaks of an ancient, mythological mountain. "So tall, it punctured the sky, and monkeys could climb all the way to the moon. That was Mount Temeng," says Leser. And from the material of this mountain, the island of Nusa Penida began.

"In the month of June, the sun scorches, but at night the chills sweep in and through. A little rain falls, but it's not enough to dampen the roots of the trees of Mundi Peak."

Distributing Plants according to their Function

In general, these people believe in the trees. Their lives revolve around trees, plants – like *bingin, pule, kepuh, gepah, tiing, nyuh, sandat, jepun*, and many more," says Mangku Alit from Mauwan Banjar, Batumadeg Village. The plants he names are used in ceremonies, and in traditional medicines, food for livestock, and some are protected.

To designate a plant or tree as sacred, there are *awig-awig* – customary laws. The main indication is a *saput poleng* (a black-and-white checkered cloth). These can often be found around cremation grounds. For other, and small, plants, however, there are no *awig-awig;* they are merely protected because people depend on them.

"Much like the coconut trees, no, there are no *awig-awig* protecting them. The people plant them from the heart. They're important because they're necessary. We need them for religious purposes. Of course we also protect them," says Mangku Alit.

"Long ago, if a child were born, their birth *otononan* ceremony would start with the planting of a tree. Usually this would be a coconut tree or *daksina*, planted near to the house where the child was born. Perhaps this is because coconuts are very useful. From the roots to the peaks, all is useful. Perhaps this ceremony is also a way of preserving these trees," says Mangku.

Following is a list of plants and what they are used for:

a. The following plants are community staples because they play a role in every day life. Of course this would include, first of all, corn, *bleleng*, cassava, nuts and beans (*kacang komak, kacang lindung*, red beans, *kacang undis, kacang kare*, cashews), fruits (*jerungge* (red and white grapefruit), *poh* (mangoes), pomegranate, *biu* (bananas), *gedang* (papaya), *sabo* (*sawo*), *wani* (*kemang*), *salak*, *muna* (*srikaya*), *buluan (rambutan*), *manas* (pineapple), *nyambu* (guava), *silik* (soursop), *bekul* (*bidara*), *boni* (*buni, juwet, etc.*), vegetables (pumpkin, jackfruit, spinach, cassava leaves, squat beans, etc.), and tubers (taro, *tehe*, gadung).
b. Attire. Long ago, to fulfill their families' needs, and for ritual ceremonies, the communities of Nusa Penida would weave fabrics from cotton, coloured

Three Ceremonial Plants

Coconuts, bamboo and spices are three important components in making ceremonial offerings.

- **For coconuts, the leaves, coconut flowers, midrib, fruit, and stems are usually taken and put into use. There are various types of coconuts, namely ivory coconuts, *gading* coconuts (green), moon coconuts (same as ivory coconut but slightly whiter in color), *brumbun* coconuts (red, yellow, black, white), *sudamala* coconut (slightly green), and red coconuts (*kelapa merah)*.**
- **Bamboo has become the main component during the Manusa Yadnya ceremony, when a child is three and a half years old and prior, at six months. Yellow bamboo is used. Another bamboo used for the ceremony is *tiing penjor*.**
- **The herbs and spices used are, among others, *galangal*, *kencur*, chili, ginger, turmeric, lemongrass, betel, areca nut, garlic, shallots, *keluwek*, candlenut, etc.**

with natural dyes from plants – such as *sunti/tibah*, *tahum* (indigo), mangoes, turmeric, *manggis*, and mahogany. They would also sometimes use *endut* (mud and earth) for darker colours.

c. Buildings. Nearly all large buildings, whether temples, houses, eateries, and simple enclosures, are made with whatever wood is around in the area. To name a few, there is *tiing* (bamboo, specifically *ampe*l bamboo – which is thick and uniform), mahogany, *angih, klampuak, camplung*, acasia, coconut palm, *intaran*, jackfruit trees, and other new woods too.

d. Upacara. For the purpose of ceremonies, many local trees are used, for example: dapdap (a sacred wood of which only the branches are used), *bunut, beahe, ahe* (fruits are as large as pinecones or *salak* fruits), *kuang, kayu ancak, sugih-sugih*, *bingin (*banyan), *andong*, sugar cane, *duduh*, coconuts, *ental* (lontar), *jaka/*are*n, ambu* (leaves), *ron* (old leaves), *jaka*, bamboo (*buluh* bamboo for *semat/biting-mejejaitan*, *tiing* for *penjor,* and yellow bamboo, *tebil-tebil*, *andong/endong, gage* rice, *bleleng* corn, local corn (white corn, yellow, *kukur/clicih*, what is known as red corn, in Tanglad */merawan*), cassava (white and yellow), *bebungkilan* (spices), *talas, tehe*, sugar cane, beans and nuts, fruits *(jerungge/* red and white grapefruit, *poh/mangoes* (*poh arum manis*, *poh madu*, *poh gending*, *poh belide, poh lembongan* which is tiny and round), bananas, mangoes, soursop, *srikaya, rambutan,* pineapple, *nyambu* (guava), *buni, juwet, etc.*), flowers *(mitir, ratna, sandat, cempaka, jepun, pudhak, pacah*).

e *Usadha/*medicine. A "priest," *balian* (*dukun*), operates under a traditional model of healing with plants and prayer. They specialize in healing back problems, gout, broken bones, or farmers' wounds caused by farming equipment. A few plants that a *balian* uses would be the *pule, pudhak* (pandan), *sandat, bun tanpe wit*, *cem-cem*, *delima putih*, *kelor*, *dapdap, jeringu, bebungkilan*, *cekuh*, *tabia* (chilli peppers), ginger, turmeric, and others – such as *serai*, *base* (betelnut), *jambe* (*pinang*), *kesuna* (garlic), red onion, *pangi*, *tingkih*, and others.

f. As feed for livestock. A few types of plants can be used as feed, especially *gamal*, *serai-serai, padang gajah, bunut, beahe, kapas, waru, lamtoro,* jackfruit, and various bushes. Gamal is usually planted at the edge of a farm plot or the side of the road, or on top of a hill where other plants have been planted. When the hot season arrives and feed for livestock is low, the following plants are still reliable: *serai-serai*, *gedebong*, bananas, coconuts and coconut trees (just the leaves that are whitish), especially as food for cows. As for *bunut* and *beahe,* these are usually found at the edge of a farm plot as well.

g. Conservation. There are a few types of trees that aid in the conservation of the forests, such as *banyan, genitri, pregiding, angih, suggih-sugih, tebil-tebil, ipil, meranti, bunut, mahongany, acasia, pule, kepah, gepah.*

A few of these are becoming harder to find, and a few are still popular and often planted. The *genitri* tree and the *meranti* tree are easily found in the forests of Puser Saab Temple, and within the areas of primary forest.

Gimbal Corn

Gimbal or *bleleng* corn is one type of cultivated sorghum or bicolour sorghum. Sorghum is commonly known by the public as white, while *bleleng* corn is purplish and a bit reddish too. To get seeds ready to be processed, *bleleng* must be pounded / ground. The flour is used to make *jaje* (cake.) Once cooked, *bleleng* is similar to glutinous rice. In Nusa Penida, people used to process *bleleng* into pillow cakes. Unlike wheat flour, or other flours, both sorghum and *bleleng* are lower in gluten content, so they have elasticity. Preparation is quite complicated, so few people bother to plant it anymore. In addition, the color of *bleleng* is less attractive and the taste is a bit astringent. Processed pillow cakes are usually mixed with grated coconut, red beans, as well as squat beans.

Plunging into Diversity

Intercropping is a technique that is used across most of the island. This is how Nusa Penida provides for itself, in terms of staples at least. During harvest season, there are many commodities to be derived from this growth.

On the *sasih ke sanga*, the ninth month of the Balinese calendar, the people do not only plant corn but many kinds of nuts and beans, which they often harvest at the same time. On one allotment, there will be five to eight kinds of plants, such as corn, trees, beans, sorghum, gourds and pumpkins, and *turi.* There are also tubers / root vegetables, such as *tehe, suweg, keladi, ketela rambat*. These are not too abundant, however, because they are not seen as the main source of food. In the forests or fields surrounding the people, there is also *gadung*, tubers / root vegetables that were once, a long time ago, the main food of the people..

"Intercropping is a technique that is used across most of the island. This is how Nusa Penida provides for itself, in terms of staples at least. During harvest season, there are many commidities to be derived from this growth."

From the source of these foods, the peoples of Penida have made an original, place-based *cuisine*, and knowledge of the many dishes that can be made is passed down. To name a few, there are *ledok-ledok/ loteng*, *jukut-jukut*, *nasi sela/ nasi cacah*, "corn rice", *sela kukus*, shredded cassava, and various snacks and treats.

First of all, *ledok-ledok*, or *ledok/loteng* is a dish made of *telahan* (corn-rice), *ketela* tree, *ubi jalar*, yellow gourd / pumpkin, vegetables, and nuts and beans. The vegetables used could be *kelor leaves*, gourd *pucuk*, spinach, leaves of nuts and beans, *kemangi*, and *sela bun* leaves (*ketela rambat*), young papayas, gourd leaves, spinach, young jackfruit, and unripe *pare* (a lumpy, cucumber-shaped gourd). Beans and nuts that are usually used include red beans, *kacang lindung*, *kacang komak*. The spices are of hot peppers, garlic, salt, *kencur*, *kemangi*, salt, *salam* leaves, and lemon. This is served up hot with spicy *sambal* hot sauce. Another version of the dish is the *jukut-jukut*, a version of *ledok/loteng* with sauce and more vegetables. The materials for *jukut-jukut* include nuts and beans, spinach, leaves, unripe corn and *ketela rambat*. Spices are *kencur*, garlic, red onion, hot peppers, salt, and *kemangi*. All of these ingrediants are mixed together and served hot – with *sambal* on the side, of course.

Image 35. *Ledok-ledok*

Other dishes specific to Penida include *sela* rice, or *cacah* rice. These are made from chopped and steamed cassava. This can be served with rice, coconut, vegetables, and *beawan* (fish cooked with *pinang* and fried with *sambal*).

There are also many kinds of treats and sweets made for speecial observances or ceremonies. Among these are *jaje bolong* (*kembung*), *jaje rangin*, *jaje sesahan*, *jaje matahari*, *jaje rita*, *jaje gina*, *jaje bantal*. These treats are delicious when accompanied by coffee and hot tea. Jaje *bolong* (*kembung*) is coloured brown and shaped like a triangle, made from rice, coconut, coconut sugar, *lengis tandusan*/coconut oil, all homemade. After mixed, these *cakes* are

fermented and fried in coconut oil until blackened. Each region has their own. Some are mixed with eggs, others are not. Jaje *bolong* can last a month.

Jaje *rangin* is made of coconut, flour, and sugar. The ingrediants are mixed and then baked. When appearing cooked, it is folded, and then covered in sugar before being folded again. This is how they make *jaje rangin* in Penida, and they will insist that these treats must be cooked over a wood-burning fire. If tucked away and saved for later, they will last around ten days before spoiling. The flavour can only be described as *umami (guri)*.

Other treats to be enjoyed during special observances are the *jaje sesahan*. These cakes / cookies are rice-based, steamed, and shaped into cones, balls, and rectangles – like tiny books. They are mixed with salt and dried out before being fried. There are also *jaje rita*, which are shaped like octopuses. These are made from rice flour mixed with liquid sugar, and beans / nuts that make them even more *umami*.

Other special treats include *jaje bantal*. The knowledge of how to makes these cakes has been passed down and prepared for each special occassion. The materials are from the plants of Nusa Penida, including the *bleleng* (purple-black sorghum), and sugar, wrapped in a *busung* (coconut leaves), green coconut, and penetrated by cocnut leaves also. Jaje *bantal* is believed to cure a sick stomach. In some villages, this treat is mixed with beans or nuts, again to increase the *umami*.

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When Everything Changed

At the end of 1976, it was difficult to find *gage* rice. The scarcity of this crop was then followed by corn, sorgum, and red corn too. Since the Green Revolution (Revolusi Hijau) in the 1980's, hybrid plants, such as corn and soya beans, became popular among residents here. The people adopted chemical fertilizers and herbicides, because they were sold together with the hybrid seeds – from the government.

Along with these drastic changes, rice began to pile up in the harbours. It was only necessary to plant hybrid corns in the fields. Rama notes that hybrid corn stalks appear larger compared with local corn. "That's why we plant it. We're impressed by its size compared to local corn," he says.

Using cow dung as fertilizer was farming culture in Penida – until chemical fertilizers became available (especially Triple Super Phosphate/TSP). These made corn and other plants grow much more rapidly. "A the

"Along with these drastic changes, rice began to pile up in the harbours. It was only necessary to plant hybrid corns in the fields. "

beginning, the use of these chemicals was not common. Just about 25 kg for 1 hectage of land. Herbicides were also used to lighten the farmers' loads. However, the *usage* of these chemicals has since gone down, because they are destroying the land," says Rama.

Despite appearances, Rama recognizes that local varieties of corn have more flavour than hyrbid corn, and grows faster. "Local corn is more delicious, and it's faster growing. Sometimes it takes only three months and it's ready for harvest. Long ago local corn was shucked and eaten like rice. It was a staple food, could be mixed together with rice, and chickens also ate it. Nowadays it's only eaten as fire-baked corn on the cob."

Since the disappearance of *gage* rice, sorghum, and a few strands of corn, Penida began importing rice. The inhospitable weather conditions of the island supported this transition to dependency on imported goods. "When we planted and the hot season arrived, paddies dried up and died in the heat," says the father of two children. Aside from this, the process of managing rice fields was complicated and required much time. Importing, however, was becoming easier. "To produce rice, it was tough. Tough to manage. There were no modern tools, not like now. There were no machines. Only hand tools," says Rama.

A *lesung* is a traditional hand tool used in harvesting. It is two meters long and made of wood. The rice plants are taken and smacked against it, releasing the rice. It is almost always placed in close proximity to a farmer's shack (*palungan*). This is usually a family affair, though neighbours will also be invited, and paid in rice. At this time, *nutu* and *palungan* are ongoing activities, but nowadays they have become part of *pengabenan* cremation ceremonies – just for the sound that is made.

"Since the disappearance of gage rice, sorghum, and a few strands of corn, Penida began importing rice. The inhospitable weather conditions of the island supported this transition to dependency on imported goods."

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Teak not as Promised

The woman went around the kitchen. She picked up some wood, *gayung*, buckets, and *buntalan-buntalan*. She gives an ear to the chatter of her husband and his guests. She makes some tea and some treats from Nusa Penida, such as *jaje rita*, *jaje gina* and *jaje bolong* cakes, which were made the day before. Some of these are destined for a temple celebration in Sad Kayangan Temple, in a few days.

Mek Murni is the wife of I Made Rama. She is a *serati* and a baker of *jaje* for the many ceremonies aroudn the island. Orders stack up with ceremonies are coming. Usually, Murni can work alone. Sometimes she has help from neighbours, her nephews and nieces, and others. "Panek e Memek is a boy, so he doesn't help much," says Murni. Making treats and

banten (offerings) are the jobs of women, aside from having to keep the house in order, feed livestock, and work in the farms.

On normal days, before five in the morning, Mek Murni is already awake. She grabs some water from the *cubang* reserve and fills a basin in the kitchen, for showering. She then sets to cleaning house and cooking. At 9, Murni heads out to the fields with food for her husband, children, and family members. When in the fields, Murni also lends her husband a hand. She cleans brush and weeds from the fields, fetches feed for the cows, and takes water from the *cubang*. During harvest season she joins in, working with her husband and neighbors, drying and pealing the produce, and then preparing it for storage also.

As evening approaches, Murni stocks firewood, carrying the logs home with her. At home, she tidies up and prepares an evening meal. She prepares offerings for prayers. All of these activities are done in silence and with calmness. Murni has much on her mind, however, because the harvest is yielding less each year – not like ten or twenty years ago. Teak wood has grown in the farmers' fields. "Yah, I used to plant teak wood in over-worked fields that had lost their nutrients. They said it was good. Could fetch a good price too," says Mek Murni.

The teak-planting program entered the island as a government initiative to utilize infertile farmland in the 1990s. Trees were planted in Desa Suana, Pejukutan, Bunga Mekar, Ped, Klumpu, and Kutampi. People were attracted by the market value of the tree – so excited that they were planting these trees in fertile farmland as well.

In 2003 the people planted a teak tree. The program gave away teak seeds. "Long ago they gave these seeds to us for free. Said it would give back. My husband got some too," says Murni. In 2009, many people swapped teak for *gemalina*, a type of teak from Holland. "Dutch teak can also be feed for the cattle when there is no grass left," says Murni.

In 2013, there were around 1.520 hectares of teak wood planted. Mek Murni notes that, since the trees have grown, farming has become harder. "The other plants just go limp and die. Coconuts, bananas, cassavas, all dead. Corn comes up without kernels. So it all becomes feed for livestock. Now the teak has grown up and is ten years old or more, but it's still too young to cut down. It's kind of a headache," says Murni.

Meanwhile, the price of one large piece of teak wood is only a million Rupiah (about a hundred US dollars). "That's all. It's no longer what we were promised. They told us it'd be ready in five years. Now they're saying 20. The farmlands have become forests. It's a total mess," says Murni.

"The teak-planting program entered the island as a government initiative to utilize infertile farmland in the 1990s."

In 2015, Pemda Klungkung was still promoting teak-planting. They were promoting *korek* teak; however, in Nusa Penida, most people had been planting golden teak.

Differences in Patterns of Consumption

The materials required by farmers and what they choose to plant has been forced to change to meet the demands of patterns of consumption in Nusa Penida. Along with these changes, rituals associated with agrarian traditions have also been lost. Long ago, the staple foods were corn and cassavas. Rice was only a filler, to be mixed with something else. Rice was special, and meant for religious ceremonies. Vegetables usually eaten were those planted one's self, such as jackfruit, beans and nuts, leaves, cassava leaves, spinach, gourds and pumpkins, *tui, keladi* leaves, and the leaves and flowers of the papaya.

As more and more community members head to other islands for work or school, the better transportation becomes, the more rice comes in on these boats, and the more programs promote rice cultivation, the more rice replaces traditional foods in Nusa Penida. Cassavas are now just side dishes, snacks.

"The materials required by farmers and what they choose to plant has been forced to change to meet the demands of patterns of consumption in Nusa Penida. Along with these changes, rituals associated with agrarian traditions have also been lost. Long ago, the staple foods were corn and cassavas."

Since 2005, the consumption pattern of peoples in Batukandik, Sakti, Batumadeg, Klumpu, and Ped have begun to turn around. Corn and cassava are now mixed in with rice, if not just for flavour. Foreign workers stationed on the island, as they usually come from Java or Bali, eat rice five days a week, and make due with corn for two more days. Contrarily, the island's farmers eat corn five days a week and eat rice for the remaining two days. In a day, one family with four members will need about eight ounces of corn. If they ate rice, that would be about one kilogram.

At this time, the price of rice in Nusa Penida is down around Rp 9.500- to Rp 10.500,- (just below one US dollar) per kilogram. To buy rice for an entire family would be around Rp 210.000,-/month (just over twenty US dollars). For a farming family, however, it would only cost Rp85.000,/month (under nine US dollars).

For sidedishes (and flavour), the people look to vegetables and seldom purchase anything from the market. When they do, however, they purchase tempe, tofu, fish, and meats. "For sidedishes, we seldom buy anything. Sometimes just some noodles, eggs, fish. If we're shopping for a ceremony we go to Mentigi Market in Batunuggul. In the West (western villages), we go to Toyapakeh Market," says Murni.

Support for Local Staple Foods as they are Dwindeling

Long before rice became a staple, the people of Nusa Penida were reliant on corn, tubers and root vegetables, and beans and nuts, as a food source. Produce like this was to be eaten right away, or preserved for later usage. Corn, aside from being mixed with rice, is also crushed and boiled into porridge, powder, and used as chicken feed. As for root vegetables and tubers such as *gadung, talas, tehe, suweg*, these require a few stages for preparation.

Root vegetables and tubers are usually sliced into thin cuts and dried until crispy before being soaked in ocean water for three to four days – before being put out to eat. Cassava is also used for *nasi sela* and *gaplek*. Gaplek is prepared in anticipation of the dry season. As for pumpkins and goards, these are usually steamed and made into *ledok*, either that or they are mixed with vegetables. All produce that will last is saved up as a preserve, or *jineng*, to last throughout the hot season and potential droughts.

In Nusa Penida, most families have a *jineng*. For families who are lucky and have more harvest than they need, they will put up a *jineng* apart from their house and kitchen. For families with a moderate harvest, their *jineng* will be simply the storage space above their kitchen. Produce that can be preserved are corn, *bleleng*, beans and nuts, *ketela* trees (which need to be dried), *gage* rice (tied in bundles), and seeds that will be planted when the next planting season comes around again.

Image 36. Jineng, storage for food preserves

The people of Nusa Penida, as it has been passed down, make seedlings themselves from what they have already planted. For corn, they shuck it from the largest cob, the most densely packed one, and the one with the brightest colours. After this, the corn is tied up and dried to a crisp, to be tied together and stored in the storage area above the kitchen. For beans and nuts, those chosen for planting are the two longest ones from bundles of the same size. After this, the nuts or beans are dried with the skin on and saved in a container made of woven bamboo leaves, which is used for every harvest. For gourds and pumpkins, the process is similar. Only the best are chosen to be planted, and these are left connected to the plant – before being cut up and dried. For the best seed, there should also be a ceremonial offering made to Dewi Sri.

Aside from the knowledge of farming, perserving, and planting seeds, a few people of Nusa Penida keep the knowledge of how to guard against pests in a natural way. For example, they will use *bila* fruit to drive away the pests, frightening the monkeys without harming them – and this is done without a harsh word. In fact, they have a pet name for the mice that may invade their crops. They call the mice by Jero Ketut.

Traditional Weaving and the Disappearance of Nusa Cotton

Combing to the East and down to the South of Nusa Penida, we arrive at Tanglad Village. Tanglad is not only known as the host of the *Calon Arang* performative cycle, but they also are the best producers of woven cloth. Here they specialize in *cepuk* weaving, also known as *cepuk rangran* – which is a treasure of the area, unaffected by the changing of times. "Cepuk" means "to meet," while "*rangran*" means "seldom."

Cepuk rangran has a specific motif that is rare and appears to be like a few holes – holes that seem to be transparent or open. The appearance of this motif is important to many ceremonies, and therefore people take turns wearing it. Through the ages *cepuk rangran* has remained a mark of heritage in Nusa Penida, having long been seen as a mark of distinction. In fact, the fabric itself has a bit of a legend behind it. The fabric is made from "Nusa cotton," and made by the people of Nusa, which has become sacred and rare – and therefore is a must-have for sacral ceremonies in Nusa Penida.

Following the changing times, this fabric is now mass produced, becoming a commodity to encourage tourism. The village of Tanglad is now being marketed as the Tourist Village of Tanglad Weavers.

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"Klak..klak..klak," the sound comes again and again. A man sits in front of an old loom that is larger than he himself. He looks focused on work. I Wayan Sideman is his name. Though focused, he is also friendly with Pak Yen, one of few remaining male weavers of Tanglad Village. His mother and grandmother were once weavers too, long ago.

"As for now, remaining weavers are mostly old. They're maybe seventy years or older, and some of them are no longer around. In 1970, cotton was still woven here. The women weavers are still plentiful, but seldom are their children interested in weaving, let alone make cotton into yarn beforehand," says Pak Yen.

In his opinion, the difficulty is getting the youth to be interested in weaving instead of heading off in pursuit of tourist dollars. To them, weaving is seen as an occupation that lacks the flare, and is slow to make ends. They do not realize that *cepluk* cloths of Nusa Penida are the heritage and spine of the culture, and as such should be valued for all that they conserve of the Nusa Penida way of life, and cosmology.

Opposite from where he was seated there were two weaving looms; however, they do not call them just "looms." Here these *utilities* have a humorous title, a title that serves to remind people to disassociate weaving and mass-production. They are called (loosely translated) "Looms Are Not Machines" (*Alat Tenun Bukan Mesin*), which, as an acronym, is ATBM. Anyway, in front of one of these ATBM sits a middle-aged woman making thread. Next to her, in front of the common kitchen, there was a tool made of pieces of wood, entwined in yarn that forms into a raggedy square. A grandmother in the center unravels the yarn and spools it up onto one of these pieces of wood. "This is what we call *cag-cag,*" says Pak Yan. Cag-cag is a traditional weaving tool from the days before ATBM's and other weaving tools. It is made of wood that has been tied together and it is cared for as it is passed down through generations of weavers. With this *cag-cag*, *cepuk* cloths were once produced.

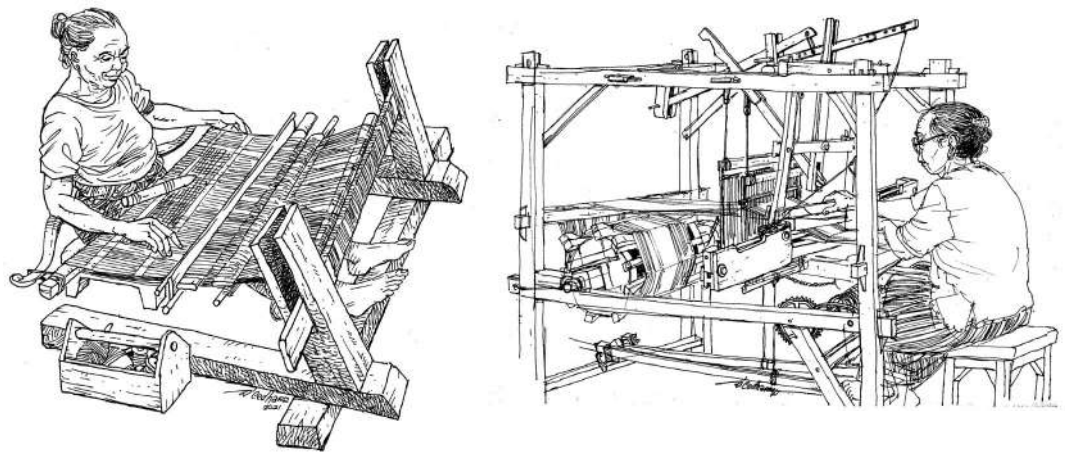

Image 37. Weaving using a cag-cag and the ATBM

Aside from being left behind by the younger generations, another problem facing weaving is the difficulty of sourcing supplies. The main materials required, yarn and coloured dye, all must be brought in from elsewhere. "Talking of long ago, we used to make our own yarn from raw cotton. Natural dyes weren't hard to make. Nowadays, however, wild cotton is no more. Everything must be instant," says Pak Yan with concern.

He tidies up some loose cloth and continues his story. Long ago, the weavers made yarn from cotton from Nusa Penida. The cotton was called *kapas nuse.* Nowadays, it is nearly impossible to find that plant anymore. "It's gone. It's rare. Maybe it no longer exists," says Pak Yan. In the golden age, *kapas nuse* was the prized yarn, sought after because of its qualities. Its quality was its fine and smooth texture.

In the 2000s, the government ordered that the planting of cotton must stop (*varietas kapas Kanesia 8)* around the entire island. However, what happened after this was like a backfiring gun. More people planted more cotton, perhaps just to be contrarian,--but there was no mechanism to make it all into yarn, and the price of it plummeted. The cotton was not sold, people became disillusioned – and they fed the plants to their cows. Both cotton and yarn do not absorb or retain water, and are therefore inferior to many modern, factory-made cloths. For this reason, the planting of cotton would stop on its own accord. Over time, this plant may have even become extinct – all around Nusa Penida.

"In the 2000s, the government ordered that the planting of cotton must stop (varietas kapas Kanesia 8) around the entire island. However, what happened after this was like a backfiring gun."

The extinction of this plant was followed by the loss of local *intellectual properties* – the cultivation of cotton, then spun into thread, and the comprehension of weaving technology that has been passed down. Only a handful of people still understand weaving, but they are already aged and forgetful.

As with the cotton, so with the natural dyes. Many of the plants sought after for their spectacular, natural colours have disappeared. Long ago the weavers dyed their cloth with natural dyes from local plants. Red was found in *manggis* skins, teak, and *secang* wood. Dark blue was taken from *tarum* grass. Black was found in dark soils. Brown was found in the roots of the *mengkudu* and mahogany. Meanwhile, for the yellow, from *babakan poh gending rasa* (the skin of various mangoes, such as *gending rasa),* turmeric, acasia, and many others.

The "Gamalisasi Project" (*gamal* planting) responsible for the golden teak also gave birth to the program *Bapak Angkat*, translating to the "Step Father Program." Through this initiative, the plants of natural dyes are once again being planted – intercropped with the plants of local farmers. Aside, "Yah, this is because the youth did not keep these traditions alive. There are fewer and fewer weavers. Nowadays there are only a handful. And where are they? I don't know," says Pak Yan.

Pak Yan himself manages the colouration of all cloths by himself. "The end product is way better if you used natural dye. If you use commercial dyes, the price is cheaper than natural dies. Still, it doesn't cut it. Nowadays we're taking another try at using natural dyes again. We're seeking out these old plants and planting them if we can," says Pak Yan.

The man with an easy smile is proud that he has the contact of the only *cepuk rangrang* weaver of Nusa Penida – and they also use natural dyes for their hand-picked cotton yarn. Just a decade ago, however, this type of activity was common. It was being *rolled out* by the women when everyone else was farming, and to do it all they used a *cagcag.*

The stages in the process begin with the collection of cotton, the dying of the yarn, *nyujur, nyemah,* and weaving. This process of weaving used to be similar to a ritual – a ritual that related to other rituals, and to life itself. As for the *cagcag,* these devices needed to be blessed before usage. When weavers took a break, their tools and yarn could not just be left dangling. They would need to be protected under leaves – so that other *beings* would not intefere. "Long ago we dipped cotton into mud to make colours. Now we save those old fabrics. We call it *saudan* fabric," says Pak Yan. These fabrics are only used in Tanglad Village – and only for ceremonial purposes. "If there's a ceremony, these cloths come out. People borrow them."

Tourists are catching on to these weavings. They try to purchase them; however, many of them are not for sale. They are a record, a woven library, for the people of Tanglad.

Pak Yan identifies that *cepuk* weavings have the potential to become popular and valued on the market. For example, the *cepuk rangrang* is small, often only the size of a bandana, but the price is two hundred to three hundred thousand Rupiah ($20-$30 US dollars) – and that's using chemical dyes. "Using natural colours, a fabric of the same size could fetch one million Rupiah," says Pak Yan. For a large fabric, the price could be much higher still.

At the end of the conversation, Pak Yan seemed optimistic that *cepuk rangrang* still has potential, and hopeful that younger people will continue the work of their ancestors. He also hopes that *nuse* cotton, and the plants needed for natural dyes, will be planted again. If the weavers work together with other parties – such

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as marketers – *cepuk rangrang* could become popular, he posits. "What's more nowadays there are so many tourists. Imagine if we wove with native cotton and used natural dyes, the price could be much more. The creation of *cepuk rangrang* could offer a traditional education. From start to finish," says Pak Yan.

Seaweed and the Birth of Bachelors

That evening, Toyapakeh bay was congested. Tourists were coming off of the ferries and speed boats. A few of them were still in wetsuits. "Yah, now it's busy. Not quiet anymore. At night it's still happening. The foreigners sit out there in the sand. They go diving. They come here from Lembongan," says Abdul Hamid, the owner of a restaurant at the edge of the bay and owner of a car and motorcycle rental service.

Hamid left his home in Toya Pakeh in the 1970s. "At that time, there was nothing here. There was no seaweed even. The seaweed has only just come up since the 70s," says Hamid. Long before the cultivation of seaweed, the people were fishers.

"There were no farmers. We were just on the beaches catching fish. The area of the harbour has always been the port. Tiny, simple watercraft would row in from Lembongan, Ceningan, Badung (Sanur), Kusamba. Back then, if you wanted to go to Sanur, you'd use a *jangolan* (a large boat for transporting seaweed and cattle). Nowadays, none of those small wooden boats comes in anymore. Nowadays we only have modern boats and ferries from Padangbai, Bali. Our harbour now only services Lembongan and Ceningan," says Hamid.

Image 41. Seaweed farmers

In an account that agrees with Hamid, Leser also recognizes the gold era of the seaweed harvest. In 1979, Leser distributed the seedlings of *spinosum* from Nusa Lembongan. He was one of the first to introduce sea weed farming in his area. The area was large enough, at 500 meters squared, that others had space to follow his lead and take up seaweed farming. A man named Sitar began harvesting seaweed too, encouraging many others to follow. In Leser's opinion, seaweed has more promise than planting corn – which can only be done in the brief rain season. With seaweed, Leser can work all year around, though he still keeps a farm with corn and nuts and beans.

Since a boom in the tourism industry since 2016, peaking in 2018, the economy has shot up. Small shops selling accessories, also boarding houses and eateries, went up. Tourism agents came and assembled packaged deals, and car and motorcycle rentals increased too. People rented their family homes to tourists. Quickly, the harbour was swarmed with throngs leaping off of speed boats – speed boats that zip around and overtop of the few remaining patches of underwater seaweed farms.

"Where we are, since many tourists came, vehicle rental services have been set up. Nowadays, every house has two or three motorcycles. Many houses have become guest houses. It's easy to find food. But it's making the younger generations lazy. They want to marry foreigners," says the father of eight kids. The 70-year old man explains how his youngest son just married a foreigner from Cekloslovakia. "She likes my son. What can I do? Nowadays, parents have to obey their children," he says, laughing.

Yusuf, a younger man who grew up in Toyapakeh Village in the 1980s, is now a diving instructor. Concerning tourism though, he has reasonable concerns. "After a while they're going to get bored of this place. And when tourism drops, we're really going to feel it," he says, cleaning off his flippers.

Before he became an instructor, Yusuf and his friends worked as fishers and seaweed farmers. Between 2006-2007 the diving centers began to operate and Yusuf has been benefiting – working for an international outfit.

He explains that, long before the people of Toyapakeh and the surrounding area were benefiting from tourism, their lives revolved around seaweed. Nearly all of them were seaweed farmers.

"The profits gleaned from seawood and those from tourism are very different numbers. I don't know if I'm the only one who feels this way, but money these days comes as easily as it goes. Long ago, when planting seaweed, parents

"...long before the people of Toyapakeh and the surrounding area were benefiting from tourism, their lives revolved around seaweed. Nearly all of them were seaweed farmers."

sent their kids through school. They earner their bachelor's degrees. Nowadays, children don't care about higher education even. They're happy with this instant cash. And their lifestyles aren't always good," says Yusuf.

Having had such involvement with tourism, he feels sorry for the many locals who do not understand the *tricks* of the tourism trade, nor the need for conservation of the environment. "Many local guides even don't understand tourism really. For example, today there were not enough vehicles for the tourists. A few days later, there was a surplus of them. People went out and borrowed money to purchase more vehicles. They figure they can pay off their debts in three years, but that's being really hopeful. There was also a case where, even though we have traditional *awig-awig* policies in place to protect coral reefs, boat-owners take tourists out there all the time. They break these policies. However, it seems as if, in Nusa Penida, what can be exploited will be exploited until it's all said and done. The attitude is that we'll take care of the damage we did yesterday tomorrow," he says.

Another issue that troubles Yusuf can be seen every day along the coasts. "If we're going around, we can see that on the beaches people are building fiberglass boats. Some are being made on the shores, in Lembongan, or they're ordered for usage in Serangan," says Yusuf.

Despite all of this, Yusuf is grateful to live in Nusa Penida – because the people still respect customs and traditional laws. "Over here, your *adat* (customary beliefs) is the key. If the people understand the need for conservation, that's good. In the midst of the conditions of modernization, I am grateful we still have traditions like *Nyepi Segara*, though it is only once a year," says Yusuf.

"The people know, all they need is a boat and they'll make money. If they stick to seaweed farming, they watch the market price fluxuate, they fend off pests and diseases, and then they have to dry it all out. It's no wonder they're switching to tourism and faster results."

Nyepi Segara is a specific observance for the benefit of the ocean. For 24 hours, nobody is allowed out at sea. "It's like Nyepi (Balinese New Year's) in which we cannot go out, cannot be active outside, cannot light fire or turn on lights. In Nusa Penida, all activities at sea are stopped totally," says Yusuf.

The transition from the prominence of fishers to the dominance of seaweed farmers, and now the growth in the tourism sector, is all about the economy, in Yusuf's opinion. Yusuf considers that it takes a while month to finally harvest seaweed. For speed boats full of tourists, however, the profits are instantaneous.

"The people know, all they need is a boat and they'll make money. If they stick to seaweed farming, they watch the market price fluxuate, they fend off pests and diseases, and then they have to dry it all out. It's no wonder they're switching to tourism and faster results," says Yusuf.

In Toyapakeh, there are a few people with speed boats and a few organizations who rent them out too, and also local people who operate them. Yusuf himself is part of a tourism group of 40 individuals who co-own and operate speed boats. These are usually available to tourists who purchase packaged deals. One of these packets is for a minimum of four people and costs Rp 700.000,- up to Rp 800.000,-/ ($70-$80 US) per person to visit four tourist destinations. "The main spot is where you can see the manta rays and the mola-mola. Very few people ever go snorkeling," says Yusuf.

Other sideeffects of developments in the tourist industry are the increase in price of land, but also changes in land usage. Since 2014, more people have been selling and more people have been buying. Land on the coast was once considered vacant or without function or ownership, but now people are buying it. There are even some areas around sacred temples that are now popular tourist destinations. "Nowadays there are many land usage conflicts. The investors keep coming. Five or six years ago things were slow. Now it's as if Bali is already full. Of the local people, perhaps 70% have already sold off their land. Many people became brokers. All sorts of people bought land here. So, if anyone has land, they'll be looking to sell it whenever they need money. They don't care who they sell it to," says Yusuf.

After the seaweed boom in Toya Pakeh and Ped villages, seaweed took hold in Mentigi, Suana Village (especially in Banjar Semaya). One who was born and grew up cultivating seaweed, I Ketut Suarna, is the former Bendesa Adat Semaya, and is now a fulltime teacher at the local Public School. Ketut says that the entire area is a centre of seaweed cultivation now. "Seaweed has been around since I was in High School in 84. Then I went on to College. All paid for by seaweed. We planted many different kinds, such as red spinosum. There's also what we call *barong* seagrass," says Suarna.

Nusa Penida Nowadays: Tourist Invasion

Times are changing. It would not be an exaggeration to say that change is the only constant. As for the youth and the generations to come, they all seem intoxicated by the tourism industry. From the sea you can see it – a *mound* of buildings with clashing styles and exotic motifs, and all of these colourful ornaments and toys lining the beaches.

"As for the youth and the generations to come, they all seem intoxicated by the tourism industry. "

Speed boats are loaded and full of foreigners. They head off to sea from Banjar Nyuh and Toyapakeh, leaving line ups of more tourists waiting in queue. Behind the boats are

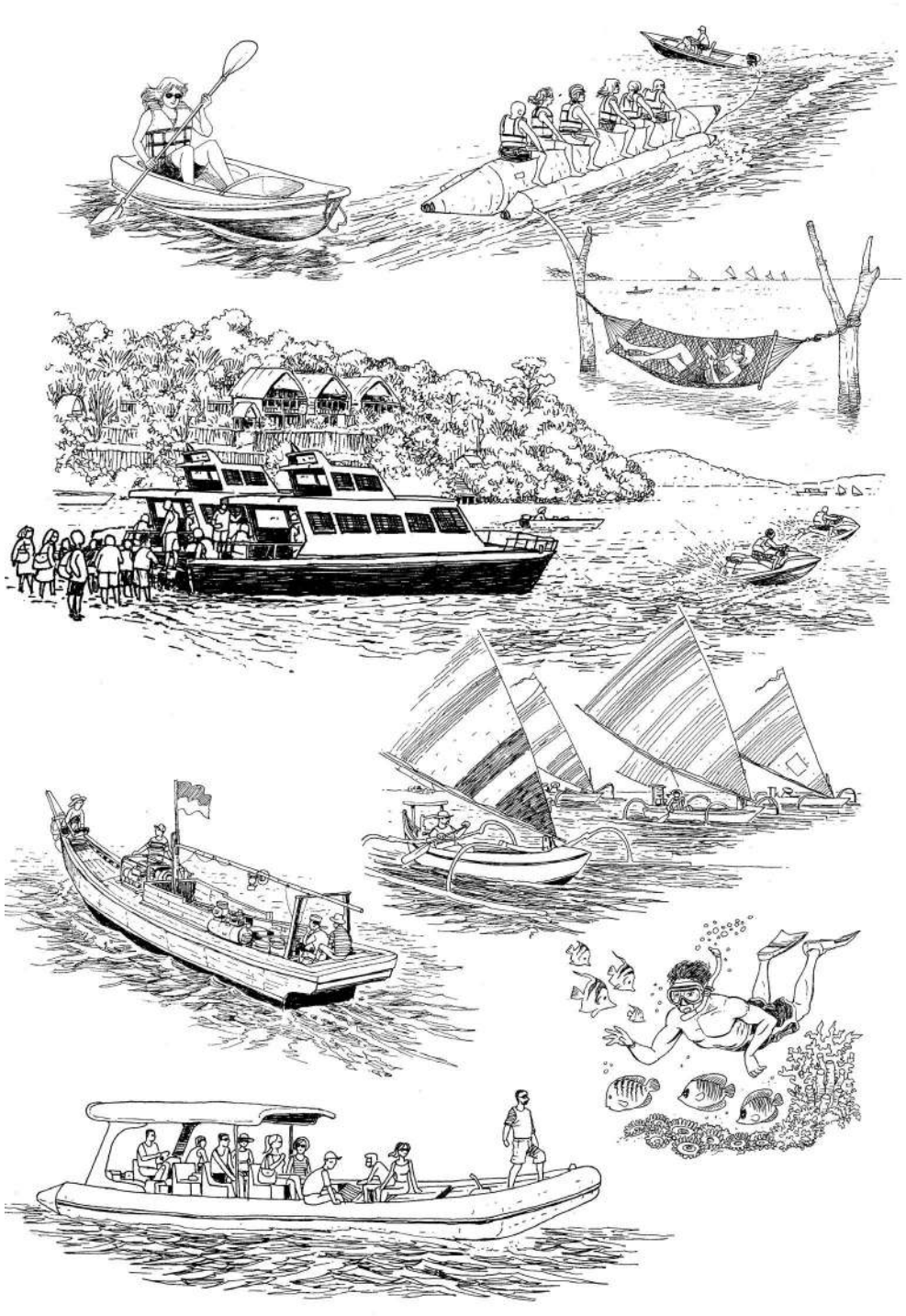

Image 39. The Tourist Situation at the Moment

toys for water sports with bright and flashy colours. As alien as they seem, these boats come from the quaint islands of Nusa Penida, Nusa Lembongan, and Nusa Ceningan. Meanwhile traditional wooden boats fall to pieces on the shores of Telaga and Mentigi. The boats that carried the seaweed around now bring tourists from the shore to the speed boats, which cannot come close to the shore.

Many different kinds of tourism are present. There are hotels, guest houses, villas, eateries, restaurants, bars, laundry services, tourism centers, vehicle rental, cafes, bars and nightclubs – the latter lining the beaches along Desa Ped's main street, all the way to Mentigi. On the roads between Ped and Klumpu, the hills are dotted with villas, homestays, and more eateries. Trucks carrying building supplies go to-and-fro between each village. In the West it is the same – from Toya Pakeh to Sebunibus to Sakti to Klumpu and Batu Madeg.

On the way to Banjar Semaya, on the lefthand side near Batu Medau Temple, there are some Chinese-looking homes on the side of the road that are always bustling with people – near to PT Semayawan. This area is also popular for watersports. Their toys and plastic gear line the beaches with their bright and unnatural colours.

In the villages on the hills, newer homes have come up, each one with a swimming pool. Further to the South, there are popular tourist destinations like Broken Beach, Angel Billabong, Kelingking Beach, and Guyangan Springs, the Tembeling waterfalls, and a few signs reading "Premium Private Land." Along some roads are for sale signs with names and phone numbers – some local, some foreign. Further to the West, in the Sakti area, nearing Crystal Bay and Gamet Bay, there are some *tourist villages*. What's more in the evenings, up and down the roads are tourists making traffic for the locals. Until late at night bass thuds out of large stereos and from live music venues in cafes – all for these *visitors*.

"Nusa is growing. Nusa is drunk on the tourist dollar. And if it goes away, it's going to be a problem," says Leser. He paints an interesting picture about Nusa Penida – as he frets that God has been pushed aside to make for the "almighty Dollar." "Long ago people were okay with seaweed. Nowadays, the people of Bali call it 'the almighty Dollar.' It's all powerful now. The tourists are coming through. They make it so that we are unsure of what we should say, or how to interact with them. The temples are only ever busy during large rituals. Sacral dances have become entertainment for visitors. All of this makes me worried for when this all disappears one day," he says.

"... Long ago people were okay with seaweed. Nowadays, the people of Bali call it 'the almighty Dollar.' It's all powerful now. The tourists are coming through. "

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Tourism has not only spread throughout the lowlands of Nusa Penida, but it's also reached the highest peaks – though not quite as impactfully. Nevertheless, the promise of tourist dollars has brought farmers away from their fields. Teenagers and children, farming and fishing – the community does not partake in these activities, and their associated rituals, as often anymore. Teenagers make plans to study about tourism on other islands. Their involvement in village life is limited. Some live elsewhere and only return to the island when they have a holiday. As a result, the intergenerational gap is growing.

The limited number of youth who wish to stay and work in Nusa Penida is raising questions about the islands future. If there is no *regeneration* of farmers, there is a chance that family lands will be rented to others, sometimes only under an agreement to take a share of the harvest of other farmers. Soon enough, the only people on the island will be parents and grandparents. The situation is forcing more land to be sold to tourists.

Made Gata explains that at this time farming only produces enough for sustinance, and is only done by older people (60 years and above). As for the youth, below 60, most are construction workers in the lowlands of Nusa Penida, working on fast boats, in villas and eateries, and a number of them drive motorcycle taxies. In the morning they will walk downhill to the coast, in the evening they will return.

I Made Wijaya, the owner of PT Semayawan and also the Chairman of Panitia Pura Batu Medau, has his own idea for a solution for Nusa Penida. He boasts of being a pioneer in tourism development in Nusa Penida, and yet he also identifies that the economic and work-related transitions affecting social life on the island are problematic. "Some say that I was the first to jump on board with tourism here in Nusa Penida. I am a pioneer. Others then took the leap. And that's the problem. How can the culture, the economy, education all move ahead?" he says.

Wijaya realizes that tourism (prior to the corona virus anyway) was excessive. "Nowadays it's over the top. One person buys a car for tourists, the others do the same. Now we have traffic jams and no tourists sometimes. Gives me a headache. One makes a villa, all the others make villas," says Wijaya, but he thinks he knows the solution. "End of the day this is all on our children's shoulders. They need the education so that later they'll understand how to run and build tourism properly. How will they not forget their roots? The meaning of *Hang Nuse* must not be forgotten. In the future only three things are important, which are commitment, honesty, hard work and prayer. That's all," says Wijaya.

"The limited number of youth who wish to stay and work in Nusa Penida is raising questions about the islands future. If there is no regeneration of farmers, there is a chance that family lands will be rented to others, sometimes only under an agreement to take a share of the harvest of other farmers."

Bearing the Onslaught

Shifting to the East, past Mentigi Market, a large market in Nusa Penida, approaching Suana Village, there is a place where farmers, middle-aged and older, handle rigging and machinery for boats, and sometimes old car tires. In mid-day, beneath a tree there on the coast, a few people sit around, and a few recline to have a sleep. Five hundred meters away from a large tree there are a few old shacks for storing seaweed. Some of these shacks are empty, some are still in use.

One who obstinately continues this work, I Wayan Adnyana, is the head of the "seaweed group" known as Sari Segara. He is thin and strong, his step is firm, and his hands do not stop fiddling with netting. He is a cultivator of seaweed, and can get by on this alone. Born in 1971, Wayan began a relationship with seaweed in 1984. His father is also a seaweed farmer.

"At that time I was still in High School, just starting to plant *spinosum* from Lembongan. After 2001, I started planting *cottonii*, and i still do, up until today," says Adnyana. Apart from these two varieties, *barong* seaweed is another and much larger variety that has been harvested here, though it does not fair as well in these waters.

In Semaya, since 1984, the people have moved from working the land to farming in the ocean. Almost all farmers shifted to seaweed, using whatever tools and knowledge they had. At that time they were not familiar with rope and nets. The seaweed they planted they tied to the end of sticks instead.

Adnyana puts it down to the slow speed of on-land farming. Seaweed grows much faster than corn, for example. In comparison, in the dry season, people cannot plant, and harvest is only once a year. They can get cassava,

The Diseases of Seaweed

Ais-ais disease, or *ais-ais,* is caused by the bacteria Vibrio Sp. Symptoms are generally bleaching at the base of the thallus, which begins with a change in the color of the thallus to clear white or transparent. Ais-ais control in Indonesia has not been handled properly, which has resulted in a decrease in seaweed production.

Source: DKP, 2004

corn, beans and peanuts. What they grow is often not even enough to feed their livestock, however. With seaweed, they can harvest every month, and it doubles as livestock feed as well.

In planting seaweed, one cannot be clumsy and spontaneous. Planting is done according to the Balinese calendar and the *dewasa ayu* (good and bad days). To receive a good outcome, planting should begin in November. "Actually, you can plant every day. But if you want the best outcome, start in November. If you start in March your results could be lacking," says Adnyana.

In the seaweed farming community, it is a longheld belief that, in one year, only three months will produce good results. This stems from the Balinese calendar, and the fourth, fifth and sixth months. "If we plant seaweed within these three months, you'll get more," says Adnyana.

There is also a way of deciding whether the quality of the seaweed is good or not. This can be done simply by looking at the plants. If the plants are green then they are good quality. In the hot and dry season, beginning in July and on until September, the seaweed could come up crispy and dry.

From another perspective, seaweed is not a plant that requires much tending to. The only problems that do arise are related to the rising and falling of the tides. "The rising and falling of the tides could potentially dislodge the seaweed," says Adnyana.

In Banjar Semaya, every farmer has at least a square of underwater seaweed field. Adnyana himself has around 15 fields. Thirty days after planting, he harvests around 200 kilograms of seaweed.

Though underwater, the creation of seaweed fields still depends on the ground. Just like on land, slopes make for specific challenges. Based on the undulation of the undersea environment, crops follow "*ngelajur*" rules – which dictate whether a plot should be long, round, or follow the contour of the seabed. =

"In planting seaweed, one cannot be clumsy and spontaneous. Planting is done according to the Balinese calendar and the *dewasa ayu* (good and bad days). "

At this time there are five groups of seaweed farmers actively cultivating. Each group has their very own *awig-awig*, or policies, themselves. These policies dictate which members receive how much of the harvest. As for sending it to market, all farmers are responsible for gathering the harvest and putting it all together as one, and a day after harvest it all goes to market – for a price of around Rp 10.000,-/ kilogram (around US $1).

Though planting seaweed may be easier than farming on land, imagine an illness, such as coughing, but without a cure. This is what it is like when the crops are infected with *ais ais, bulung bok, myoo,* white spots, or are bombarded by fish. If seaweed is infected by *ais ais,* if they are not harvested within two or three days, they will turn into goop. Ais ais comes every year between July and September. There is also a type of *gulma* shaped like a hair that hooks onto seaweed. To seaweed farmers this is known as *bulung bok.* The only solution is to separate each tiny piece of it from the seaweed itself on an individual basis.

In facing these infections, *gulma*, and also problems with fish, the people rely on signs. They use seasons as signifiers, read the signs of nature, and the *dewasa ayu* calendar. "Inflictions like these happen each year, cylically. Every place gets their turn. That's why we use a system of signs. We look to nature. If Western winds blow, or if rains come during the heat season, we've got to be ready," says Adnyana.

The signs of nature are read by the farmers of Semaya, but what they derive from them is different than the conclusions of others in different neighborhoods. When rains fall at the start of the wet season, as appropriate, this is good for the seaweed, in Semaya. However, in other areas, such as Ped, it is not a good thing. In Ped, the first rains could hinder the growth of seaweed. "The farmers understand it. Each specific area is different. The true difference is only the availability of seeds and seedlings. If our lands go to ruin, other places might be better options," says Adnyana.

Aside from threats inherent in nature itself, the farmers' efforts are threatened also by the construction of tourism facilities, such as hotels, villas, cafes, eateries, speed boats and ferries. Land usage of the beach areas – now used for sunbathing and play instead of harvesting seaweed – is becoming problematic for the investors. Meanwhile, to dry one's harvest, the farmers have to rent the properties of the landowners, who may also be foreigners. Per meter, they pay Rp 200.000,-/ per year, per person. "We can only farmer and be hopeful. Ya, how will it end? It's like this now. It's just this and that's all there is," says Adnyana.

Multi-Party Collaborations

Various official programs, some from the government others from NGOs, have attempted to utilize the lands and coastal beaches and waters around Nusa Penida but not all have been successful. Problems arise in the difference of opinion between the Indigenous, land-based understanding of the island and the pragmatism of these well-meaning initiatives. Knowledge that has been passed down for generations is disappearing, but it is not disappearing without a struggle. It seems likely, however, that the youngest generations will not be connected to these old roots of place-based knowledge and place-based customs, however.

" It seems likely, however, that the youngest generations will not be connected to these old roots of place-based knowledge and place-based customs, however."

To stop this from happening, research must be done. The wisdom of the people of Nusa Penida needs to be recorded and brought back. A qualitative study needs to be done of just how the local cultures support nature, and how integral and precious that ritual-rich life cycle and paradigm is. The availability of freshwater springs, the comforts of life alongside nature and animals – as a part of the ecosystem – is what makes the island an attraction to tourists as well, and it is also what gives the people their resilience, the staples of their existence, and the bottom line beneath everything. Nusa Penida needs to be *realized* by the outer world, and fully supported. This needs to be done – so that the fears of Leser do not transpire:

"In the corner of the kitchen, dressed all in white, they hit the bell. And by their side was the *serati* bird."

Pandemic

Since the Corona virus pandemic and restrictions on public activities that were implemented in April 2020, the tourism sector has been paralyzed. Visiting tourists have drastically reduced. Fast boats and ships slosh around in the port. Rental vehicles such as cars and motorcycles are covered in coats of dust and mildew, and some are left dusty in the garage. Some have been reclaimed by a credit guarantee financial institution. Hotels, homestays, guest houses, Villas, and various other residences for tourists remain empty, without occupants. Tourist facilities and tour packages are not in use. The ports where ships dock are far from noisy. Tours guides complain.

The Turning Point

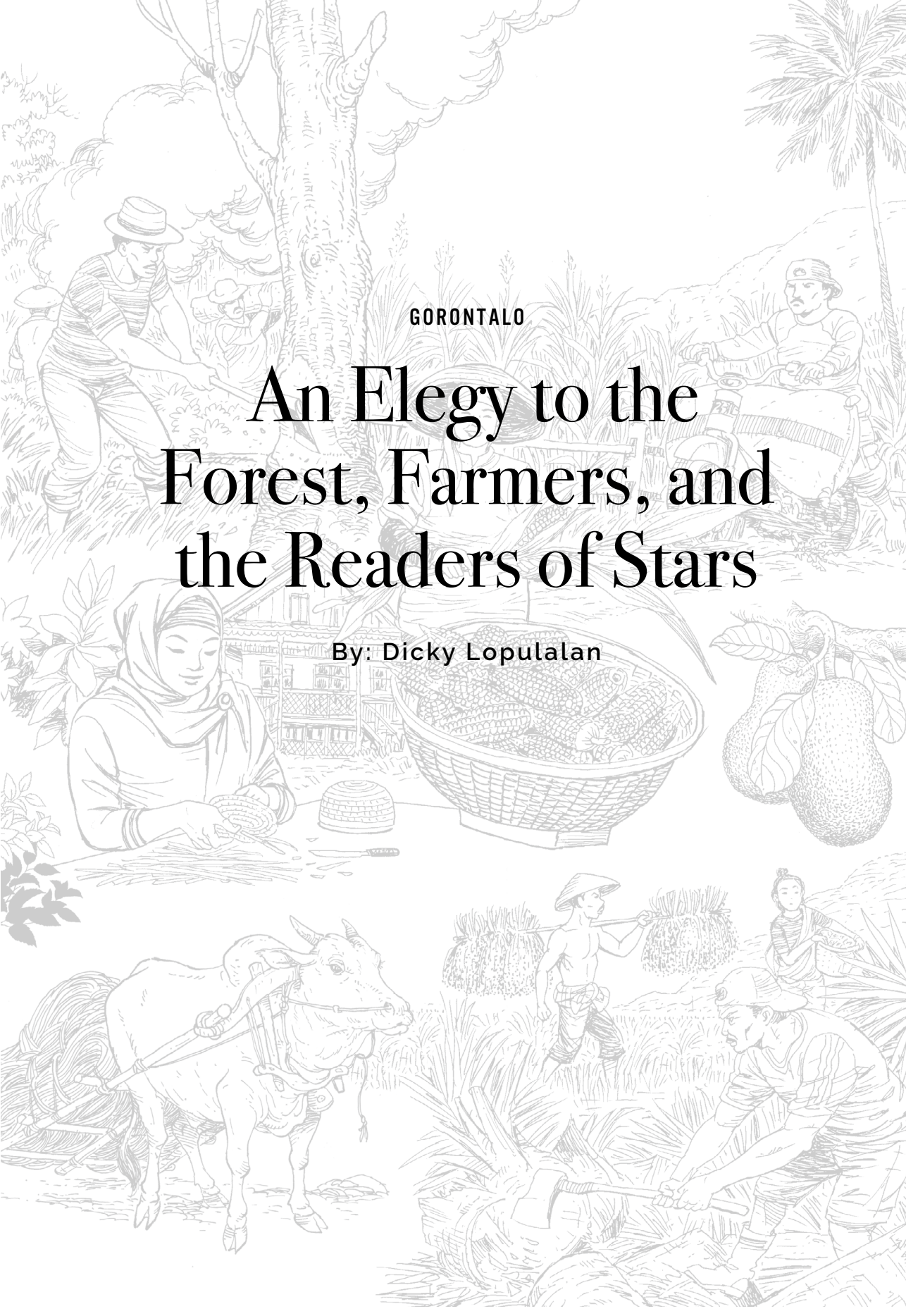
After three months, the island reached a turning point. Those dependent on tourism headed back to the sea – to the underwater fields that were now full of weeds. They have reacquainted themselves with fishing and growing seaweed. Into the fields, they began cutting down teak trees and cutting through shrubs to plant various types of crops -- vegetables they consumed many years ago, such as corn, cassava, pumpkin, and nuts. Some of the others also started working on hydroponics systems, vegetable gardening, and growing various spices in the yard.

For those who can wrestle with the sea and tame their allotments, the pandemic has added momentum to further increase activities and proved a means of survival. I Kadek Cik, one of the a youth from Banjar Tengaksa, Batumadeg Village, proved this. Pandemic times are not always synonymous with difficult times. "We are even more passionate about gardening and production. We all need to eat, can't negotiate," said Kadek. He is helped by his elderly mother, who cultivates their fields which are directly adjacent to the temple of Puser Saab. "I am grateful for having participated in training and *ngayah* in the temple. So, when others don't harvest, I can harvest various things, like vegetables and fruits," he said.

At the height of the dry season, when there are not many shipments of vegetables and fruits from mainland Bali, I Kadek Cik actually harvests his own greens, beans, string beans, bitter melon, lemongrass, cucumber, and watermelon. The harvest was large enough that it was sent to the stalls. "There are also those who come to our fields to purchase it, and then they'll sell it again themselves. There are also residents who buy directly and cook the produce themselves," said Kadek Cik.

The same thing was also expressed by I Putu Netra, one of the guest house owners in Toya Pakeh Village. "Since the pandemic, there have been no guests. We are all confused. I also decided to go back to Lembongan to garden and fish again," said Putu. In his hometown, he plowed through the garden which had been left overgrown with weeds for years. "My friends also started gardening and planting seaweed. Now, Lembongan island's waters are full of patches of seaweed. Because there really is no other work that can be done, apart from that. Yes, we're going back to the activities of many years ago that have supported us on this island in the past. It seems that we are all being reminded not to easily forget our roots," said Putu.

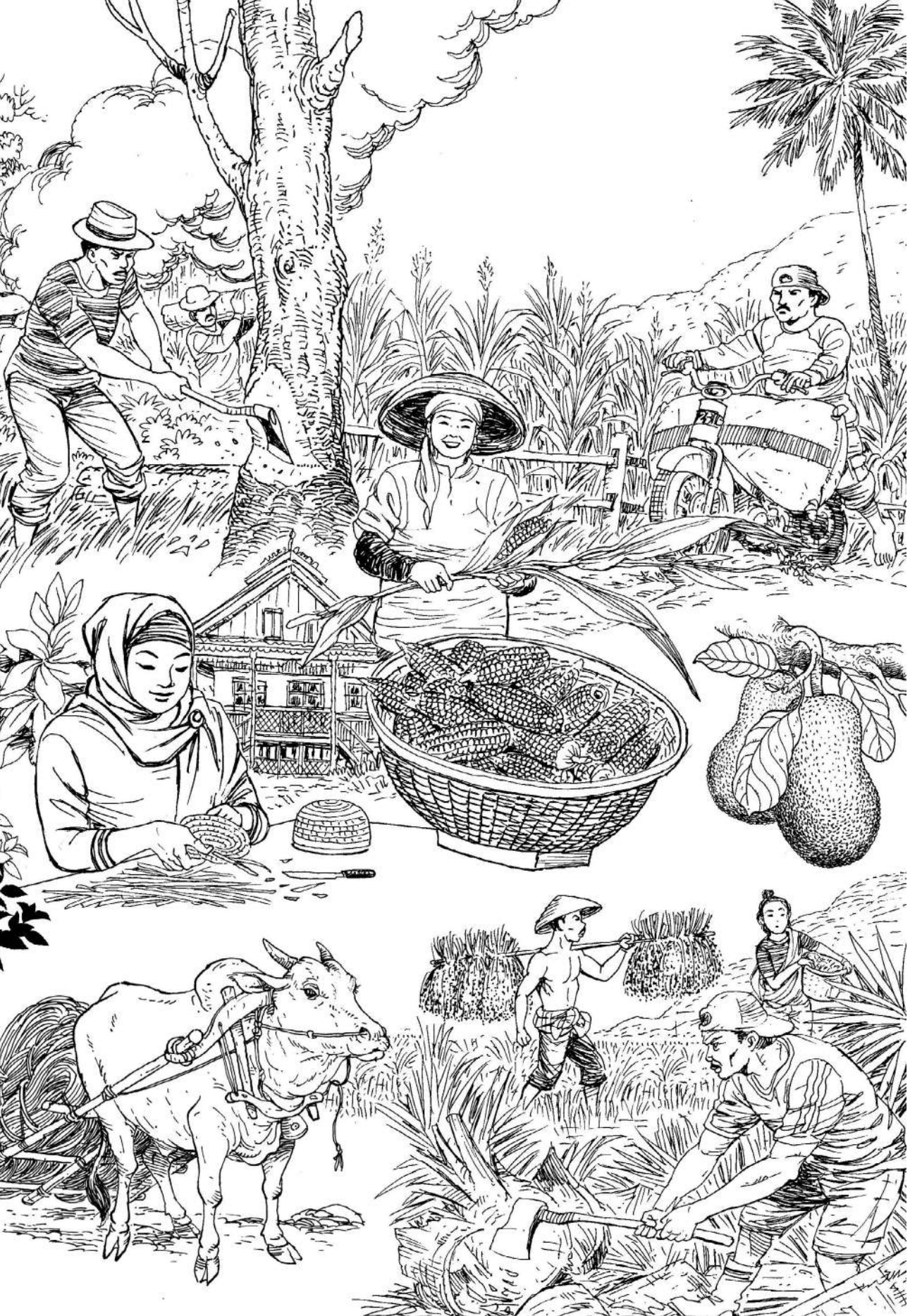
The turning point mentioned above is the silver lining to the pandemic. One question remains: when the pandemic ends and tourism recovers, will the fields and seaweed farms be abandoned again?



GORONTALO

An Elegy to the Forest, Farmers, and the Readers of Stars

By: Dicky Lopulalan



ON that day we grew older, as we do every day. After ten hours under the sun, the light, in Liyodu Village, Bongomeme Regency, Gorontalo District, Gorontalo Province, began to fade. Pano Harun remembers that he voted in this country's very first election. He also remembers marrying Aida Maini in 1948. Though he could not be sure of his age, Pano knows that, just like the sun in the sky, it was nearing the end of day.

On that evening at the end of February 2019, Pano greets his guests with warmth. He gives them permission to sit on the plastic chairs on the front porch. Meanwhile his wife sits on the floor of the house while chewing *pinang*, wrapped in betelnut.

Pano is one of a few remaining residents in the village. The others have all died or moved away. When Liyodu Village was still bustling, however, this father of six (with 11 grandchildren) was known as *talenga* (a mathematics teacher and a teacher), in what is known as the ritual of Dayango.

When the board members of the village left, Pango took on the role of *panggoba* (animal behavior and nature observer), and became a *healer* for people whenever they became sick. Nowadays however, all of this has come to an end, because the times continue to change. The only profession that is still carried out these days is farming.

Liyodu has changed with the times. "Five years ago, night was dark and there was no light at all. We had to walk through paddies and coconut farms. Seldom did light even reach our home at night. It was very quiet. It always felt peaceful, even in the afternoon," says Ipong Niaga, the writer of the book *Masalah-Masalah Budaya* (2015), who did research on the rituals of Dayango for a few months in 2013, in this village.

At that time, Liyodu Village was at the very edge of Bongomeme Regency, and it had only just become a village (a combination of Botu Hamlet and Padengo Hamlet). Liyodu had already been a village for a long while (though, in the old language it would have been called a *padukuha* instead of a village). It has 1.200 residents (2010) and is at the foot of Bonggo Lo Sapi Hill, surrounded by forests and hills. The village is known for lay priests, both male and female, who keep the rituals of old Gorontalo, such as Dayango, alive. Because of these associations with magic, many other villagers choose to avoid this place.

"No one even wants to point out the way there. People of the surrounding villages are

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scared. They say, 'Don't go that way or you'll be smashed into bits by those people," says Ipong.

The village is changing rapidly, however. The houses are now all in a row. The nights are not as dark anymore. The roads that were once deep cuts full of water are now made of sand and stone. In keeping with these changes, the image of the place has also changed – it is no longer quite so scary.

These changes have not all been physical. The old forests that crowded around the village are now farmers' fields full of rows of corn. The forest has been pushed back. The method of farming has changed – from shifting cultivation to fixed fields and allotments. The traditional ways of the people have been replaced by modern techniques of farming – using hybrid seeds, pesticides, and herbicides too.

This is not all that Gorontalo has lost, however. The ability to and knowledge of the seasons and the signs of nature have also begun to disappear from collective thought. The role of the *panggoba*, who is able to predict information from the life cycles of animals, constellations, and other phenomena of nature, was discontinued when the last of them passed away. This, despite the importance of that role – in choosing and preparing land, in planting, in dealing with pests and diseases, and all of the many rules that must be followed when one is farming. The *panggoba* are now seen as irrelevant these days. In Liyodu Village, there remains only Pano, who recalls some of the wisdom of the *panggoba* – though it is not in much demand anymore.

"Something new replaces something old," says Pano, thinking about the changes around him. He wears a shabby, torn shirt and shorts with a logo on them, "Monster Energy" it says. He breathes deeply following his statement. He looks towards the setting sun, while thinking about what is behind him.

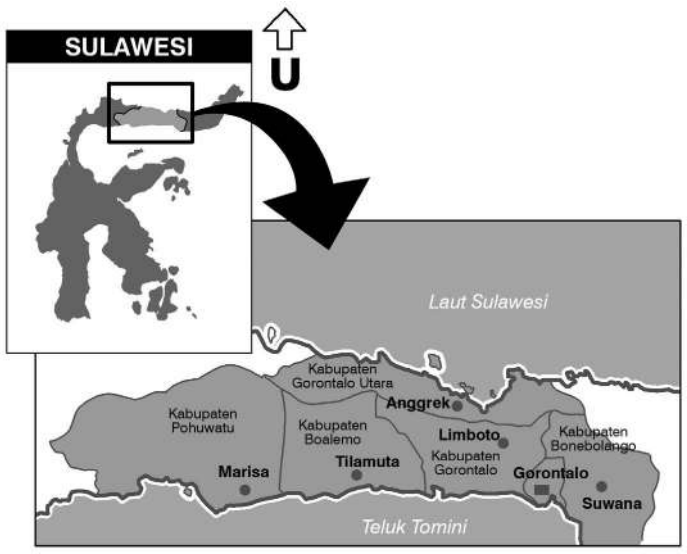

Image 40. A Map of Gorontalo Province

Dayango:
A Ritual for Rain and Medicine

According to Ipong Niaga, a researcher from Dayngo, who is also a lecturer at the Faculty of Letters and Culture (fSB) State University of Gorontalo (UNG), the Dayngo ritual is a request for rain to come for the fertility of plants, whether for the recovery of community gardens or wild plants in the forest. This ritual aims to invoke the health of humans and livestock.

Dayango is usually held when the locally recognized *chicken constellation* is at its peak in the sky. This coincides with seasonal dryness, drought, withering of plants, and pestilence. Livestock is also affected by disease outbreaks, and humans often fall sick too.

"Dayango is usually held if it doesn't rain for six months," said Bali Pano.

"Dayango comes from the words *daya-daya* and *motiyango*. Daya-daya means to make a promise, supplication to Sang Eya, the highest substance in the universe -- a belief from Ancient Gorontalo. Motiyango means to summon. This ritual is meant to summon the *latti*, spirits who work to care for nature, nurture plants, and expel diseases that attack living things. They believe that problems arise because there is no harmonization between the sacred and profane realms – respectively, the *latti* realm and the human one. Usually at the peak of the event there will be a trance dance, going around in a circle of attendees following the ritual, as a sign that humans and *latti* have arrived at a new decision, a new balance.

The timing of this ritual depends on the scale of the problem at hand. If for human treatment only, it be only one night. However, if for humans *and plants* in one village, rituals can take three nights. For a wider area, covering many villages, for example, it can be held every Friday for three months. The offerings are prepared in the form of agricultural products (bananas, sweet potatoes, taro, rice, pineapple, areca nut, red sugar, coconut, chicken, egg, yellow rice, red and white porridge, ketupat and some spices). Also, someone must supply *bayu tumbo'o*, an expression referring to 14 young coconuts that serve the function of entrapping and containing diseases. The number of offerings can be doubled for a greater area. After the ceremony, the offerings will be floated in the river.

The Dayango ritual is now rarely practiced. District Government, Police, and Offices, and the Koramil, forbade it. Some villages in remote areas sometimes undertake these ceremonies, albeit someone secretively.

Farming in Gorontalo Long Ago

Pano still remembers his childhood here. The village was safe and relaxing, far from the bustling cities. Farming was easy because the soil was rich and there were few pests. In a year, he could plant and harvest three times. In retrospect, there were many things that were better than they are now. One of these things is that, In those times, nobody thought so much about money. It was reassuring. And he did not need to purchase pesticides and herbicides either.

"Long ago corn and rice didn't sell. Nobody would buy. So, we'd grow it and eat it ourselves," says Pano.

The consumption of corn has become the norm for communities in Gorontalo over the years. This transition was made as if it were an adaptation to the environment. Corn is not just consumed, it is also important to socio-cultural festivities, and in paying *Zakat Fitrah,* for example.

Up until 30 years ago, farmers in Gorontalo partook in shifting cultivation. They opened up the forests and prepared the earth for corn and rice. They planted for five months. And after harvest, they opened the land somewhere else and began planting again. This continued for three to five planting seasons – before the farmers would come back to where they started.

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They shifted locations because the fertility of the soils would otherwise be depleted. Older lands were left and consumed by brush and forest. After three to five years, it would be required to open it up all over again – perhaps by another group of farmers all together. In earlier times, there were no ownership rules to abide by. Whoever could utilize the lands was welcome to do so.

This type of farming ensured soil fertility. The brush and shrubs and trees that would grow on abandoned fields were working the soil, rejuvinating it, along with dead leaves falling to the ground. From another angle, shifting cultivation is effective at eliminating the lifecycles of pests, and farmers knew what plants that pests do not like to eat. When lands were opened up once again, perhaps after a year or two of waiting, the soil would be black and rich. The ecosystem would not be harmed, and pests would be fewer – because they would not be able to survive and prosper off of crops grown for a single season.

The farmers of Gorontalo clear the lands by hacking away at the brush and lugging large trees off of their plots. These they would stack in piles. Once cleared, they would chop down larger trees, leaving stumps as tall as two or three meters, which they called *tomele.*

Image 41. The people clear away the forest to plant crops

To cut down the trees, they first build a platform where the tree-cutters will stand. Some say that the local technique, leaving enough of the trunk of the tree so that it may still live, is to ensure that the tree stores water around its roots to retain soil fertility. Others say that this is just the practical way of felling trees for the farmers of Gorontalo.

"We don't use chainsaws. That sounds like tiresome work," says Danggu Nani, the head of the Hamlet of Tumba, Tamaila Utara Village, Tolangohula Regency, Gorontalo District, Gorontalo Province.

In a few places, traditional methods of clearing land remain the unchanged. Practices are revived when farmers open new lands to become permanent (unshifting) farmlands. The farms of a few villages along the main river of Paguyaman, and one in Tumba, still have the remains of old trees – about one meter or taller. The farmers also leave trees behind if their roots may prevent erosion around the rivers and slopes.

There are rules to follow when one clears new lands. For two months, the people work together, taking turns, to open new lands. In those two months, all required land must be cleared. Wood is felled, trees are broken down into small bits, and often they are burned to ash. So that the fire does not climb into the forests, the edges of the fields have to be cleaned of scrap, broken wood, and dry leaves. During these fires, everybody must stand guard and keep control of the burn.

In the past, there were two types of plants that were cultivated. There were only corn and local rice. The selection of these two plants was an adaptation to the surrounding environment and hilly topography, also considering the

patterns of the rains. Many crops are grown in rows on the slopes of hills here. This challenging terrain is far from ideal for planting and harvests. These are the reasons why the farmers of Gorontalo planted corn and rice as the staple food of local peoples.

A few of the farmers of Gorontalo also popularized a system of intercropping – between coconuts and corn – in fields or on hills. In general, this system – of planting twice a year – for an area of around 0,5 to 2 hectares, produces many coconuts. In favour of this system, The husks of coconuts are useful as, when they are left to decay in the earth they act as fertilizing compost for the next crops.

Associated with intercropping techniques is a local saying, *"Tooutonu opilmulo lo bongo suburu teto mali pomolowalo binte sababu binte mali suburu olo."* This means, "Where coconuts grow, there the corn grows well too."

A Wealth of Local Plants

There are many different strains of corn planted in Gorontalo. Some of these are as follows: *hulapa, momala, nantu, saribu, badi'ah, ulalahu, damahu,* and *mentega.* Each strain of this diversity has its own character traits, which are only understood by the farmers.

One type, known as *binte hulapa,* can be stored for a long while, has a small cob, and red kernels when ripe. It tastes sweet when eaten. As for *binte momala,* these have long cobs, are plump, and have big kernels. This type of corn does not last long, because it is susceptible to diseases. As for the *binte nantu,* however, their cobs are short and thick, but their kernels are white and purple.

"One type, known as binte hulapa, can be stored for a long while, has a small cob, and red kernels when ripe. It tastes sweet when eaten. "

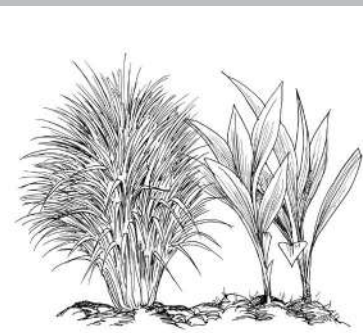
As for *binte saribu,* it is coloured yellow, or creamy, and requires 70 days to grow. As for *binte badi'ah,* its kernels are purple. As for *binte ulahu,* these plants produce yellow corn. White corn is *binte damahu,* usually eaten as one would eat rice – it must be shucked first. As for *binte mentega,* this translates to "margarine corn," this is standard, fairly bright yellow corn, and it is especially delicious.

Aside from the names of corn, there are also farmers who plant strains of *binte kiki, da'a,* and *pulo.* Small or *mini* corn is known as *binte kiki.* Large-kernelled corn is known as *binte da'a*, while *binte pulo* is *waxy* corn. These differ from *binte pulo*, which is white. Kiki and *da'a* corn strains are red in colour.

In the past, there were many different kinds of rice -- such as *bohulo* (small grains of rice), *maraya ulalahu* (plump round rice), *karampasuka alu'u* (grains blackened on one end), *temo* (rounded grains), *ponda* and *ponelo* (grains smell

Companion Plants

It is well known that one should always plant coconut trees alongside lemongrass. The scent of lemongrass repels wild boars that often scrape through the soil and eat seeds. Aside from lemongrass, basil and onions also serve the same purpose. Yet another functional combination is the small *kweni* mango – planted alongside bananas. Bats prefer to eat the small mangoes, and therefore the bananas are spared. It is also wise to plant sorghum alongside rice, because birds will go for the sorghum before going for the rice.



Sereh - Kelapa

Rica - Kemangi

Mangga Kweni - Pisang

Sorgum - Padi

Figure 44. Companion plants for pest control

like *pandan*), *buruna* (*normal* rice), *maraya bungo, maraya lelahung, bindelahe,* and *daolo.*

Many types of corn and rice are now disappearing from the lands around Gorontalo. Few farmers save stock of local corn as well. It is often said that local varietes of rice are already extinct, but only because farmers no longer plant paddies in the fields. They prefer foreign varieties of rice that are more popular in the market.

There are a few types of other local plants that have begun to disappear, alongside corn and rice. These are local strains of bananas and hot peppers. If there are any left, few farmers cultivate them. Two such rare types of bananas are the *goroho* and the *gapi.* The characteristics of the *goroho* are reddish leaves and tasteless fruit. Usually these bananas are sliced up and fried. As for the *gapi* banana, these have tiny black seeds in them and they do not spoil quickly.

Even local varieties of chilli peppers are becoming rare. Among these are the *jarum* and *sirup* chillis, and the *hutan* chilli (wild / forest chilli). The *jarum* chilli is only about three centimeters long and is plump. When newly planted, these are white, slowly becoming red when ripe. As for *sirup* chillis, these are similar in size but their colouration is different. While still growing they are yellow, but they grow to be purple, orange, and finally they become red when they are ripe. As for *hutan* chillis, these are even smaller than *jarum* and *sirup* – around 1,5 cm, and thinner. The *hutan* chillis will make the sweat drip. They are green when growing and brownish red when ripe.

"When farmers used to plant only local plants they would select and nurture their own seedlings too. They sorted through their harvest bounty for the best seedlings."

Production of Seedlings

When farmers used to plant only local plants they would select and nurture their own seedlings too. They sorted through their harvest bounty for the best seedlings. Back then they had ways of keeping these seedlings thriving for the next planting season. Farmers in Saritani Village, Wonosari Regency, Boalemo District, for example, would wrap the kernels of corn in *woka* leaves (similar to palm leaves), and store them in the crawl spaces above their homes. So that these were not eaten by mice, they would build dividers out of the leaves of coconut trees.

Other ways of keeping seeds and seedlings would have been hanging ears of corn, after husking them (but not fully), above the kitchen. It was also common to shuck the kernels off of the cob and into a segment of hollow bamboo and save it above the kitchen.

A farmer of Saritani Village, Saha Saini, says that these seeds and seedlings could last up to one year. He remembers back to 1982 when there was a drought and the hot season lasted nearly one year. "No one sold seeds at that time. Where would you find seeds? So, we had to start saving them up inside of bamboo tubes. Storage inside sacks made them rot," says Saha Saini.

The same strategies of saving up corn also applied to other plants. Rice was stored and dried together with the sheaths – also tied up and hung above the kitchen. These would be for usage in planting seasons to come.

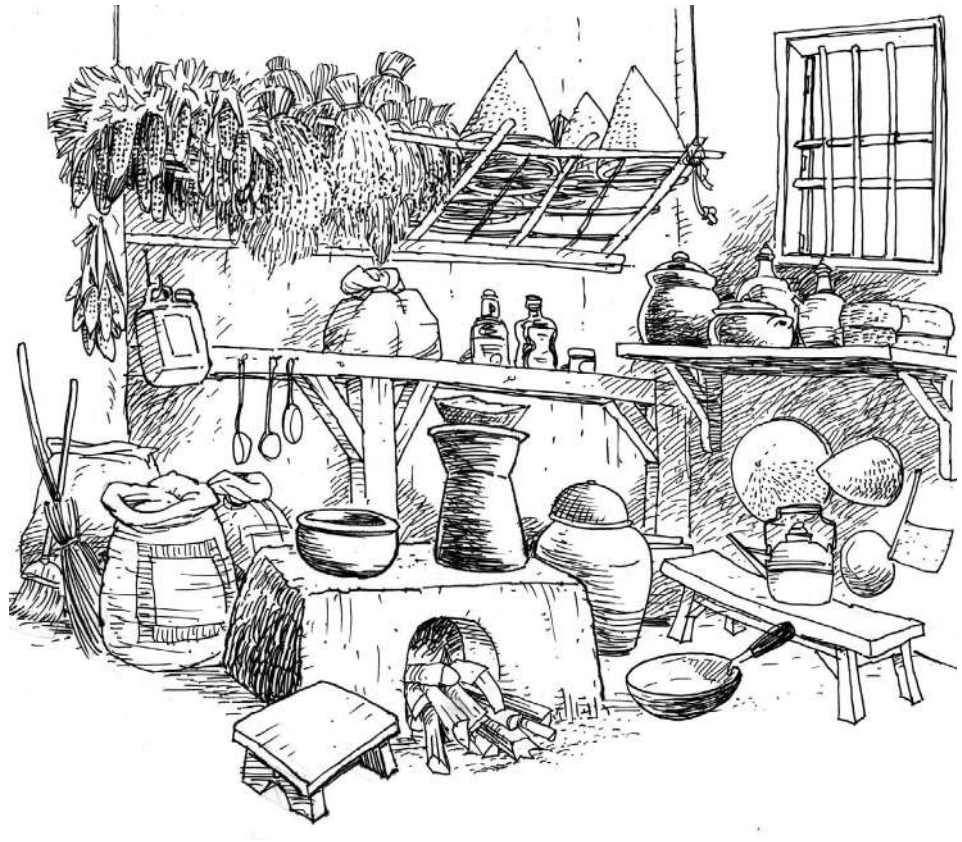


Image 47. Ways of storing seeds for personal usage

The ability of farmers to produce and store seeds and seedlings assured the continuation and self-reliance of farmers and farming. Farmers were not dependent on supplies from outside, nor did they need to spend money to purchase any supplies.

When placing these seeds and seedlings into the ground, the people go quiet. There should be no talking. This is so that planting is done with volition, intent, care, and certainty. It is believed that, this way, the seeds will be less likely to be eaten be wild boar. From these beliefs arose the aptitude for survival of the peoples here – and certainly would have increased the size of a harvest bounty.

Foraging

While tending to corn and rice plants, farmers also head into the forest to get some fruits and to hunt. Pano and the people of Liyodu gather rattan (*topalo, tohiti,* and *wabanga*), which can be used to fashion rope, split into two, or used as a sort of stick.

Aside from this, from the forest the people can collect *bulahu* (a type of stringy plant that is used in creating handicrafts and baskets, or fish traps), *woka* leaves (a type of palm leaf used to cook fish, or made into a small bag / sack), and *bohito* (similar to *woka* but smaller and used for natural sugar / red sugar (*gula merah*)).

The products of the forest can be used to fulfill various needs, or sold at the market. Especially for rattan, there are hawkers who will breeze through markets on a *kokoyonga* – a cow pulling two pieces of wood and no wheels – to carry off a load of rattan. In the Soeharto era, these merchants did the same route but in cars.

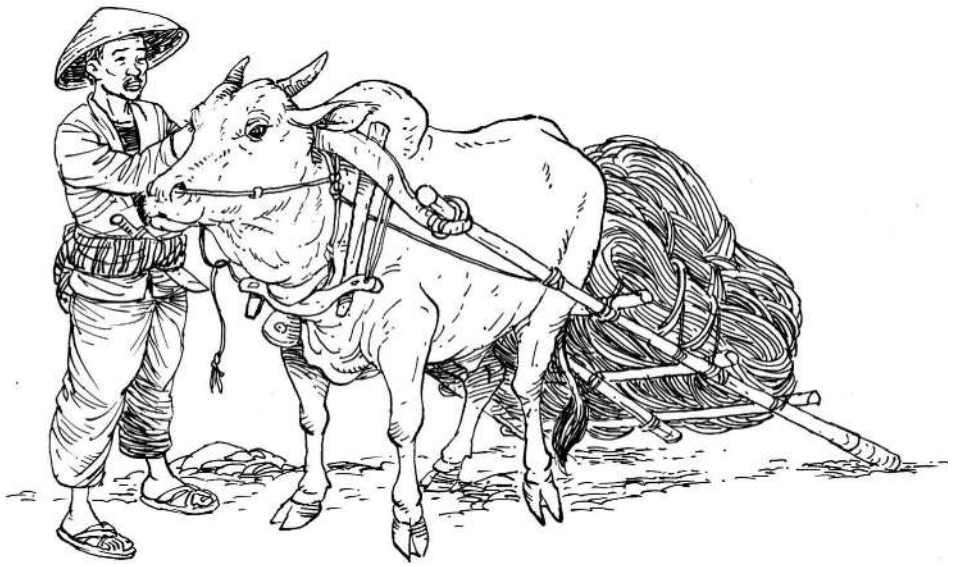


Image 44. *Kokoyonga*, how rattan was transported long ago

"The money we get from selling rattan and produce from the forest goes into buying coffee, sugar, salt, salty fish, or to the clothing market," says Pano.

Hunting is done with the aid of dogs who chase and corner animals, forcing them into traps that were erected earlier. When trapped, animals such as the dwarf buffalo (*sapiutan)*, deer, or wild boar are usually shot and killed. Dwarf buffalo and deer are eaten by oneself and one's family, but boar is often sold to the Minahasa, who often wander into the village looking for supplies.

The same methods are used in Tumba. From the forest, the farmers forage their food. Danggu Nani and other farmers clear the forests, using their time to hunt, searching for *main dishes* (*lauk*) – also fishing in the rivers in the forest, hoping for fish or shrimp.

Danggu Nani used to catch dwarf buffalo and *ili-ili* (deer) in those days. Because there were many it was not hard to catch them. It was enough to build a trap at the edge of a field. Most of these animals were killed to be eaten, but some were sold. In his opinion, these animals have now disappeared. Because there are so many people now, these animals have retreated into the woods. In Danggu's opinion, they are afraid of the sounds made by Hak Pengusahaan Hutan (HPH), and Izin Usaha Pemanfaatan Hasil Hutan Kayu pada Hutan Alam (IUPHHK-HA), which fell trees with chainsaws and other noisy tools and heavy machinery.

The need for protein used to be fulfilled by the produce of the forest and animals trapped in traditional contraptions. They used to catch a great diversity, such as wild, *forest* chickens (*ayam hutan), bungga* (a type of bird like a chicken), *alo* (*rangkong* hornbills), *nuri* birds, *bangau*, *buluito* (*mandar padi), bulua* (a type of duck), and *unggas* (a type of bird as large as a chicken but not as tall – and with large eggs).

Coming from the forests, Amran Daud, a farmer in Tamaila Utara Village, used to arrive bringing wild honey, *pakis, getah damar,* rattan, fish, shrimp, eels, and even dwarf buffalo. Some of these he would sell in order to purchase supplies and household items. Others he would comsume himself or with his family. "Long ago there were many eels. They were long. Some were as thick as your leg," says Arman, gripping his thigh with both of his hands.

There are two ways to catch an eel. In small rivers it is possible to use a fishing rod and a shrimp or minnow as bait. In large rivers people use sharpened sticks, like harpoons. Amran would go down into the river. Not all people can do this, however. Before fishing, Arman always says a few prayers, and the eels make themselves available to him.

The gifts of the forest are collected in different ways. Resin or sap is collected by climbing trees and cutting down a tree branch. To collect honey, Amran would climb up a banyan, sometimes 20 meters above ground. He would bright coconut leaves to burn in the trees, using the smoke to drive the bees away from their hive.

"...they are afraid of the sounds made by Hak Pengusahaan Hutan (HPH), and Izin Usaha Pemanfaatan Hasil Hutan Kayu pada Hutan Alam (IUPHHK-HA), which fell trees with chainsaws and other noisy tools and heavy machinery."

Life Support Forest Products

Forests are very important to Ibrahim Suudi of North Tamaila Village, Tolanghula District, Gorontalo Regency. From the forest, Ibrahim gathers plants from the forest floor as raw material for making *upiah karanji* (a typical Gorontalo skullcap). Making these is the foundation of his family's income.

After being taken from the forest, Ibrahim separates the leaves, splitting them into three and drying them for a day. Then, the reinforcing fiber is shaved using a homemade tool, from the lid of an old perforated can. Once smooth, the fibers are woven together with rattan ropes that form the framework of the skullcap, either round or oval. There are three colors of fiber: white, brown, and black. Brown and black are usually used to make the motifs.

Ibrahim and his wife, Rusni Adam, only need to buy additional raw materials, namely rattan rope which costs Rp. 1,000, - at a length of three meters. They need three lengths of rattan rope. Caps are sold on the market at a price of IDR 30,000 for a round one and IDR 50,000 for an oval-shaped one. The price is higher if the caps have different motifs. These can fetch up to Rp. 150,000, -, even Rp. 250,000, - or even Rp. 400,000, - for a custom cap. Within a month, Ibrahim, his wife, children, and son-in-law can produce only around 12 caps.

Ibrahim was born in 1956, two years before the PRRI/Permesta uprising raged throughout Gorontalo. He married at the age of 15 when his wife was only 13. Together they had nine children. Ibrahim, his wife and nine children moved to North Tamaila from Bakti Iv Village in the Palubala sub-district, which is 29 km away on foot, in 1982. They moved because at that time there were many cases of kidnapping in their village. However, Tamaila was also unsafe. Cases of robbery, by armed thugs, happened often. One of their children passed away out of sheer shock and panic when a robbery occurred in the village.
Initially, Ibrahim cleared five Ha of agricultural land, but after the HTI company took control of the forest, this allotment was taken and is now fenced off behind barbed wire. Currently there is only one *pantango* (1/4 ha) withsweet potatoes, bananas and corn remaining. In the land that the company reclaimed, however, the taro that Ibrahim planted is growing fertile, and proliferating. Ibrahim is still harvesting it to increase his supply of food at home. To make it by, his family receives assistance from the government villages, in the form of *raskin* rice (10 kg), eggs (30 grains), oil (6 kg), and sugar (5 kg) every month.

Ibrahim stands to receive assistance for his proposal to cultivate *mintu*, the plants required to create traditional caps.

"There was an offer of ten million rupiah from the Gorontalo District Social Service. The funds could be used for buying land, if you don't have any, or buying fertilizer and equipment. But, until now the funds have not been disbursed," said Ibrahim.

Cultivation of these plants was once very important to Ibrahim. Now it has become hard to find space in people's gardens, which are planted with monoculture crops, such as corn. Forest areas are also being converted into rubber and oil palm plantations. For *mintu*, whose fiber length reaches 1.5 meters, Ibrahim must venture further and further into the forest. It takes at least a day on foot.

Figure 45. Crafts made from *mintu*

As for dwarf buffalo (*sapiutan),* Amran used snares along the animals' migratory routes. Amran can tell where these trails are by the footprints along the forest floor. The size of an adult dwarf buffalo is about the same size as a three-month old cow. Sometimes the meat would be sold, other times it would be eaten.

"It's delicious, like deer meat," says Amran, laughing.

The snares that Amran used were known as *talele.* These are simply a loop of rope at the end of a strong piece of wood about 2,5 meters long. This piece of wood is placed into the ground roughly half a meter down. The rope is circles the path of the dwarf buffalo, slipping over the animal's neck or legs.

Aside from *talele*, hunters often use *tahipango*, a piece of bamboo that is sharpened and dug into the earth where the animals often walk. The animals impale themselves on these. Another similar strategy involves *talango.* These are bamboo cages that will catch an animal inside – using food as bait.

One of Amran's neighbors, Ibrahim Suudi also knew what it was like when the forests provided in abundance. He also remembers, when he moved to Tamaila Utara Village in 1982, it was still easy to get rattan and *umbulo* (*woka* leaves) to sell in the market. As he recalls it, *woka* leaves at that time were Rp50.000,- per 100 pieces (around $5 US).

Such was the abundance of nature, Ibrahim would use natural materials to make *upiah karanji* (a unique skullcap hat from Gorontalo) from the stems of large leaves, and he didn't need to go far to find them. From the river near to home, he could also get shrimp. "The way to catch them, well it's easy. You just use your hand. There were many and they were plump. Some were the size of an adults' hands," says Ibrahim. In the rivers, in those times, he could also get crabs, catfish, and *tola* fish.

"From the forest, the people derived various medicines. Before the 1990s, modern medicine was a luxury. It was hardly available."

The Forest as Apothecary

Before the 1990s, modern medicine was a luxury. It was hardly available. The facilities and services were limited and far away from the village. The abundance of the forests became a pedestal for the people, provisions from natural materials, the pegs around which traditional wisdom was wrapped like string, held up like a torch and passed down through generations. The roots of the *hulabulaho loulao* could treat wounds, perhaps as an antiseptic. A certain banana known as *yakis*, which the monkeys love to eat, was used to treat diarrhea. Besides these, *bualo* (a bush with thick leaves) was also adept at treating cuts and scrapes, or larger wounds.

Harvest Time

When it came time to harvest, people stopped going into the forest. Farmers and villagers got busy working together to harvest corn from the fields. They would not harvest everything at once, however. First, five ears of corn would be taken from five different locations in the fields: Four from the four corners and one from the center. These five ears would be gifted to their neighbors when it came time to plant the next crops. The farmers believed that this ritual, known as *molotubu*, would stave off the wild boars eager to eat up the newly-planted kernels when the next planting season began. The act of generosity would also stave off diseases. Aside from this, of course, this ritual would create a positive social context between neighbors.

The corn harvest is dried and separated into two piles. One pile is husked by hand, bashed with wood, and then pounded with a pestle and a large mortar-like dish, while the other pile is to be saved as preserves for later consumption. To shuck the corn, a *titihe* is used. However, these techniques are no longer popular among farmers these days. Nowadays husking and shucking is done with a machine that is considered faster and cheaper.

For the corn that will be saved and preserved, the farmers to do not shuck it. Instead they open the leaves of the corn, lifting only two layers of leaves, and tie these leaves together, before hanging them on a stick to dry. "They will last long-- what's more *hulapa* corn. Hybrid corn, however, will not last if it is preserved like this. Two or three months in it'll spoil," says Pano.

As for rice paddies, the farmers stomp the plants down first before saving them inside of lengths of bamboo. The ends of the bamboo poles are closed up with fibers so that mice do not enter. Then, the bamboo is lifted into a crawlspace that exists below the peaks of the roofs of traditional homes. This is an effective way of saving up stock for farmers and their families. Therefore, when the next planting season comes around, or during the growth of the crops, the farmers and their families will not go hungry.

"When it came time to harvest, people stopped going into the forest. Farmers and villagers got busy working together to harvest corn from the fields. They would not harvest everything at once, however."

Working Together

Of all that has been lost, perhaps the system of coordination and cooperation between farmers was the most valuable thing. Through teamwork, the farmers would feel like multiple muscles in one body – this feeling they called *hyula.* This tradition gave them enthusiasm and strengthened social ties. Nowadays, very few

individuals in Gorontalo still practice this, and one of these people resides in the Hamlet of Tumba.

In the book "*The History of the Sulawesi Area*" (*Sejarah Daerah Sulawesi),* published by the "Department of Education and Culture" (1978), what is know as the *hyula* system of working together – is a strategy of dividing into groups, known as *"polita"* or "*heiya"* and "*motiayo."* Polita or heiya are the same group of workers who take turns farming. Motiayo, however, is a group who volunteer to complete tasks assigned by the owner of the farm. These people may clear new farmlands from forests, harvest crops, or do general labour.

These designations are simple, but when farming together they help to keep people organized. If one group has five farmers, all will work together in the same field for one full day. The next day, these farmers will move to the plot of another farmer – until everybody is up to speed. This is not a form of business, however. The owners of the lands only need to provide food and drink to these workers.

Social sanctions will apply to anyone who does not wish to join in the *hyula* system of working together. When it comes time for a farmer to prepare new lands, for example, they will not receive assistance – unless they have helped out in the past. This would be a grave hinderance for the individual, since farming is a hard or impossible feat to achieve on one's own.

"Aside from working in the farms, *hyula* is also recognized in the processing of corn. Prior to machines that can shuck or husk corn, farmers had to do it all manually. Some would use their fingers, others would hit the corn (muhul milu), smacking the kernels off the corn – all together as a group."

Aside from working in the farms, *hyula* is also recognized in the processing of corn. Prior to machines that can shuck or husk corn, farmers had to do it all manually. Some would use their fingers, others would hit the corn (*muhul milu*), smacking the kernels off the corn – all together as a group.

"One group of farmers would go around the pile of corn and smack the corn from the edge of the fields to the center. Then, they would stop to and give one person the change to pick up the ears of corn and place them into a sack. After that, the people would resume smacking the corn," says the farmer from Pabuto Hamlet, Persiapan Tamilo Village / Saritani Village, Aba Yasi.

The tool that was used to hit the corn was made of hard wood, such as redwood or rattan wood. The size of the instrument used was half a meter. To catch it as it falls, they would use a small carpet (*tikar),* like a woven mat. The event would happen for three to four nights (from 7 PM until 11 PM) to process the harvest from a field as large as one or two hectares, owned by a single farmer.

Image 46. Muhul milu – the thrashing of corn in olden days

Deligation

The deligation of work between men and women is traditional among farmers in Gorontalo. Aside from storing and preserving foods, women also join the men in working in the fields.

When clearing lands, the male farmers cut down the large trees while the women clear brush and branches that have fallen down.

When planting, men and women work together. The men walk in front while the women follow behind. The men make small holes in the earth, one meter apart, with a wooden staff, and the women insert kernels of corn. The number of kernels that are planted depends on what strain of corn is being planted. For local strains, farmers insert four to five kernels in one single hole. For hybrid corn, one or two kernels are enough. Planting aside, women are also responsible for clearing wild grass away from the farm in order to protect the crops.

When harvest time comes, responsibilities are deligated. Women pick the corn from the stalks and men store them in sacks of *sila* leaves (a type of palm).

Taboos and Rules

The forests, farmlands and villages exist in a public sphere that here includes unseen creatures that play a role in every day life. Therefore, taboos must be observed in order to maintain harmony – to avoid each party disturbing the other.

One of the rules concerning going into the forest includes not wearing red clothes, because these will make the creatures of the forest angry and cause accidents to happen. Women, on the other hand, must deliberately leave a red piece of cloth behind, in their homes, when they go *kuala* (to the river). Otherwise they may never return home, or perhaps they will return – but no longer living.

Other observances include not shouting in the forest. If this taboo is disobeyed the trip will be destroyed by unseen creatures (*mahluk halus).* Other taboos prevent the felling of trees, which could cause a serious upset stomach. It is also important that people look for specific signs from nature. When they hear the sound of a bird, such as an owl, in the forest, they must quickly step to the side of the path.

There are also taboos related to farming. For example, women who are menstruating should not plant hot peppers or rice. The farmers believe that crops will not be polinated if this taboo is broken. Women, also when menstruating, should avoid stepping on rice plants. Their only responsibility is processing and drying the rice after it is picked. These taboos are lifted when people are shucking corn, however, and women are welcome to attend.

Other observances apply specifically to planting. If many people begin to sneeze, or if they hear the sound of a gecko calling out, the farmers should be on guard. These sounds could signify that their crops are ill-fated.

"The way we can solve these problems is by placing five kernels of corn into your mouth and take them out while hoping for God's blessings. After this, people should read a mantra, and head back to work," says Pano.

"One of the rules concerning going into the forest includes not wearing red clothes, because these will make the creatures of the forest angry and cause accidents to happen."

Everything Changes

These traditional ways and observances in Gorontalo are now changing rapidly. The people can no longer practice shifting cultivation. The clearing of the forest is still common – but for fixed-location farming, not shifting cultivation.

Despite this latter point, the people are not allowed to access the forest without a good reason. Aside from being beat back and far from villages, much forest has now been made into lots for usage by Hutan Tanaman Industri (HTI). The people are not allowed to forage in these lots anymore, let alone clear forest for farming purposes.

Amran once went to the Forestry Agency (*Dinas Kehutanan)* to request permission to collect rattan. Forestry told him to go to PT Gorontalo Citra Lestari instead. In their opinion, the forest was already a designated area for the growth of red and white *jambon* trees, and so Amran would not be allowed.

"I didn't know where the office of that industry was. In the field I didn't see their employees working. However, I was not about to just jump the fence and go in. Afraid to get arrested," says Arman.

Very few farmers store their own seeds and seedlings. Many prefer to buy hybrid corn. Compared to the names of local strains of corn, farmers nowadays are more familiar with commercial products, such as Pioner, Bisi 2, Bisi18, NK, Avansa, Pertiwi, and Bima. These seeds are incapable of reproducing. This means that, for each planting season, farmers must buy them anew.

The newer, hybrid corns are not long lasting. They spoil quickly. This means that farmers must sell them, or use them, soon after they are harvested. As such, farmers and their families no long preserve and store the corn harvest. The shelflife of their produce and the autonomy of farmers has been marginalized.

Even the tradition of working together, known as *hyula*, is being forgotten. Many farmers prefer to hire labourers instead. Either that, or they will employ technology, such as mechanical corn shuckers. As a result, the process of cleaning land, planting, caring for, and picking corn has become a transactional and mechanistic process.

These old rules, these ancient taboos, this place-based wisdom – it's all being left behind by the people of Gorontalo. Farmlands are now seen as productive land for planting whatever is commercially successful. All activities and thoughts beyond production itself seem besides the point nowadays, or worse, these well-meaning rules and structures are seen as something to be feared, something endowed with black magic and dark energies.

Traditions – ritualized ways of life – remain only in the memories of one or two elders now. To the younger generations, this knowledge is strewn about in bits and pieces, but quickly it is losing colour as though bleached by the sun. Hardly anyone below the age of 30 knows of Gorontalo's traditional system of subsistence farming and shifting cultivation, and certainly nobody wishes to revive or celebrate it. The people of these times are forgotten too, along with teachings and taboos and observances that unified them with the natural world.

"Even the tradition of working together, known as hyula, is being forgotten. Many farmers prefer to hire labourers instead. Either that, or they will employ technology, such as mechanical corn shuckers "

Drive Back the Forest, Clear New Lands

Life began to change with the agropolitan (agrocity) program, a development strategy seeking to empower the poor. The first commodity focused on was corn. The clearing of lands for corn crops picked up speed since 2004 – after Governor Fadel Muhammad proposed *Peraturn Gubernor* (pergub) Number 2, 2004, "Concerning the Basics of the Planting Model in Gorontalo Province."

Only within two years after this policy came out, as it made investments in agriculture easier, farmlands grew by three, from 35.692,45 ha (2004) to 105.158 ha (2006). The size of farmlands doubled, becoming 200.000 ha in 2016 – before rocketing to 405.352 ha in 2019. This spike caused the central government to praise the local government for their production of 1,75 million tons of dried corn.

This expansion of corn crops can be seen in Tamaila Utara Village. As much as 90% of 561,5 ha of farm land now hosts corn crops. Some of the 28.000 ha of crops are planted on slopes and even hills – now covered in corn also. Expansion continued unchecked – even on the banks of rivers prone to landslides and erosion. The size of the village upriver in the Daerah Aliran Sungai (DAS) Association (*paguyaman)* itself is 30.746 ha. The remainder is 2.000 ha and DAS valley as wide as 700 ha. As for areas covered with rice paddies, these are only 300,05 ha.

"Life began to change with the agropolitan (agrocity) program, a development strategy seeking to empower the poor. The first commodity focused on was corn. The clearing of lands for corn crops picked up speed since 2004..."

Planting rice paddies in the fields is no longer the priority of the farmers, but a few still partake in planting rice *sawah* – growing rice in irrigated platforms full of water. This change began happening after 2009, thanks to an operation to improve irrigation from the Dam Association ("Bendungan Paguyaman") in Asparaga District, now supplying water to 6.880 ha of *sawah* fields in Gorontalo Regency and Boalemo Regency. As for the others, especially farmers in hilly districts, corn is the only logical choice.

"They think that planting rice paddies is too much hassle. Seedlings have to be cared for, wild grass has to be weeded out while squatting down, and all around a hectare of land, and then the rice has to be sprayed down, because paddies are easily affected by diseases. Corn, however, is much easier. Lands are plowed and kernels are planted with easy. They don't attract diseaseses as much. So, farmers are better off planting corn. The harvest can be sold to buy rice if they wish," says Bukari Boroma, the head of Tamaila Utara since 2018.

Besides corn farms, sugar cane, and rice fields, Tamaila Utara would be a good place to plant sago (or *rumbia)* or taro, which grow well even in swampy areas.

Long ago, sago and taro formed the very baseline of sustinence for the people. When hot and dry spells lasted for long, the people resorted to eating sago and taro. As well as providing starch, sago's leaves are also used to form the roofs of houses, and they are called *atap rumbia.* These roofs are not only built by the Tamaila alone, but also by the people of other villages. For example, during the extended dry periods lasting 14 months between 1999-2000, the people planted sago instead of corn and rice, which could not longer thrive. At that time, sago fields expanded and they grew around nearly all homes in the village.

Sago is so important to the people that it has become iconic of this village. Tamaila is a combination of two words: "*tama*" and "*ila."* "*Tama"* means "*tempat"* -- the Indonesian word for "place," while "*ila"* means "foraging." The name of the village thus identifies it as a place where people can find food. Unfortunately, there is very little sago left anymore – only a few plants remain. They have been taken to be sold by merchants, ground down for flour, and they are no longer being cultivated. The people have switched over to corn.

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Clearing the forest for the planting of corn also occurs upriver – in the DAS Association of Boalemo District. The exact location would be Pabuto Hamlet, Persiapan Tamilo Village, and Saritani Village. These settlements are located in the far corner of Barat Daya Wonosari District, becoming a buffer zone of the area of Suaka Margasatwa Nantu.

Saritani is the most remote village, measuring from the center of the district. Though only 30 km from the center, in Bongo II Village, it takes about one hour to reach this village. The roads are bad (in Febraury of 2019 they were under repair, however) and the topography is rises and falls rapidly.

On the way to Tamilo, corn fields dominate the landscapes. There are no other plants. From the foot of the hills to the very top, there is only corn. This commodity has become the main crop of Saritani Village. In 2018 it is recorded that in this village there were six main entrepreneurial corn farmers. There could be as much as six billion Rupiah (roughly $600,000 US) exchanged over each six month period here, and most of it from corn sales.

Image 47. Corn fields as far as the eye can see

Tamilo is actually one of 25 hamlets in the administrative area of Saritani Village. Since three years ago, these hamlets have been preparing to become a single, definitive village. To achieve this, hamlets have been expanding through transmigration under the management of Unit Pelaksana Teknis (UPT) Transmigrasi Kabupaten Boalemo. Outsides have been moved onto an area of 600 ha named Pabuto Hamlet, often called Satuan Pemukiman (SP) 3 Pangea.

Aba Yasi, one of 200 families in SP3, is a transmigrant living in this area. He lives in a provisional home that is 36 square meters on a plot of land that is 200 square meters. The walls of his home are concrete and brick without plaster and there is no ceiling. The floor is rough cement, but there are at least two bedrooms, one room for receiving visitors, and a small kitchen. The shower is in the read of the house. Aba Yasi has decorate the visitation room with a painting of the Kaba'a in Mekkah, decorated with Arabic calligraphy. He uses old newspapers to block the sun streaming in through the windows. The headline of an article in these papers reads, "*PRD Siap Berikan Solusi Konkret"* -- or, "PRD is Ready to Give a Concrete Solution."

Aba Yasi applied to the transmigration program in 2016, which was when the area was designated SP3. Like other transmigrants, Aba Yasi received two hectares of land, and aside from the provisional home, he also received a small yard. However, Aba Yasi had already entered into this area long before – around 2002.

"At that time I didn't have any land of my own, in my village," says Aba Yasi, whose posture makes him seem small, though his muscular and veined arms create an impression of strength.

At that time Sartani was still mostly just forest. Settlements were few, infrastructure had yet to be *built,* and transportation was limited to carts pulled by cows. Electricty and health services were not yet in existence. The area has changed rapidly, and is nowadays considered fairly developed, with electricity from solar panels, a "Healther Center" (Puskesmas), concrete homes, stores, markets, schools, mechanics, sporting goods shops, and means of importing and exporting cars and motorcycles.

When opening new farmlands, Aba Yasi stayed in a small cabin that had been built in the middle of the forest. He cleared a few areas, and when they were ready, Aba Yasi refrained from planting immediately. Instead, Aba Yasi went back to his home village for a few months to collect supplies, before returning a few months later. The process of clearing land continued for almost one year.

"In the start, I planted corn but failed because the kernels were eaten by boar. Afternoon and evening they snorted through my corn crops. So, that happened. Better to plant cacao and coconuts then," says Aba Yasi.

Aba Yasi planted 450 kakao plants and tens of coconuts. This time Aba Yasi was somewhat fortunate. The cacao produced, but it did not last for long. A troop of *yakis* (a black monkey from Sulawesi) descended on the crobs and ate up every last fruit.

Aba Yasi has seen the changes here in Saritani. He's seen the people arrive to clear lands and work for years on end. He remembers the largest group of farmers arriving in 2015. The people came from around Boalemo, Gorontalo, and from as far away as Jawa – to Saritani. The forests were cleared extensively. This includes the clearing of lands for new villages and for transmigration to the SP3 area.

"Aba Yasi has seen the changes here in Saritani. He's seen the people arrive to clear lands and work for years on end. He remembers the largest group of farmers arriving in 2015."

The felling of trees and clearing of forests were done recklessly, without observing local conditions and ecological impacts. The benefit of clearing vast swaths was not weighed against the disadvantages of long-term environmental destruction on the people, nature, and entire communities.

The clearing of lands for incoming transmigrants was done without consulting the people, but rather the work was outsourced to a third party through the Izin Pengelolaan Kayu (IPK) "agreement." Control and monitoring were relaxed. Location, boundaries, property, and

permission were unimportant. As a result, even forests on lands that would never be able to support farming were cleared, including slopes of angles greater than 20 degrees. Even creeks and shallow riverbeds were cleared. The threat of flooding now threatens inhabitants living in the lowlands.

In general, the people prefer to plant a single plant, and a single strain – monocultures of corn, for example. The reason behind this is that these harvests are easier to market. The government provides hybrid seeds, herbicide, pesticide, and inorganic fertilizer. In return, farmers must pay this back from their gross income.

In the lower lands, up stream in DAS Paguyaman, more specifically in Juriya Village, Bilatong District, Gorontalo Regency, the situation is even more gloomy. Juriya Village is located along the main street, at the edge of Paguyaman River, in the area of Hutan Produksi Terbatas (HPT), a hilly locality demarcated for industrial conversion. Eight years ago, this village separated from Totopo Village, and is now occupied by 699 people – 234 families.

Due to farm boundaries, people are often forced to intrude on remaining forest areas to clear more lands, often attempting to plant on slopes of more than 30 degrees of an angle. Corn has become the go-to plant, aside from hot peppers and coconuts, which are not overly represented. Many areas of HPT are beginning to plant palm oil trees, however.

"Forestry often comes here to tell us that we are not to make any new neighborhoods here. Thank the Creator, this is not necessary anymore. However, farmlands are still being cleared. Actually, this is not allowed, but the people do not have a choice. Finally though, Forestry has allowed us to farm in certain areas," says the head of Juriya Village, Hamzah.

Juriya Village is at a height of 30 meters above sea level, and it is threatened by flooding, because the hills and highlands no longer hold water. Since the 1970s, flooding has become a problem. It was the worst in 2016 when an embankment of Paguyaman River fell apart under increased water pressure. The waters tore through the settlement.

An NGO in Gorontalo, Women Institute Research and Empowerment of Gorontalo (WIREG), claims that the flooding in Juriya Village was caused by the exploitation of critical landmasses around the settlements and the river itself. The planting of palm oil trees, however, is the reason why access to water is difficult, while also contributing to flooding in other villages.

"An NGO in Gorontalo, Women Institute Research and Empowerment of Gorontalo (WIREG), claims that the flooding in Juriya Village was caused by the exploitation of critical landmasses around the settlements and the river itself. "

Image48. Corn fields planted on hills and slopes is the cause of landslides

A few years ago, landslides became a clear threat in a few places. Slanted, hilly, sloped lands that had been cleared for the farming of corn were now incapable of holding water. This presented a danger as it enabled landslides. Finally, a landslide did happen – 100 meters behind the Office of the Head of Juriya Village.

The clearing of the forests in Juriya began in the 1960s. At that time there was no main road, just brambly pathways. Some offroad vehicles could not make it in. As for farming, none of the farmers or their lodgings stayed put. They practiced shifting cultivation, moving around every few months to new lands – to ensure there was no depletion of soil quality in one area. After a while, they would return to the original plot of land once it had time to recover from the previous harvest. Oftentimes farmlands were exchanged with no actual deed or formal agreement, therefore the owners could change at any time.

"These practices are now a source of conflict among the people. Sometimes people go back on their word and try to return to their previous plots. These sorts of problems cause difficulties, because there is no written proof stating who the actual owner is anymore," says Yunus, a chairman of the Badan Perwakilan Desa (BPD), Juriya Village.

Clearing lands is done along with deforestation of trees that are then cut into smaller logs and floated downstream. Illegal logging has been the cause of

much forest loss around Juriya also, and also the collecting of rattan, which has been going to the markets since the 1970s.

Hunting has also become more popular since then, and since the trees began to come down. Animals that are targeted include the dwarf buffalo, deer, and wild boat, which were once plentiful in the forests. Activity increased throughout the 80's as more people came to remain and settle in the area. Buffalos and deer were the main focus, because many newcomers were Muslim and did not eat boar meat. Therefore, lots of boar meat went to the market. Hunters were not only local peoples, however, but they were from around Minahasa.

Catching Fish in the River

The Paguyaman River that passes in front of Juriya Village is a place where residents fish. There are several ways to catch fish, namely using the *heloa, puto,* throwing nets, and using a *loleduwo*.

A *heloa* is a type of trap, oval in shape, with an opening like a mouth through which the fish enter. If already in, the fish will be trapped, unable to get out again. The *heluo* catches, among others, *batae* and *hungaheto* fish.

The *eputo* is similar than the *heloa*, only smaller. This tool is used to capture *dulalahe* and *tuwunge* fish. The *eputo* is usually tied to a stone fence or pegged post on the banks of the river with its mouth facing downstream to catch fish that want to go upstream.

Throwing nets are usually used when the river water recedes or is shallow. It can be thrown from the riverbank or from a boat.

Fishing with hooks, in Juriya, requires a bamboo *hulapa* with worm bait, shrimp, or small river crab.

Loleduwo is like a trawl in the sea, only smaller. Usually to catch *nike*, small white fish. This type of catch only occurs in the dry season, comprised of three consecutive months.

"Meat is sold. Deer antlers are sold. The price is expensive. What's more, antlers that branch off more and more. This is for medicine usually. Heals inner sickness and strengthens the spirit. On the other hand, dwarf buffalo horns can be used as rings or sword handles," says Abdul Gani Biga, a figure from Juriya.

Changes in the numbers of wild animals have been ongoing for ten years – since the 1990s and into the 2000s. This has stopped because it is now difficult to find any animals whatsoever. The people prefer to plant corn, either for consumption or to sell. Planting corn became more poular in 2004 along with the introduction of the Agropolitan Program. The local government gave support, such as free fertilizer, seeds, and other commodities. Corn growth has since expanded rapidly within the last ten years thanks to support from governance from the district, province, and central government, in striving for great self-sufficiency and self-reliance – based on corn.

"Changes in the numbers of wild animals have been ongoing for ten years – since the 1990s and into the 2000s. This has stopped because it is now difficult to find any animals whatsoever. The people prefer to plant corn, either for consumption or to sell. Planting corn became more poular in 2004 along with the introduction of the Agropolitan Program."

Nowadays farmers receive corn and fertilizer from village governance. The aim is to have the people plant more, because it can be difficult to source these supplies otherwise.

"We always point them in the right direction, because assistance is only a temporary thing. After some time the farmers must do it themselves. I see that in general corn farmers are managing, and the harvest is an accomplishment," says Hamzah.

Providing assistance in terms of hybrid corn has resulted in the disappearance of local corn, though up until now local strains were cherished by the locals themselves. Hybrid corn requires a large amount of fertilizers, more each season, to fertilize the soil. Hybrid corn requires more protection from pests and diseases too.

"Nowadays there is a lot of assistance. People can just sit around and assistance comes. It wasn't like this before. We had to help one another," says Saha Saini, who turned 65 in 2019 – wearing a casual hat beneath a tree near the central three-way intersection in the center of Saritani.

"What's more, we need to ask, for how long will this assistance be available? Maybe it's great for the local economy, but the environment is being destroyed," says Saha Saini, beneath a hat that says "Rumble Fight" on the front.

Quantifying the Harvests of Corn Farmers

The corn harvest seems massive. For example, in North Tamaila, every time someone harvests they take home five to six tons/ha. On average, farmers in Tamaila have more than five hectares of land. With this, there is the potential to produce 25 to 30 tons of corn. The price of corn itself varies from Rp2.500,-/kg to Rp3.000,-/kg (roughly $0.25 - $0.30 USD).

Results from a quick count result in the follow numbers. Working for four months planting corn a farmer could receive between Rp12.500.000,- to Rp18.000.000,- per hectare (around $1200-$1800 USD), or Rp62.500.000,- to Rp90.000.000,- (around $6250-$9000 USD) from a total of five hectares.

Builders of Traditional Roofs

In addition to growing corn, some people seek additional income by making thatched roofs out of sago leaves. In Karya Jaya Hamlet, North Tamaila Village, for example, there are more than thirty families reliant on the incomes from this trade.

The main raw material for these thatched roofs comes from the leaves of the sago plant that grows a lot in wild, in swampy areas. For other projects, people usually buy sago in a bundle from the landowners at the price of Rp. 1,500,000,-/ bundle, which usually contains twenty five large and small trees. They sell old sago stalks to sago flour collectors at a price of IDR 50,000/- stems, while the old leaves that fall when they cut down the trees themselves are set aside to construct roofs.

To make roofs, in addition to sago leaves, other materials are required, such as *hulapa* bamboo (small, straight, and long bamboo) and rattan rope – to act as a binder. These materials must be purchased. *Hulapa* is valued at Rp. 40,000, -/100 sticks, measuring two meters, while the rattan rope costs Rp. 1,000, -/length measuring three meters. To make one roof requires two *hulapa* sticks and one length of rattan rope.
In one day, a craftsman can produce 30-40 panels for thatched roofs. They work in household groups with the least number of members being four people, and one group can produce about 150 sheets of thatched roof every day.

The production of this thatched roof is based on orders from buyers from the city – usually for use as the roofs of chicken coops. Buyers directly take the roof produced by residents so there is no need to incur distribution costs. One thatch roof is priced at IDR 3,000/thin sheet and IDR 5,000/thick sheet. The demand for thatched roofs remains very large.

From the sale of thatched roofs one family can get an additional income of IDR 450.000,- up to IDR 750.000,- every day.

This gross income, of course, must incur a few production costs, such as from the seeds and seedlings themselves ($120 USD per hectare); fertilizers ($35 USD per hectare; pesticide ($177 USD per hectare / 6 galons); cost of plowing fields ($80 USD per hectare); cost of clearing a field when corn is one month old ($20 USD per hectare); harvesting, husking, shucking in exchange for 20% of total harvest bounty; cost of shucking ($75 USD per hectare). This makes for a per-hectare total of Rp7.570.000,- (around $7,570 USD). For five hectares this makes for a total of Rp37.850.000,- (around $37,850 USD).

After deductions, farming has the potential to generate an income of, at minumum, at a price of around $0.25,-/kg, around $1,250,- after deducting a production cost of around $7,570 = $4,930,-/ha or $24,650,-/ five ha.

As corn takes four months to grow, one hectare of planted crops generates an income of $6,162,- USD to $13,037,- USD for five hectares.

These initial figures seem rewarding, but wait.

In the opinion of Bukari Boroma and other farmers who have been interviewed, this harvest bounty from five to six tons per hectare only happens once – on the first crops planted on freshly-cleared forest lands. After many years of playing a role in a forest ecosystem, the soil is richer than it will ever be again – until it is covered in forests again. After the first harvest, the harvest lessens to around three tons per hectare. The cost of productions increases, because the soil now requires fertilizer to produce successfully. Additional expenses arise from the cost of pesticides, more of which are required each year, because pests begin to adapt to these chemicals.

"The harvest bounty can be abundant, but the farmers are indebted to middlemen. Sometimes they do all the work and end up in debt to them," says Abdul Gani Biga, also a corn farmer.

Debt is incurred by the farmers who do not have enough money for planting and tending crops up to harvest time. Subtracted from the gross income, these costs (debts) mean that farmers take home only five sixths of the market price of their produce, though quite often they only take home two thirds. This cost contrasts with the fixed prices listed locally, Peraturan Daerah (Perda), and the presidential declarations, Peraturan Presiden (Perpres), which both state that corn is $0.31 USD,-/kg.

"If incurring a debt since planting, tending, and until harvest, this means that the sale cost achieved by the middleman will be even less. It could be less than $0.25 USD per kilogram," says Abdul Gani Biga, who feels certain that many farmers wind up indebted to middlemen

"The harvest bounty can be abundant, but the farmers are indebted to middlemen. Sometimes they do all the work and end up in debt to them,"

Tapioca (Sago) Trade

***Tumba* or *sago* (Metroxylon sago Rottb.) grows wild in swampy areas along the Paguyam watershed. For some people, this carbohydrate-rich plant is mostly used for making thatched roofs. Sago is usually only used as food during a famine, perhaps during a long dry season -- when the rice and corn plants do not survive.**

Sago stems are actually in high demand, however. There are four buyers currently operating in Gorontalo Regency. They go around from village to village to harvest sago stalks. In one day, one trader can harvest about 7-8 stalks and produce 25 tons of wet sago flour/month.

These traders buy sago stalks from community gardens at a price of IDR 50.000,-/ segment. From one stalk of sago, they can get about 180 kg of wet sago flour to sell at a price of Rp3,500,-/kg to food factories like the ones in Tulungagung, East Java.

Image 49. Harvesting Sago Stalks by Collectors

because they do not have an investment to begin with.

Such eroded incomes must be taken down even more once the cost of transporation from the farm to the market is considered, which increases greatly for remoter farms. From Tumba Hamlet to Tamaila Utara Village, for example, farmers must pay $5 USD per 60 kg just for transporation.

"So really, we plant corn at a loss. What we take home is insignificant. Sometimes we owe the middlemen more than we receive from a harvest. Furthermore, we spend all our time defending out crops from pests and infections. It's tiresome," says Bukhori Bamori.

One of the most harmful pests in Sulawesi are the *yakis* – the black monkeys. Once a farmer leaves their crops for the night, they descend upon it. Like it or not, the farmers and their families must hang around their farms all day, from morning until night, in accordance with the sleeping patterns of the *yakis*. This goes on for two months – from when the corn begins to grow and until it is nearly ripe for the picking. Farmers usually deligate these shifts – with women working in the morning and men working from the afternoons onwards. As a result, farmers do not have the time for *side hustles* of any sort.

Governmental farming subsidies are essential to farmers. At the least the farmers can save around $155 USD, after transportation costs, if they get their seeds from the village office.

The problem is, the seeds supplied at the village office are not always appropriate for the needs of the farmer. Many commercial brands of seeds are of poor quality. Harvested plants do not last long in storage, and they are very vulnerable to disease.

Recently, this subsidy has been cut back. Farmers who require four sacks of seed for one hectare often only receive one or two sacks. The remainder farmers must purchase for themselves.

These subsidies also tend to make farmers nervous. They are afraid that these subsidies will only result in dependency. If the government were to take the subsidy away, the industry would collapse. Without subsidies, farmers would not be the same producers that are lauded by the government, the industries, the seed producers, the fertilizer producers, or the herbicide producers.

Farmers' expenses have become very high, often incomparable to their income. Therefore, many farmers are stuck in debt, bonded together

"Recently, this subsidy has been cut back. Farmers who require four sacks of seed for one hectare often only receive one or two sacks. The remainder farmers must purchase for themselves. "

with the middlemen. Furthermore, farmland continues to be a critical issue. Farmers often sell land to other parties without any formalities – before heading into the forest to carve out new lands for themselves.

Until the forests are all but gone, this will keep keep going on and on.

Readers of Stars

A house raised on stilts stands still and closed. Not a single person can be seen. It is quiet around the home, with only the cicadas calling from the coconut trees -- and there are many around the grounds. A single chicken crows. The dirt road in front of the house is quiet, and not a single person goes past. The day is still bright; the sun has not yet begun to head West.

A young child walks along. They climb up onto the porch of the stilted house and crouch in front of a wall – into a room made entirely of dry *sila* (*lontar* leaves). From holes in these walls, the child tries to peer into the house. At first they are unsuccessful as the room is full of odds and ends. The door and windows are closed, and so it is all very dark inside. With time, the child's eyes adapt, and they begin to see details.

"Therefore, many farmers are stuck in debt, bonded together with the middlemen. Furthermore, farmland continues to be a critical issue. Farmers often sell land to other parties without any formalities – before heading into the forest to carve out new lands for themselves."

The interiors are not vast. The unstable orange glow of an oil lamp is the only light. The oil lamp is handmade – from a small container filled with hazelnut oil. The wick is a rag that has been twisted, twisted, twisted until tight. The glow is a golden-orange. It is a natural light, and enlivening light. Just enough to allow the child to see in.

Inside there is a grandfather and a few men seated on a rattan rug. They communicate with calm voices. In front of them are coffee and *bente telene* cakes, and *kokoleh.* These cakes are made of unripe corn that has been baked in its own husks. They have a sweet favour and they are not crunchy or dry. As for *kokoleh,* this is also a cake from unripe corn.

The eavesdropping child is none other than Pano when he was young. Pano leans in and tries to hear. He presses his ear to the walls. He hears them discuss many things, but none of them are familiar to him yet. Among these are the words *totoiya, otuluwa, lowanga, kalisula*, and others. All of these were still alien to the young boy, nevertheless they were inviting.

As a child, eavesdropping was Pano's hobby. He often spent his time with his ear pressed to the *sila* leaf walls of his grandfather's house. After a while he began to understand. They were talking about astronomy, farming, medicine for sick people, and the sacred mantras that that a *panggoba* healer was required to know and recite.

Perhaps his grandfather had realized that Pano was eavesdropping, because the next day he began to teach his grandson – about stars and about medicine. The transferance of knowledge and the honing of skills was ongoing. It happened with emphasis when the Dutch left Indonesia, when the Japanese left, and during the chaos caused by the Pemerintah Revolusioner Republik Indonesia Perjuangan Semesta and Perjuangan Rakyat Semesta (PRRI/ Permesta) between the 1940s and 1950s. Despite being heir to these teachings and these skills, Pano did not want to be called a *panggoba* – a star-reader. "I could see the stars but I did not wish to be a panggoba," says Pano.

In the opinion of Saha Saini in Saritani Village, a *panggoba* is chosen by the people, first and foremost because they are always accurate at counting, and they are always exacting, and informing farming of how to increase their returns. Those chosen to be *panggoba* are often reputable people from a village. The people chosen to *panggoba* are least likely to admit to being a *panggoba*, however; despite the abundance and difficulty of roles they must play. In this village, anyway, those are the ethics. As for Aba Yasi, he thinks that a *panggoba* is hardly *just* a star-reader, but also someone who has certain characteristics, of which humility is extremely important, as is spiritual strength or charisma. These are what make their predictions reliable.

"The transferance of knowledge and the honing of skills was ongoing. It happened with emphasis when the Dutch left Indonesia, when the Japanese left, and during the chaos caused by the Pemerintah Revolusioner Republik Indonesia Perjuangan Semesta and Perjuangan Rakyat Semesta (PRRI/Permesta) between the 1940s and 1950s."

The author of the book *Kalender Musim Masyarakat Gorontalo*, Amarudin Y. Dako explains, *panggoba* is an artform relying on elements of olden-day village governance. There are a total of four elements, or *utas tali* – the village head, the imam or religious leader, the commander, and the *panggoba.*

"the village head is in charge as the head of local governance, the imam or religious leader is in charge of spirituality, the commander assures safety, and the *panggoba* is involved in farming issues," says Amirudin, who has completed extensive research on the codification of astronomical events as it applied to the local calendar here, This is where the knowledge of the *panggoba* comes from – as it exists now, having been passed down and down for many generations.

In the opinion of DR. Yusna Aham from the Center of Coastal Ecological Studies Based on Local Customs, with a Major in Biology from the Faculty of Mathematics and Nature of the University of Gorontalo, there are three social roles in which the transmission of traditional knowledge is important. These are *panggoba*, *hulango* (midwives), and *tamohunema* or *batara* (a figure proficient in folk-medicine).

Actually, *panggoba* themselves are not only concerned with farming. Prof. DR. Nanti Tuloli, a professor at Universitas Negeri Gorontalo, in a virtual discussion on the program "Terasmitra" (TM), on 13 June 2020, explained that there are three kinds of *panggoba.* These are, *panggoba lohuta* (planting-soil *panggoba*), *panggoba loayua* (forest *panggoba*), and *panggoba lodeheto* (ocean *panggoba*). "*Panggoba lohuta* are the keepers of knowledge concerning planting-soil. *Panggoba loayua* are proficient at gathering rattan, game, and other stuff from the forests. As for *panggoba lodeheto*, these figures know how to catch fish, sail, and understand the conditions of the ocean," says Prof. Nani, who goes on to suggest that there are many more types of *panggoba* besides these three.

"Prof. Nani explains that long ago these individuals would have comprised a clear structural hierarchy. There would have been the elite panggoba and also those in the smaller villages. Based on the work of Prof. Nani, it can be concluded that the panggoba came about as solutions to an environmental problem."

Prof. Nani explains that long ago these individuals would have comprised a clear *structural hierarchy.* There would have been the elite *panggoba* and also those in the smaller villages. Based on the work of Prof. Nani, it can be concluded that the *panggoba* came about as solutions to an *environmental* problem. There are four main things that can be gleaned from studies concerning these figures. First of all, they know how to read the signs of nature – from animals, earth, water, and other sources. Secondly, they know how to process and utilize nature according to traditional wisdom. Third, the *panggoba* know how to tame nature, or at least how best to minimize the negative effects of it. This includes the art of sailing and dealing with ocean waves, but also applies to the creation of a sense of harmony between people and nature. Finally, their fourth ability is to interpret experiences of nature, for example an accident, a miscarraige, becoming lost in the ocean or forest, pests, and other such problems. "That is the empirical knowledge that they have taken from lived experienced and saved for years, and is also useful in the art of being a *panggoba*," says Prof. Nani.

Image 50. Panggoba, an institution or an embodiment resulting from the requirements for the people to adapt to the environment

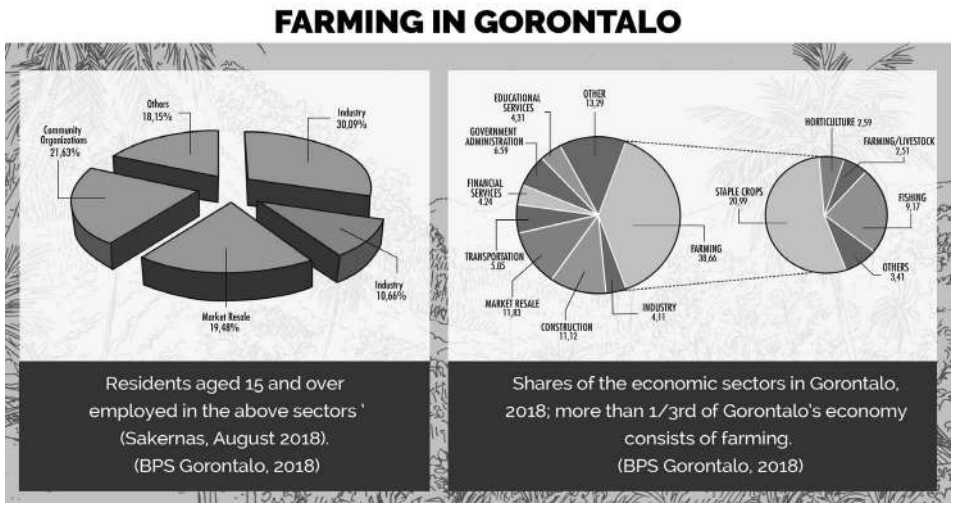


Image 51. Charting the division and populatrity of occupations in Gorontalo

Of all panggoba, the *lohuta* are best known among the people, and they even played a role in local governance in early times. This contributed to the breadth of the farmers' fields of the time. As a generalized illustration, the expanse of farming in the province in 2018 was 1.032.591 hectares (34.094 ha of rice and 998.497 ha of other crops). This is why farming is the most popular occupation here – of around 30% of the population.

As popular as farming is, finding the right time to start planting can still be problematic. Only North Gorontalo has seasonal zones (*zona musim* (ZOM)). Meanwhile, in other parts of Gorontalo, especially in Pohuwatu District and the south of Gorontalo District, there are no recognized seasonal zonings (Non-ZOM)[17]. These indistinct regions suffer from uncertainty in being able to predict – or even recognize – differences between rain seasons and hot seasons.

In the opinion of Terri Repi, actors from the Agrarian Institute and teaching staff at the Factulty of Farming at Muhammadiyah University Gorontalo, this lack of distinction between seasons is the reason why the people of Gorontalo developed such a detailed understanding of ecology. "This is how they learned to read the signs of nature and adapt themselves to the uncertainty of the weather, and when to plant their crops. This ecological wisdom is known as *Dutuwa lo Poliyama Ngotawunu*, a reference to an annual record of the position of stars. The keeps of this knowledge are known as *panggoba*," says Terri Repi.

The Government of the Republic of Indonesia has mentioned the importance of these *panggoba*. In 2012 the Department of Education and Cultivation spoke of *Panggoba Lo Monggopanggoba* as "Priceless Cultural Heritage" (*Warisan Budaya Tak Benda)*, with the registration number of

17 "Field of Meteorology, Climatology, and Geophysics" (BMKG), 2018

2012002881 in the "Domain of Knowledge and Customs Relating to the Natural World" and in the category of "Local Wisdom." The Department of Education and Cultivation describes it as:

Traditional astronomical knowledge that has been protected by the ancestors of the Gorontalo area has been passed on as a tool for farming, sea-faring, and managing the forests. Based on their knowledge, there are four main stars that act as indicators of proper orientation of farming plots.

To understand their role and responsibilities well it is important to recognize that, first of all, a *panggoba* must be able to count and quantify a great number of things – such as the stars and constellations as indicators of time (*Poliyama Wato*), or as an indicator of place – such as the right place for an activitiy (*Naga-Naga)*, and the auspiciousness of days (*Lowanga-Kalisuwa)*, the cycles of planting seasons, the positioning of fruit trees, and the myriad and sundry rituals required in a traditional farming community.

Poliyama Wato

The people of Gorontalo and the *panggoba* as well once knew how to read the stars with exactitude. The cycles that bring the constellations (*poliyama)* moving from East to West – became the indicators of the start and finish of a season. Traditionally, they would declare a constellation *active* when it raised to the height of a person standing straight. Constellations and stars were chosen above others because they aligned with the Islamic calendar when that was once in common reference long ago.

"But the Islamic calendar is shifting. The first day of Ramadhan is a different day this year than it was last year or next year, and so it is not a good measure. Farmers need a good and accurate system. And, at that time the people did not know the Gregorian calendar," says Amirudin.

The emergence of constellations is always waited on and focused on with intensity, because these are the signs that would decide the strategies and livelihoods of the next generations. However, the cycles of the stars are indifferent to the coming of natural disasters. There are four constellations (*poliyama wato)* that have become guides of the people. These are Tadata, Otoluwa, Maluo, and Totokiya. These four constellations can be seen between 6 am and 6 pm in Gorontalo. The configuration of these four constellations could be seen by the naked eye.

One of few remaining *panggoba*, Opa Nani, knows that the paths of most stars and constellations begin to repeat after about one year exactly. For example, one star will rise from the East and in three months it will sit in the middle of the sky – before falling to the West within the next three months. The totality of its trip through the sky will appear, to human beings, to be six months. Once behind the horizon, however, these paths continue – until emerging once again from the East after another six months.

A more complete and detailed explanations of the four main constellations is as follows:

Tadata (Tutupito), or the "Seven Stars." This configuration resides about the Tadata and Tupito. The prior is Pleiades while the latter is a constellation near Aldebaran in the Taurus constellation. Tadata and Tupito usually appear in November, May, and August.

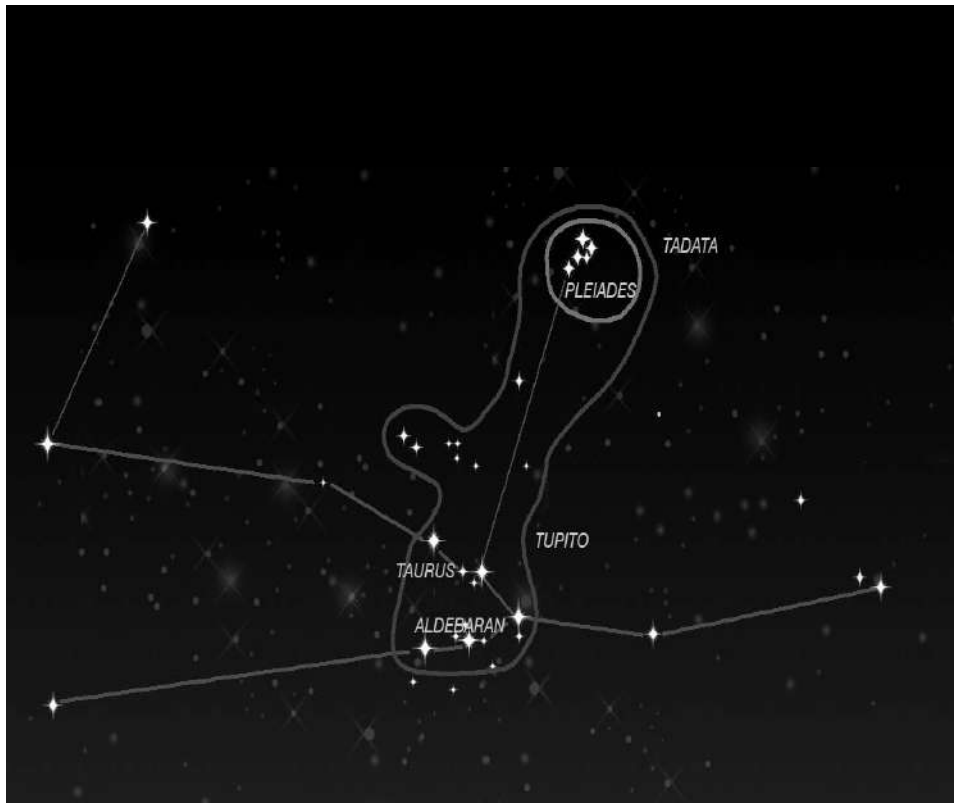


Image 52. Tadata (Tutupito) in the constellation of Taurus

Tadata is considered a prelude to the rain season. It appears in the east just before the showers begin. When it is heighest in the sky, *panggoba* would tell the people to plant whatever they possibly could, but especially bananas and coconuts, for seven bustling and dirt-speckled days.

Otuluwa. The etymology of the word begins with the first part "*tolu,"* meaning "three." These three stars form a diagnal line in the Orion constellation (known as the Twelingen). The three asterisma (three stars of this constellation) in astronomical terms, are known as Orion's Belt, and consist of Alnitak, Alnilam, and Mintaka. To the people of Java, asterisma is known as Lintang Waluku. These can clearly be seen between December, June, and September.

Image 53. Otuluwa in Taurus

When these constellations arise this is a sure sign that rains will cease. After they are at the height of a person's head in the sky, there will only be one more rain shower, and then the heat will come. Agrarian life becomes dismal when the rains cease and waves of heat last three to four days. Farmers spend their time clearing wild grass or hanging their crops out to dry. For this reason, some farmers call this season "*motolu"* -- the "boring season."

Maluo (The "Chicken Star" or *Kref*), stands above three other stars, which are Procyon (constellation of Canis Minor), Sirius (constellation Canis Major), and Canopus (constellation Carina). The appearance of these happens just before the rise of Otulawa. This constellation appears in January, July, and October.

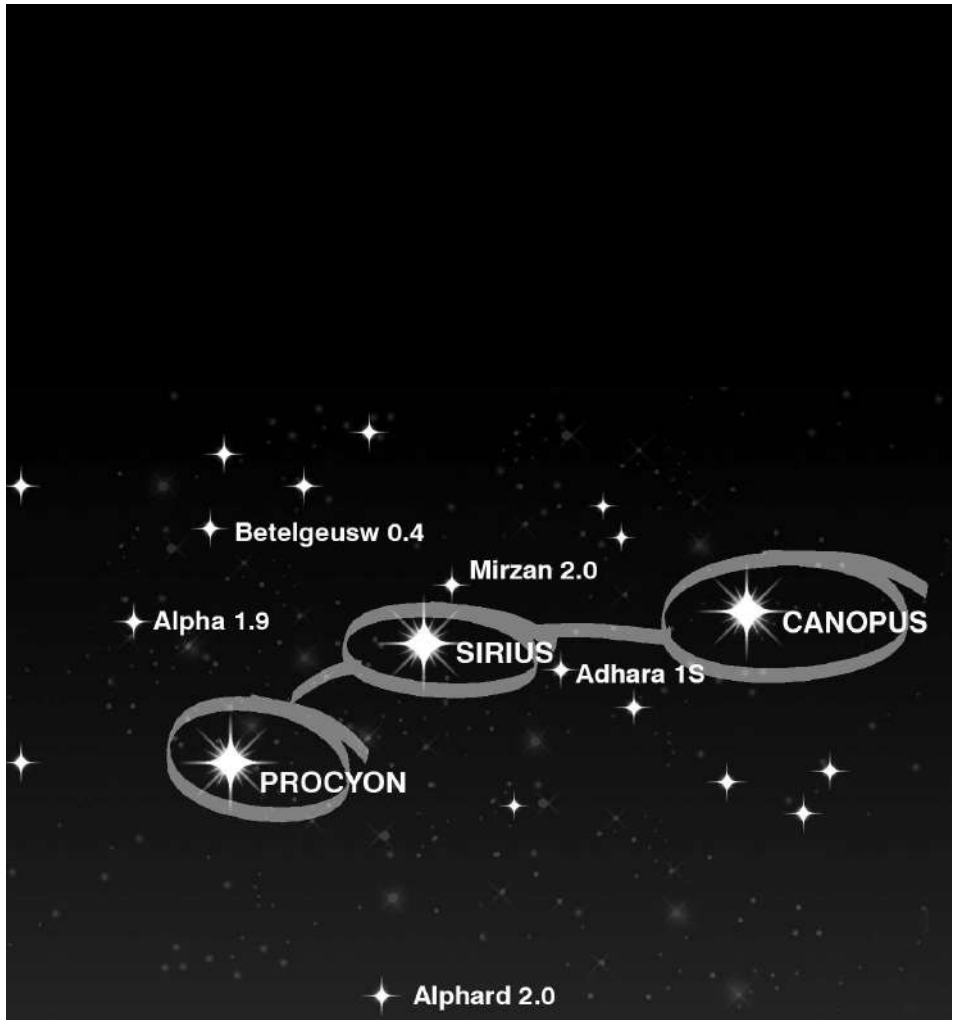


Image 54. Maluo (The "Chicken Star")

"*Sembo Maluo*" or "Chicken Season" is also known as a time of famine. Rains do not fall and the weather is unrelentingly hot. If Maluo rises to the center of the sky, pests and grubs will certainly consume the crops. When the constellation has fallen to the western horizon, illness will befall chickens and other animals, even people. For this reason this season is called the "Chicken Season." To ask for mercy, the Dayango ritual is often performed – to ask for rain and for medicine for sick people, animals, and plants too.

Totokiya, also known as Bintang Raja or Altair. Totokiya rises above three other stars, which are Alshain, Altair, and Tarazad, in the constellation of Aquila. These appear only when Otuluwa has already passed.

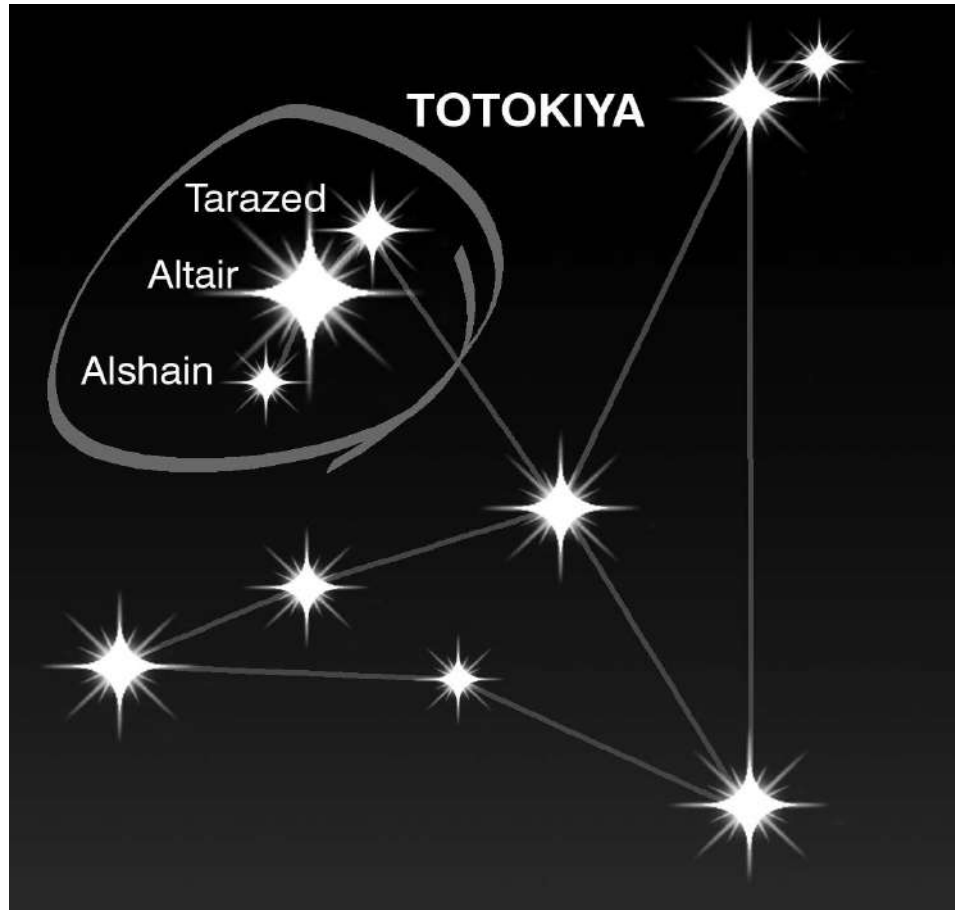


**Image 55. Totokiya in the constellation of Aquila
(the three stars of Alshain, Altair, and Tarazad)**

Totokiya has its roots in the word "*pototo*" that means "hurried," because during the "*Sembo Totokiya*" season, people must rush to work the lands and prepare the soil.

Totokiya appears in two steps. The first is known as "*ta'uwa kiki utiya,*" which is the rising of the stars, which then shrink as they travel east. This stage lasts three months. The next stage is known as "*ta'uwa da'a,*" which is when the stars are above one's head. At this time rain will fall for about 44 days, making this the perfect moment to plant vegetables, nutmeg, and rice.

Panggoba would call Totokiya the Bintang Raja ("King Star") because during the months that it is visible, it's time to plant. For this reason, some refuse to plant before Totokiya is visible – as high in the sky as a man is tall. If farmers plant anyway, their harvest will be abundant but somehow will not be successful.

"To see the stars at six in the morning and six in the evening is very difficult. If it's cloudy they won't be visible. Sometimes they use a cloth as a filter. The *panggoba* can exact when a day is lucky or unlucky, or a date, or even a certain hour," says Amirudin.

Amirudin's perspective resonates with Pano's. Based on the position of the stars, a *panggoba* can declare the right hour when to plant on specific days. Beyond certain hours, farmers should not plant or work anymore.

Pano uses an example to demonstrate this. His example is specifically concerning when to plant peanuts. After exacting the season through observance of stars, it is also decided that planting must start at six in the morning and end at ten in the morning. These rules did not only apply to peanuts, however, but to many different types of farm produce.

"Pano uses an example to demonstrate this. His example is specifically concerning when to plant peanuts. After exacting the season through observance of stars, it is also decided that planting must start at six in the morning and end at ten in the morning. These rules did not only apply to peanuts, however, but to many different types of farm produce."

"If you don't abide by these rules, your crops will be had by insects like grasshoppers and ants. Sometimes crops would be taken over by snakes," says Pano.

Danggu Nani clarifies that, indeed, exacting the time to plant based on the stars was once cherished heritage here. He still recalls a few words of advice given to him by his parents. In their opinion, if a farmer plants before the Bintang Tujuh ("Seven Stars") are in the sky, their plants would be consumed by pests.

"If these stars are already visible, the pests come out of the earth and leave. So it's not dangerous to plant," says Danggo Nani.

To know when to plant one may also look to the Otuluwa stars (Orion's Belt). In Danggu Nani's opinion, Otuluwa only rises above one's head in the evening time. This only happens in October, which is the perfect month to plant and enjoy a fruitful harvest.

"There is one more star that arises three times a year. It's a sign that we need to plant three times a year. So, we wait for this star to emerge, then we plant," says Danggo Nani.

There are also stars and constellations that signify rough waters on the ocean. The people of Gorontalo call one of these *"butu."* When planting, there will be many grubs in the earth. When plants are destroyed by grubs this is called *"jong."* So that plants are not destroyed by grubs, farmers have to wait for this star to rise.

Even activities such as moving seedlings from a wet *sawah* rice paddy requires the favours of the stars. If the time is not right, the plants will cease to grow thereafter. However, on occassions, an auspicious day for planting will arise during

a period in which the stars are unfavourable – and so the farmers are allowed to plant.

Especially below the Maluo (Bintang Ayam) star, people need to step carefully. It is believed that problems, such as drought, pests, and even human and animal diseases, can happen easily when it is in the sky. To rise above such problems, the people need to hold a ritual – a ritual to call *Ruh* spirits – known as Dayango. The Dayango cycle brings harmony back. The main offering during this ritual is, of course, the chicken.

To receive information, people would once visit their neighborhood *panggoba*, usually named *moawota*. This would involve sitting together in a group, at night, having discussions and making suppositions. This provides an opportunity for the farmers to ask the *panggoba* when is the right time to plant, what seeds should be used, in which area, and so on.

"Panggoba will let us know when is what season and what should be done then," says Saha Saini.

Image 56. The people consult a panggoba (moawota)

Naga-Naga

Aside from from deducing the right time to plant, stars are also useful when deciding the perfect moment to start any sort of work. These moments are exacted through observing a configuration of stars in the shape of a dragon (Naga).

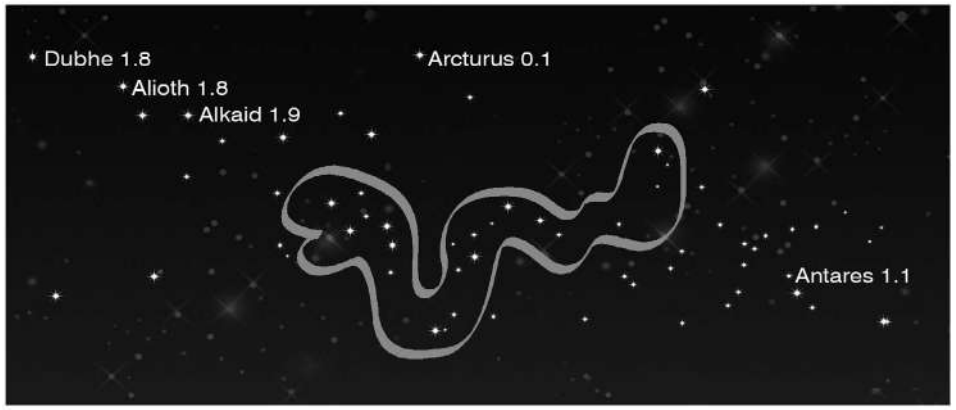


Image 59. Naga-Naga Stars (Serpent Stars)

The Naga stars are aligned when there is a head, stomach, back, and tail of a serpent in the sky. The four parts of this body are very significant in deciding when to start work on something, such as building a house, having a conflict, or preparing farmlands for planting.

When starting work, people must face away from this *sky serpent*, the Naga-Naga. If someone starts work while facing the dragon's head, their work will not prosper. Their work will be consumed by the dragon. If someone does work while facing the tail of the dragon, their work will be flung away. If work is done while facing the stomach of the snake, their efforts will be crushed. And, if facing the dragon's backside, their work will be strangled by the muscles of the snake itself. The position of this serpent changes every three months, in alignment with the Islamic calendar (Hijriah). For a detailed description see the following table.

Table 3. Naga-Naga Month-Based Observances

Months	Position of Dragon (Naga-Naga)	Description
Rabiul Awal (third month), Rabiul Akhir (fourth month), Jumadil (fifth month)	Head is West	Work should be started facing between South and West
	Tail is East	
	Stomach is South	
	Back is North	

Jumadil Akhir (sixth month), Rajab (seventh month), Sya'ban (eighth month)	Head is East	Work should be started facing between North and East
	Tail is West	
	Stomach is North	
	Back is South	
Ramadan (ninth month), Syawal (tenth month), Zulkaidah (eleventh month)	Head is South	Work should be started facing between South and West
	Tail is North	
	Stomach is West	
	Back is East	
Zulhijah (twelfth month), Muharam (first month), Syafar (second month)	Head to North	Work should be started facing either East or West and along this axis
	Tail is South	
	Stomach is East	
	Back is West	

Source: "The People's Season Calendar of Gorontalo," Amirudin Y. Dako and Yowan Tamu Naga-Naga Weekday Observances

Table 4. Naga-Naga Weekday Observances

Day	Favourable Directions
Friday, Sunday	West
Saturday, Monday	East
Wednesday	North
Thursday, Tuesday	South

Source: "The People's Season Calendar of Gorontalo," Amirudin Y. Dako and Yowan Tamu

Lowanga-Kalisula

Most of the people of Gorontalo recognize which days are favourable days and which are not by undertaking an activity. For example, marriages, building houses, buying land, starting new business, making a big purchase of car or motorcycle, and clearing forests for farmlands and planting – all must be done on favourable days. Until now, these traditions are still observed.

These observances are known as "Lowanga and Kalisula." The word "Lowanga" means "empty days" or days without observances. The word "Kalisula" means "to walk without a head" or "to walk without a certain destination." The word "Kalisula" refers to an observance that lasts usually just one day before and after a "Lowanga" *normal* day. During these days it is not a good idea to undertake any of the activities listed in the last paragraph.

These observances are made in reference to the Qomariyah calendar, which is divided into 12 months. These are: 1. Muharam, 2. Safar, 3. Rabi'ul Awal, 4. Rabi'ul Akhir, 5. Jumadil awal, 6. Jumadil akhir, 7. Rajab, 8. Sya'ban, 9. Ramadan, 10. Syawal, 11. Zulkaidah, dan 12. Zulhijah.

The Lowanga days of these twelves months are preordained. They can be seen in the following table:

Table 5. Recognizing Lowanga *normal* **days**

Month by Number	Month	*Lowanga*
1	Muharam	Sunday
2	Safar	Wednesday
3	Rabiul Awal	Friday
4	Rabiul Akhir	Tuesday
5	Jumadil Awal	Wednesday
6	Jumadil Akhir	Saturday
7	Rajab	Jumat
8	Sya'ban	Friday
9	Ramadan	Thursday
10	Syawal	Saturday
11	Zulkaidah	Monday
12	Zulhijah	Wednesday

To make it easier to remember these observance, there is a formula to be remembered. This is known as *arajusekasajukasesasenra.* This is an acronym that helps people, and *panggoba*, to recognize the Lowanga days of the Hijriah / Islamic calendar. It is as follows.

A = Ahad
Ra = Rabu (Wednesday)
Ju = Jumat (Friday)
Se = Selasa (Tuesday)
Ka = Kamis (Thursday)
Sa = Sabtu (Saturday)
Ju = Jumat (Friday)
Ka = Kamis (Thursday)
Se = Selasa (Tuesday)
Sa = Sabtu (Saturday)
Sen= Senin (Monday)
Ra = Rabu (Wednesday)

As an example, Lowanga days of the first month (Muharam) fall no the Sunday. Therefore, if Sunday is the first day of Muharam, the people of Gorontalo should not partake in large festivities (such as a wedding), important farming processes, or large and important transactions. This also applies to the days before and after the Sunday – as a Kalisula day.

Planting Cycle

The people of Gorontalo know four types of planting seasons based on the intensity of rain. It is important that all farmers understand these four types of seasons, as they assist *panggoba* in recognizing *Poliyama Wato* and *Luwanga-Kalisula.* These four planting seasons are as follows:

1. *Tauwa*

This is the planting season for the first rains (October-December). Usually, this is known as the *rendengan* or *marinating* rains of the national farming calendar. In Tauwa, the bulk of the rain pours down. Farmers will plant corn, rice, and other crops. Planting at this time will produce an abundant harvest. It is also the perfect time to pick *langsat* and candlenut (*kemiri)* fruits. It is often recommended that planting take place between the 21st of October and on until the 8th of November. A farmer of Juriya Village, however, prefers to wait until the third major rain before starting to plant.

2. *Tualanga* Sore (evening)

This second season begins with another *marinating* rain, and then continues on from February to March. Oftentimes not all farmers will plant throughout both of these months. It is preferable to plant between the 23rd of February to the 16th of March, between the 8th and 31st of March, and / or between the 23rd of March to the 8th of April.

3. *Hulita* or *Pobole*

These rains mark the planting times within the first period of the dry season between April and June. Hulita happens at the end of the rain season. Farmers choose crops that are short-lived to utilize any remaining time and potential that there is. They plant tobacco, onions, and corn. It is recommended that people plant between the 21st of April and the 6th of May.

4. *Tualanga* Pagi (morning)

This marks the planting season of the second period of the dry season – from July to September. Only a few farmers will plant in these months. If they take it up, it will be much hard work. If it is successful, the market price should be raised to reflect the effort and the limited results of a harvest at this time. In general, people plant during this season only to produce seedlings for the next Tauwa. Farmers should not plant if certain stars are observed in the middle of the sky. If they must plant, however, farmers must say, "*To'uda a tami itu de,*" meaning, "I am planting because the head of the village told me to." Aside from this, farmers must tie white cloth at the end of a long stick. If this is not done, the farmlands or the farmer could be caught in a storm or a disaster ("*dungga la'bala,")* fall sick, have plants eaten by pests, or lose something valuable.

Image 58. An illustration of the "People's Calendar of Planting Seasons in Gorontalo"

The Position of Fruit

Aside from rice and corn, being the main crops, the angle of certain fruits hanging on other plants can be indicators of the proper times to initiate planting. There are three positions a fruit can take. They can be found in the ground, half-buried, and above ground. These are indicators used to compile the Fruit Position Table below. Note that the date used is based on the Gregorian calendar and not the Islamic one.

Table 6. Fruit Position Table

Date Planted	Type of Plant and Position
1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31	Plant changes drastically within the earth (root vegetables / tubers)
2, 5, 8, 11, 14, 17, 20, 23, 26, 29	Plants half-buried change drastically (middle)
3, 6, 9, 12, 15, 18, 21, 24, 27, 30	Plants above ground change the most (above)

Signs from Nature

The *panggoba* keeps the knowledge of astronomy, the good and bad days, and the cycles of planting seasons. However, this is not all. Panggoba also comprehend various signs found in nature. Weather changes, the shortness of a plant's life cycle, the migration of animals, and the presence of various pests on or around a farm. They can relate this knowledge to astronomy and lunar cycles. The arrival of certain animals depends on climate and season, and the life cycles of animals and plants too.

A *panggoba* tends to take great care. They are not just guides in accordance to one or two signs from nature, rather they observe a multitude, a great vastness, of signs and symbols. For example, when beginning to plant, a *panggoba* will look to the sky, listen to the sounds of animals, and also observe the growth of plants around them.

"After observing the stars and whether they go up or down towards the ocean, a *panggoba* will still stay focused on the sky. They will listen for the sound of thunder and watch for lighting in many places. A *panggoba* knows when the rain is coming and when to clear new lands," says Pano.

To divine the correct time to begin clearing lands, a *paggoba* spends a night in the forest. In a traditional sense, this is known as "asking for permission" from the spirits of the forest. At that time, the *panggoba* will listen intently to the sounds of the animals. They will listen to the *paduma* bird (very active at night). The *panggoba* will observe other signs as well.

Observations such as these will not be enough, however. Panggoba also need to observe the surrounding environment intently so as to decide on a schedule. If they see red shoots appearing on a cacao tree, or if a mango trees begins to flower, or if certain wild grasses begin to flower, the *panggoba* will be more certain that it is time to plant corn.

"People know the weather when they're out at sea. The *panggoba* knows when the ocean is calm, wavy or windy, simply by looking at the eye of a cat. If the pupil is small, waves will be large, and vice versa. No one can explain it, but they do know," says Amirudin.

Similar observations will inform of a *panggoba* when the dry season is going to set in; however, the *panggoba* should do much more than simply observe animals around the village. If they see a *tenghulalahai* bird, or turtledove, with yellow feathers, or a *tonggo lipu* bird, that often arrive in pairs; or if they see termites taking off from an underground next,-- all of these are indicators of an oncoming dry season.

"By reading the signs of nature, *panggoba* can recognize the seasons with great speed. They also recognize the meaning of abnormal behaviors, or exceptions. For example, if the coffee plantations have many blooming flowers, they know that the rain is coming, even in the middle of the dry season," says Danggu Nani.

Not only seasons, *panggoba* also know how to read the cycles of invasive pests. They

"After observing the stars and whether they go up or down towards the ocean, a *panggoba* will still stay focused on the sky. They will listen for the sound of thunder and watch for lighting in many places. A *panggoba* knows when the rain is coming and when to clear new lands,"

know when they begin to breed, when they becomes adults, when the die too. They know where the pests are on a given moon, and what stage in their life cycles they are in. If farmers are planting in the fields, *panggoba* will observe the life cycles of the birds that feed on seeds, usually in the fields. They know that, if the birds' egg-laying season has already begun, then planting will be difficult. The birds will take all of the seeds to feed their young. Planting a crop at this time would be like feeding the birds.

Indicators to guide the direction in which someone should plant their crops can be seen in the behavior of livestock, such as chickens. When chickens are incubating, farmers need to observe the position of the heads and the tails of their birds. When planting crops, the farmers should not plant in the direction the chicken was facing. The *panggoba* believe that if one plants along this axis then the crops will be eaten by chickens, or they will be trodden on, when planting in the direction of the tail feathers.

"Chickens are a sign of potential pests and infection," says Abdul Gani Biga.

There are many rules for a *panggoba* to follow and not all of them abide by logic. However, their beliefs are accepted by the people because only the *panggoba* is observing and accumulating all of the necessary information to make these decisions. If someone wishes to plant coconuts, the people will have to make a hole in the evening and leave it open for one night. If the next day there is a spiders nest inside, the *paggoba* will tell the farmer to stop. They will need to wait a few days until the spider has gone away. The people trust them and if the coconut tree were planted anyway they believe it would surely die.

"Yah, if analyzed scientifically, an open hole in the earth should have time to aerate, any gases within should come out, bacteria should be exposed and killed, the earth needs to aerate first," says Amirudin.

"There are many rules for a *panggoba* to follow and not all of them abide by logic. However, their beliefs are accepted by the people..."

It is this way when planting nuts. The *panggoba* instructs the farmers to soak the seeds in water – but the water needs to be mixed with rodent feces because the main consumers of nuts in the field are mice. They do not like to eat food that smells like their own droppings.

There are many other anecdotes of the peculiar wisdom of the *panggoba. People should not* cut down a bamboo tree during a full moon. If they do then the bamboo will not dry, it will rot. One should not pick bananas early in the morning, because they will take long to ripen. The *panggoba* knows how long the eggs need to be incubated for. They know if a harvest will come up short or not.

These important figures cannot explain the phenomena that they observe and the calculations that they make, but the people believe in them and this gives them confidence. This confidence results in more and more people believing and obeying the *panggoba.*

Farming Rituals

After the plants and soil have been prepared in accordance to constellation, auspicious days of the many calendars, and signs from nature, the *panggoba* must conduct a few rituals. These are done to call on the strength of the *roh-roh halus*, unseeable beings occupying mountains, forests, and sacral places.

When the forest is to be opened, the *panggoba* will conduct a *Monoyabo* ceremony. The *panggoba* will find inspiration for this ceremony at night when making an offering of betelnut, *pinang*, *kapur*, and tobacco. After the ceremony only then can the first tree be felled – by the *panggoba.*

In the book "Sejarah Daerah Sulawesi," after *Monoyabo*, it is written that the *panggoba* must also conduct the *Monitibo* ritual too. For this they must go into the forest and cut down a tree secretively, as they would have been instructed to when they made the offerings at night. Before the felling however, they must hang their ax upsidedown for 24 hours. If the ax falls then this means the forest cannot be cleared at all. If the ax does not fall then the forest can be cleared by the people working together as a team.

A *panggoba* thrusts a stick, known as a *duato*, into the ground and then twists it around. Any stick from the forest may be used as a *duato.* Then the stick is removed and the end of it is inspected. This is known as *Moduato.* This is the process of inviting the unseeable occupants of the earth to fertilize and grow the crops, such as kernels of corn.

"If dirt clumps to the end of the wood that is good soil. If nothing sticks maybe the soil is bad. The plants won't grow," says Saha Saini.

The way to check the quality of the soil is similar to the technique of checking if the sago plants are ready to be harvested. The only difference is that the utensil used is different. For checking the sago, a metal stick is used. It is driven into the stem of the sago then removed and left for five minutes. If the end of the metal rod has a layer of white residue then the sago has much starch. If there is no white residue then the sago is not ready yet.

"For checking the sago, a metal stick is used. It is driven into the stem of the sago then removed and left for five minutes. If the end of the metal rod has a layer of white residue then the sago has much starch."

Before clearing lands there must first be a *Dunayahe.* This means that the *roh-roh halus* must be given fish, leaves, or shrimp offerings. These offerings are made out of the fear of dangerous, venemous animals, and it is hoped that they will vacate the forest before the community begins to clear their plot. These offerings are made in hopes that nobody will be injured, crushed by trees, or bitten by snakes.

"It's like a party almost. Many people come together and eat together. Then some water is given out and taken home with the guests. This is to be consumed at home," says Saha Saini.

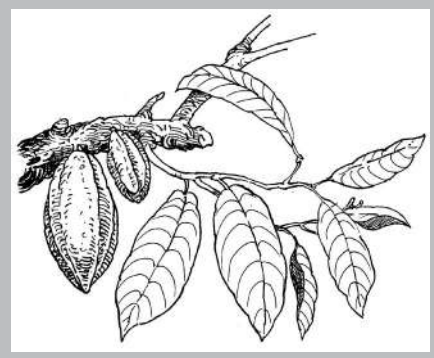
When the lands are clear and ready for seeds the *panggoba* is called upon once more. The *panggoba* must prepare a *hulapa raja,* a pole made of young bamboo (*L. Scizo Stacyum blumei*). This is to be planted in the ground in the center of the plot, then the end of it will be cut into five. One of these pieces will be bent over backwards indicating one cardinal direction, and the others will also be bent accordingly. The very center of the pole, however, will remain standing straight up.

"These four parts of the stick indicate the cardinal directions of the universe, which as *raja alam, mata lama, huju alam,* and *nai alam.* This is a prayer to ask the powers of nature to guard the plot from pests such as pigs, *yakis* monkeys, grubs, grasshoppers and more. This prevents damage. The plants come up strong," says Pano.

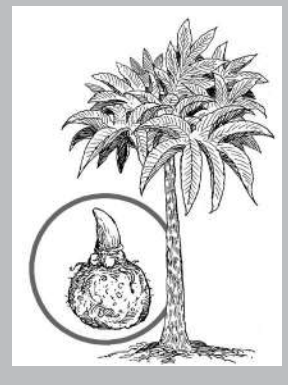
Image 59. Hulapa Raja

Hint Plant

When *ma momula'o* (mangoes) start Flowering, soon it will rain. Small flowers fall at the start of rain. The small fruits will receive much downpour.



***Balacai* (nettlespurges) is commonly planted as a hedge and around houses. If shoots open and produce three leaves, it will rain soon. Likewise cocoa, if you see shoots – Coloured red on the tops of the tree, then indeed the rain comes.**

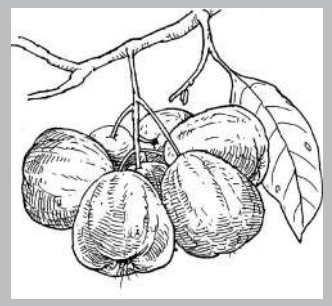


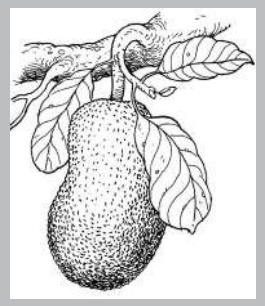
When tubers in the forest, like *hutihu* (porang) shoots rise, then it will rain for a week, and then again they will go down.

A flowering dove orchid signifies the change of dry season to rainy season. Flowers usually only last two days.

Figure 59. Plants as seasonal markers

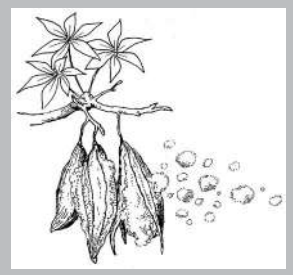
Hint Plant





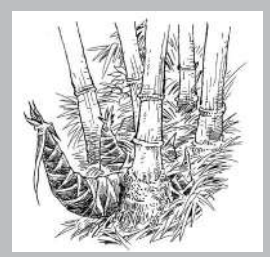
If you see *upo mela* (water guava), *langge* (jackfruit), and flowering coffee, it will soon rain.

Gempol trees with broad leaves -- these normally thrive on the outskirts of the river. If you see them, do not plant corn – unless you would like caterpillars to eat the leaves.



***Iyuyongo* (the kapok tree) can be a sign of the coming dry season -- when the skin of the fruit breaks and cotton is carried by the wind.**

When white toadstools grow in the dry season, this is a sign that rain will come down soon.

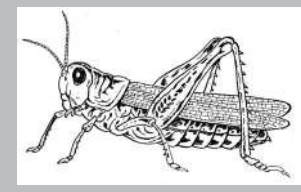


When young bamboo shoots finally reach the surface, It is a good time to catch eels.

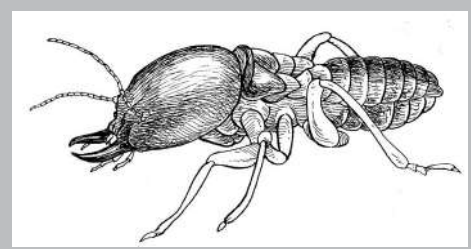
Figure 60. Plants as indicators of seasonal changes

Hint Animal

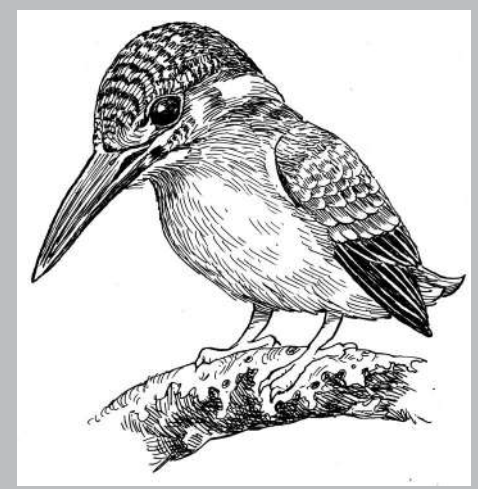
If the *bulia mela* (red eagle) makes a single sound, once in the afternoon (around six), between November-January, as the Otuluwa and Tadata stars appear in the night sky, this is a sign that a farmer should plant a crop of peanuts, cassava, sweet potatoes, or others.



Grasshoppers and mice will attack farmer's crop grown between the forth and the eighth of November.



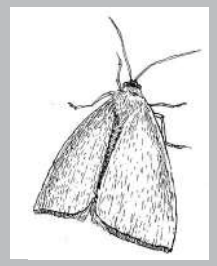
When *wale* (termites) come out of the ground during the day, it will rain. If they come out during the rainy season, it is a sign that the dry season will arrive. For fishers, when the larvae come out of the ground on a new moon, it is a sign that many flying fish will be circulating out at sea.



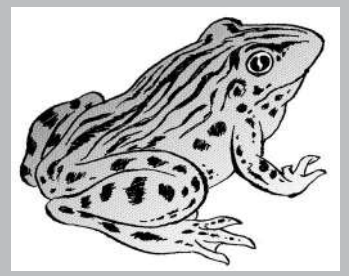
If the *ihowatingo* bird sounds Once -- a short squeak at the hour of nine in the morning, rain is on its way.

Figure 61. Animals as indicators of weather and seasons.

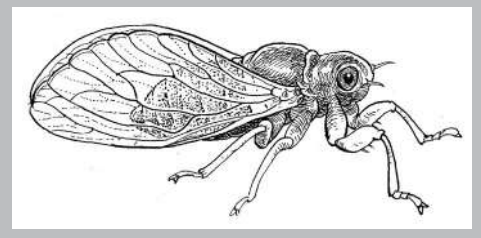
Hint Animal



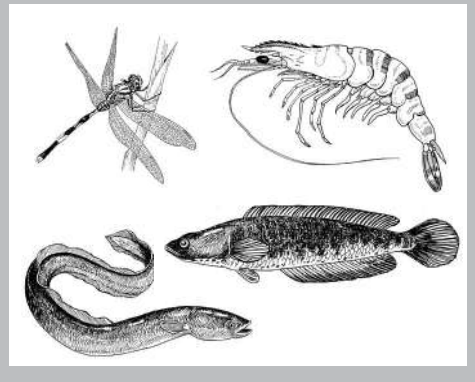
If a kind of insect like a white butterfly (capers) appear on the tips of rice plants In the field, one should delay planting. The white butterfly will lay eggs on new rice seeds, the larvae will eat away at the stems from within, and cause the plants to dead.



The *tumbihe* (frog), when jumping into houses, signifies the coming of rain. Frogs climb to higher ground when they are aware that rainwater will soon fall.



When the *ngia-ngia* (*tonggeret*) sounds from Atop a tall tree, this is a sign of an oncoming Dry season.



Dragonflies, eel, shrimp, and *gabus* fish mark a healthy ecosystem.

When the *angkang-angkang* (waterspiders) walk on the surface of the water, but closer to the river bank than usual, there will be a flood.

Figure 62. Animals as indicators of climatic and seasonal change.

Once the *hulapa raja* is fastened, the process of planting is undertaken in accordance to the *panggoba.* They will inform what day to begin planting and on what day to finish. Once the seeds are in the ground the farmers will also call upon a *modin* and pray and eat together with them in silence.

"Usually, after planting, we feel lighter. That night we will dream of our ancestors whom have left the world. Then we should also pray," says Pano.

A *panggoba*'s role also extends to the tending of crops. Usually they will go around to see the plants in the fields. If needed they will make offerings, usually of eggs, fruits and incense, placed at the edge of the fields, where they read prayers and recite mantras.

When crops are being tended to, the perspectives of the landowners is very important, according to Pano. During these times it is manditory that the landowners avoid being overly emotional, and especially anger. Negative or extreme emotions will invite pests and disease.

Long ago, tending to a field meant only clearing weeds from between the plants. The people believe that, if the fields are clear and bright then there will be fewer pests and damage. Mice and boar will not enter. However, if they do come anyway, perhaps at night, then the *panggoba* is called to get rid of them.

The *panggoba* will burn incense and sticks from hot pepper plants, then they will blow the smoke towards the plants while reciting a prayer or mantra. Usually this alone will cause the pests to disperse. In the opinion of a few researchers, the smoke from these materials is strong and sharp; pests do not like it and will avoid the area.

If pests come again, the *panggoba* will come again – this time with a local *potion* ("*ramuan")* of sorts. This potion will contain rain water collected from hollows in the *rubuh* tree, and it will be flicked on the plants – all around the plot and to the center of the crops as well. Lastly, the *panggoba* will burn incense in the center of the crops while reciting a mantra. This is the effective way that *panggoba* handle pests.

"The *panggoba* collects water from dead trees because there are many grubs in there. Grubs and other pests are like demons, and so this water must come from where these demons reside," says Saha Saini, sternly.

Pano says that he was once visited by the owner of a farm that had been overcome by wild boar. The farmer asked for Pano's help.

"Pano, my farm has been attacked by pigs," said the farmer.

"So should I visit the farm or just send something?" asked Pano.

"Send something," said the farmer.

"The panggoba will burn incense and sticks from hot pepper plants, then they will blow the smoke towards the plants while reciting a prayer or mantra. Usually this alone will cause the pests to disperse."

Pano requested that that person observe the footprints of the boars in their field. Were they normal footprints or were they somehow abnormal? Pano asked the farmer to bring him some of the mud from where the boars / pigs had stepped.

The farmer followed Pano's advice. They paid attention to the footprints and took samples of the earth, then brought these all the way back to Pano.

Pano read a mantra with a prayer for the farmer, so that their family would be well and their harvests plentiful, and so that they could be of use to their fellow citizens. Pano ordered the farmer to return the boar-trodden soil and to place is below the *hulapa raja* that had been placed before the planting of the corn.

Once again the farmer followed Pano's advice. After that, the boars did not come around again.

When asked what difference would the patterns and numbers of the footprints have made in the process of the ritual, Pano only laughed. He explained that, if the pattern of the footprints is abnormal then the mantra would also be different.

"The mantras spoken of by the *panggoba* are meant to protect farms from pests and disturbance of any kind. These are not limited to beetles and animals, but also human beings. These mantras also function to deter people who might damage the crops or steal the harvest."

The mantras spoken of by the *panggoba* are meant to protect farms from pests and disturbance of any kind. These are not limited to beetles and animals, but also human beings. These mantras also function to deter people who might damage the crops or steal the harvest.

The effects will vary. It is said that some thieves will not be able to leave from the scene, instead they will only circle around and around. In order to break this spell, the thief need only be tapped on the thigh. It is also said that thieves will sometimes become sick after eating the stolen corn. If this happens, the *panggoba* will need to come and heal them, removing the spell.

"That has happened here before. A few people were very sick and one died because they stole corn. One of these people is still asking for forgiveness from the *panggoba*," says Pano.

How can they be forgiven and therefore healed?

"They must drink water that has been blessed by the *panggoba*," says Pano.

The mantras that the *panggoba* reads also affect the owners and planters of the crops, who deserve their share of the harvest. For this reason, the landowner must contact the *panggoba* to retract the mantras and spells previously made to put a curse on the corn.

The *panggoba* comes to the farm in the early morning. They will first pick five ears of corn – from the four corners and the center of the plot. These five ears will be tied to the *hulupa raja* and *matapolo* while incense burns. After this the *panggoba* will make a promise so that farmers working on the premise in the future will not also be bothered.

"The four keepers of the natural universe will guard the farm, and they will make a decree so that humans are not confused with pests," says Pano.

After the ceremony, these five ears of corn will be husked and brought home to be shared with those who are not capable of helping out on the farm. A similar observance is made for rice. Five liters of rice are collected from a paddy, dried, cooked, and distributed to neighbors who may not be able-bodied.

After the ritual is complete, the *panggoba* will give cues to the landowners to plant the crops and host a *hyula* -- cooperative work effort to get the job done quickly.

In fulfilling their roles, a *panggoba* does not ask for payment of any kind. Payment is only given if the landowner feels compelled to do so, if only just to express gratitude. The payments or gifts usually take the form of a portion of the final harvest from the crops involved.

"If there is much, the landowner will give the *panggoba* an entire sack full of harvest. This must be done. Because otherwise, it would be shameful," says Saha Saini.

Panggoba of Present Day

In the social structure of villages these days, there is only room for the head of the village and the imam. The role of the *panggoba* figure in Gorontalo receded in the 1990s. Pano states that there were still *panggoba* in Liyodu until 1982. In Saritani, the *panggoba* were around until the 1980s -- in Suka Makmur Hamlet and SP1. However, in Sukamaju, they have not been seen since the 1990s. Only a handful of *panggoba* survive to practice today, but most of them are older, have not managed to pass on the *trade*, and communities no longer look to them for support.

"Only a handful of *panggoba* survive to practice today, but most of them are older, have not managed to pass on the trade, and communities no longer look to them for support."

In the opinion of Abdul Gani Biga, the *panggoba* are disappearing along with the forest. When the tropical forests were still great and overpowering, the *panggoba* functioned as a mediator between farmers and the *jungle*. They understood the cycles and behaviors of animals, bird migration, beetles, wind, water, and rain patterns too.

When the forest is damaged everything else is also affected. The animals have gone; the birds no longer come, because there is no forest

and no food for them; the life cycles of beetles have changed; the direction of winds has changed; the freshwater springs have stopped flowing; even the seasons can no longer be predicted.

"The ordinances of the *panggoba* often fail and now they are no longer adhered to," says Abdul Gani Biga.

Danggu Nani is of the same opinion with Abdul Gani. In his opinion, the remaining *panggoba* are no longer very good quality – not like those of old. For this reason they are not consulted by farmers. A few of them still read the stars, but they can no longer divine the correct days to start a project.

"There are still some, and they can still make divination, but these are often inaccurate," says Danggu Nani.

Modern methods of farming exclude the need for the role of the *panggoba*. The planting of corn no longer requires the divination of a proper day or time to begin sewing. Farmers in doubt just plant anyway. It is hard to know when the right time is anymore. Oftentimes they will just copy their neighbors.

"Because we no longer harvest the crops together, but we do some individually, the pests just keep coming and in greater numbers," says Saha Saini.

Present-day farmers use inorganic fertilizer and herbicides. They contribute to the slow fade out of the eras of the *panggoba*. If their lands are not fertile or pests are a problem, they no longer consult the *panggoba*.

"We no longer need that. Farming has changed. It's easier now. If the rice is yellowing we treat the crops with this or that. If there are grubs we spray pesticides. This is modern day, and it's not the same as long ago," says Saha Saini.

"Instead of panggoba, present-day farmers invite instructors from Petugas Penyuluh Lapangan (PPL), who answer their questions concerning the technicalities of farming. Farmers wait for the PPL to come and then they ask their questions. "

Instead of *panggoba*, present-day farmers invite instructors from Petugas Penyuluh Lapangan (PPL), who answer their questions concerning the technicalities of farming. Farmers wait for the PPL to come and then they ask their questions. They have a wealth of knowledge concerning seeds, seedlings, fertilizer, herbicide, and other farming-related topics.

The problem is, these PPL instructors do not routinely come to the villages. Oftentimes these instructors only act as agents selling fertilizer and herbicide sent by respective industries. Then, once these chemicals have been put into circulation, oftentimes they are not available to the people when they are required for the next round of treatment. They are not always in the market.

The *panggoba*'s future seems bleak. In Saha Saini's opinion, the main interference here has been religion. Some organized religions claim that the knowledge of the *panggoba* is not in compliance with their faith, and is

therefore heretical. This, Saini feels, is the reason why the *panggoba* are a thing of the past.

"People schooled in Islamic schools surely don't want to be involved with them. Even the children of *panggoba*, if they are from a Muslim school, won't want to continue their parent's work. They don't want to be labeled as sinners.

For Saha Saini, calculations made from the stars and the readings of nature should not be considered heretical or sacrilegious All things in nature offer clues, calculations, and guidance. Information about current times, weather, years, dates, days, even hours – can be gleaned through traditional ways. This is the only way divination can be made.

Saha Saini compared the strengths of the *panggoba* – at observing stars – to the fishers of Gorontalo, who can predict the direction of winds out at sea. At night, seafarers cannot look up to observe mountains. The landscape does not exist to guide their observations.

"To orient oneself, the seafarers look to the waves. Through this they know, 'Oh, this is Eastward.' In this way, seafarers here rarely become lost. Nevertheless, what is the difference between a *panggoba* and a farmer?" says Saha Saini, asking.

"People schooled in Islamic schools surely don't want to be involved with them. Even the children of panggoba, if they are from a Muslim school, won't want to continue their parent's work. They don't want to be labeled as sinners"

The questions of Saha Saini land on deaf ears. Changes are happening, and they are happening indestructibly and inevitably. The role of the *panggoba* recedes into history each day. Their divination is no longer referenced by the community, villages, or on larger levels. Nowadays decisions regarding planting seasons are made by multiple parties, by the governing bodies of Gorontalo Province. If people require assistance they see the customary head of their area, not *panggoba*. While these individuals are only in charge of customs, they also know much about planting based on local wisdom.

A year ago, efforts were made to show appreciation to the *panggoba* and the knowledge that they have kept. There have been meetings held between Juriya Village, Saritani, and North Tamaila, initiated by the "Agrarian Institute," to boost the confidence of the few remaining *paggoba*. They have been called upon again for their opinions regarding what plants to use in rituals regarding land usage, customary ceremonies, and traditional medicines.

Epilogue

The current model of development is entirely reliant on economic growth. Such initiatives include the "Agropolitan Program" (Program Agropolitan), practiced in Gorontalo. Many of these, however, have also resulted in great losses. From one perspective, these models do result in the cyclical movement of large amounts of money, but from another perspective, they are entirely unaware of socio-cultural nuances of the people, and their relationship to land. For example:

Production-consumption now unrelated. Long ago, farmers ate what they produced. Nowadays, everything is for sale. For food, farmers go to the market. Long ago, farmers planted corn or rice for consumption, nowadays they plant hybrid corn to sell as chicken feed.

Farming-forest dynamic now irrelevant. Farmers, in a physical and spiritual sense, are no longer close with the forest. Farmers are no longer allowed to clear the forests in order to make new farmlands, often because these forests are now owned by large corporations, or because they have become a national or provincial park. Farmers are also no longer free to take *woku* leaves, rattan, honey, fish, *unggas*, or other animals from the forests.

Environmental destruction. Negligent expansion of farmlands has made the area an eyesore, and it has contributed to the degradation of the lands as well. Disasters such as landslides and flooding appear on the national news and around social media. Hybrid seeds, herbicides, pesticides, and other factory products also contribute to this destruction – both damaging the forests and harming the animals.

"The current model of development is entirely reliant on economic growth. Such initiatives include the "Agropolitan Program" (Program Agropolitan), practiced in Gorontalo. "

Production out of control. Production targets of the provincial and national governments are pressing farmers to produce at maximum capacity and without concern for anything else. The calendar of proper planting times, the suggestions of the *panggoba*, do not enter this picture. Whenever people wish to plant they do so, and often their neighbors follow suit. As a result, the land no longer has a change to *breathe* in between crops, nor to *recover* fully, and already new seeds are being pushed into the ground. The dwindling quality of the soil is handled with the addition of even more powders and sprays, and each year more is required – in inverse relation to the quality of the land. If the land becomes completely unusable, farmers can still sell it, and they will find a way to clear some forest for a new plot.

Debt cycles. In order to increase production, farmers need to be indebted to third-party loaners. For their daily needs, while still tending to crops, the farmers are prompted to pay these loaners. When harvesting, the loaners move in and buy up everything at a low cost. Only a small amount remains, what's more after one considers the debts paid from the previous season. In the end, the farmers do not have enough money for seeds and seedlings needed for the upcoming season. Farmers wind up indebted again, and the cycle continues. Lost in the shuffle, both farmlands and forests are being destroyed.

Land-based wisdom gone. In spurring on production, land-based wisdom / customary lay-knowledge is of very low-priority. Farmers no longer require *panggoba*, and they no longer need to know when they should plan. Traditional means of clearing land, preparing seeds, preparing sedlings, treating plants, and harvestings have all been left behind. When years are *normal*, there are few problems, but when the rains are delayed it is problematic. Overconfident farmers reliant on numbers from elsewhere, or simply copying their neighbors, lost much of their crops in the long dry season of 2019. The same occured during the Corona virus (Covid-19) pandemic that began in 2020. Both of these events have made the people realize the value of customs and lay-knowledge / Indigenous wisdom – and meeting the most basic of a family's needs.

It is true that these paragraphs read almost like an elegy, sad verses that tell of the farmers and forests and the *panggoba* who once played a role between them. However, looking deeper, it is clear that this is not an isolated tale about farming, but it is about Gorontalo at large and a shift in local belief systems. Traditionally, the people had only to care for the relationality of people, nature, and the unseen. To facilitate this, they made offerings – offerings that invited the unseen to eat and partake in their lives. This is how they aligned their own desires with the limitations of their environments. Nature was a compass that indicated when to plant, and when to worry about pests and other inflictions, droughts, and other threats.

When their system of belief changed their lifestyle also changed. Agropolitan / agrocity, as promoted by the Government of the Province of Gorontalo, has become the new system. Myths are no longer about the balance between the creator, people, and the environment – they are now about the economy, personal success, quantified by the size of one's harvest. In the production and marketing of corn, in the size of one's house, a good car, whether one can make a pilgrimage to another country – there is a myth that now drives everything.

"It is true that these paragraphs read almost like an elegy, sad verses that tell of the farmers and forests and the panggoba who once played a role between them."

There are, however, a few groups who are doing things differently. The Pabuto transmigrant community is now applying a new technique known as *agroforestry*. Using tiered agriculture

on the sides of steep hills, the Pabuto are working together with the environment, and conserving forests and freshwater springs on the lands.

Meanwhile, for many years prior the people of Tumba Hamlet have been managing diverse farmlands and produce sundry produce. Their crops are as dense as the forest itself. The "Government of North Tamaila Village" (Pemerintah Desa Tamaila Utara) have given them much attention as an area with many rivers and many trees that act as buffers. Conservation efforts have been focusing on the planting of sago palms and taro so that the staple foods of the village remain unchanged.

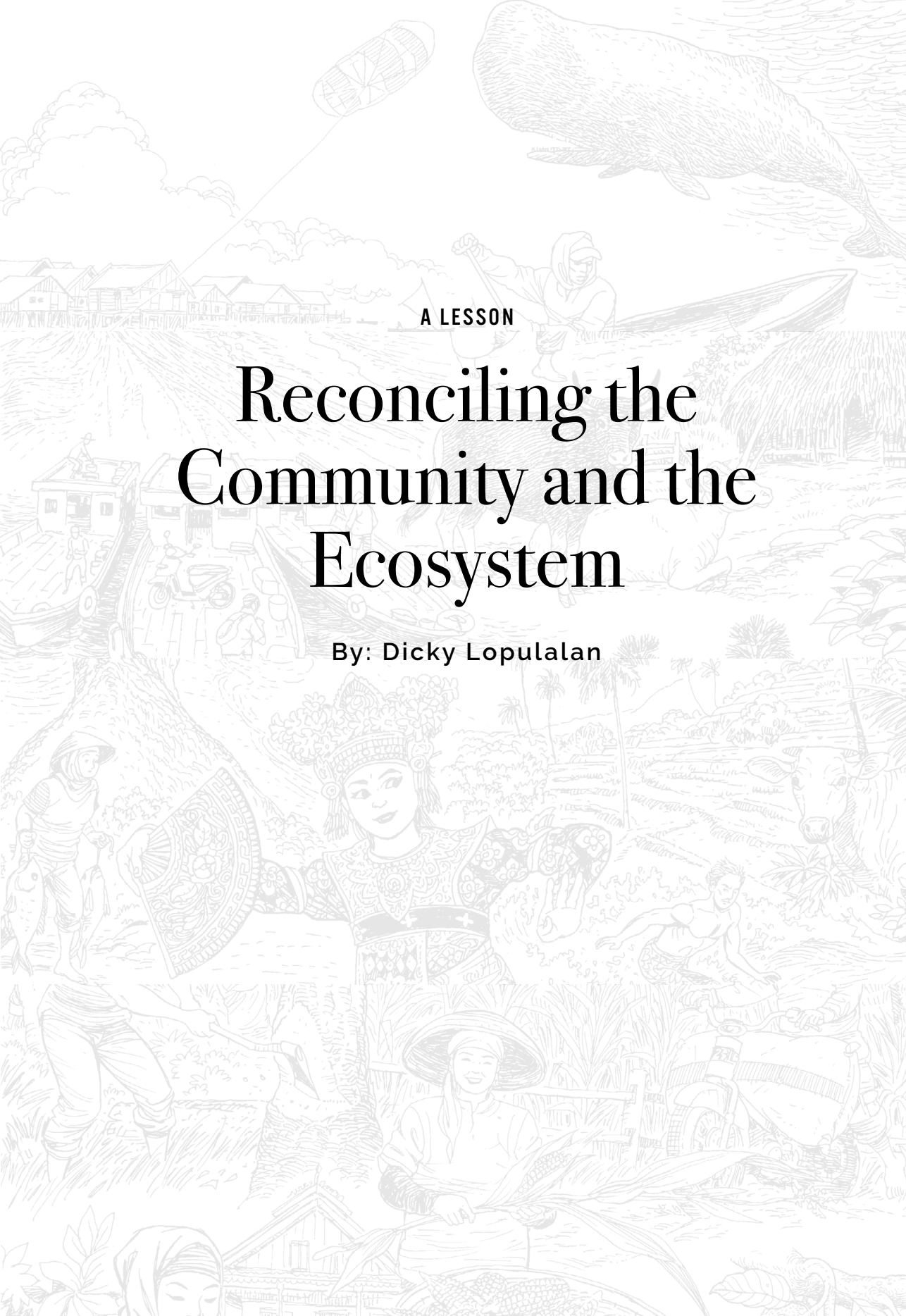
Though few villages are involved, the voices of the *panggoba* are again rising. There is even a forum for *panggoba* from different villages to meet and discuss their affairs, and co-creating farms that they oversee in traditional ways. These crops include all that they need to conduct rituals, customs, and make offerings. In this forum, the *penggoba* transfer knowledge to the people, many of whom are youth from the area.

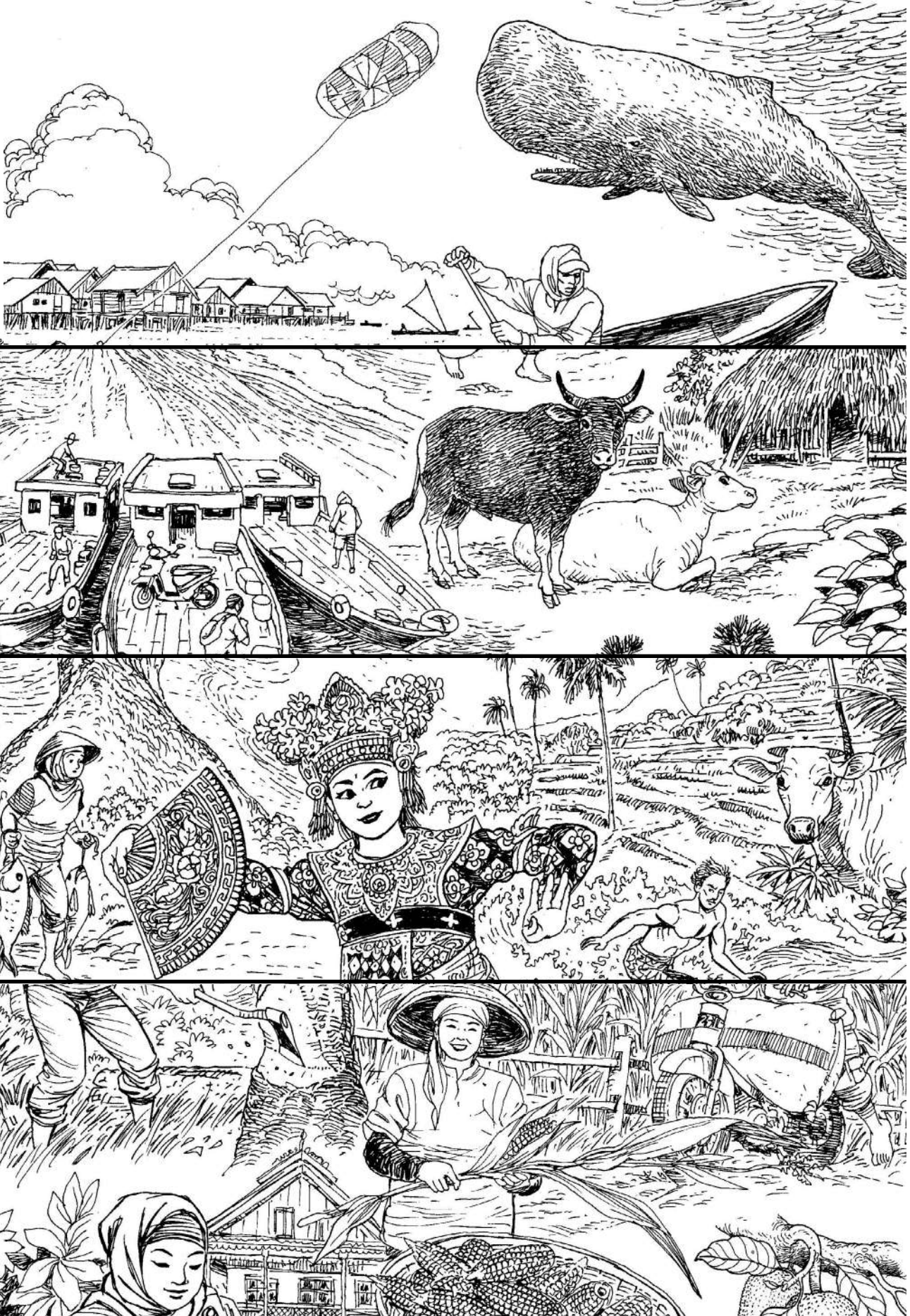
These efforts are small compared to the *size* and speed of more recent programs. However, a closer look at the results and the processes involved in this revitilization shows promise. At least they are able to demonstrate their knowledge in a recreation of traditional farming methods and traditional beliefs – and at a scale that is bound to increase over time.

A LESSON

Reconciling the Community and the Ecosystem

By: Dicky Lopulalan





THE siatuation on Nusa Penida island, in the Regency of Klungkung, in the Province of Bali, in October 2020, took a sudden turn. This small island that had hosted a boom in tourism and investors became suddenly quiet. For months on end, ferries coming from Sanur and Kusamba experienced this sudden drop and were left inactive. The pandemic of Covid-19 swept across the country, and around the world, from the end of 2019, resulting in a decreased in tourism of up to 97%.

The roads of Nusa Penida that are usually busy with motorcycles and cars rented by tourists now looked quiet. The beaches were empty, there were no tourists sunbathing. Hotels and villas were empty, unrented, and some were forced to close to save operational costs. Restaurants and cafes that had been bright and noisy with music going until the early morning now sit in darkness and silence.

The consequences have been dire. The communities of Nusa Penida have been as though untethered from their livelihoods. More than 70% of the people relying on tourism now scrape together what they can to get by. Some flee to Bali to try and find work. Meanwhile, others are making a return from Bali because there is no longer any work for them. Accounts of domestic violence have become more common and alcohol consumption has become a problem.

The effects of the pandemic have been unquantifiable and have stunted the growth of the tourism industry in Nusa Penida and Bali. This sector that was the pride of these islands is more fragile than had been imagined. It has not been able to handle the thralls of this virus.

The head of customs of Banjar Nyuh Kukuh, Ped Village, Mangku Wayan Leser, blames the demise of farming on the tourism industry, however. "Everyone wants instant money. 'His Holiness the Dollar' has arrived. The God of the Dollar has come, and the real Creator has fled," says Mangku Wayan Leser, who moved to the island in 1950 at the age of two years – from Lembongan Village, Lembongan Island, to Banjar Nyuh Kukuh, Ped Villa, Nusa Penida Island.

Nusa Penida Regency (consisting of the three nearby islands of: Nusa Penida, Nusa Lembongan, and Nusa Ceningan), has enjoyed increasing popularity for the past few years, before 2019. Since the marine area, as vast as 20.057 Ha, became a "Marine Conservation Area" (Kawasan Konservasi Perairan (KKP)), the area has enjoyed rapid growth – through the "Minister of Marine Affairs'" (Menteri Kelautan dan Perikanan) decree Number 24 of 2014. The other islands in this "Marine Tourism Area" (Taman Wisata Perairan (TWP)) are also a

"This sector that was the pride of these islands is more fragile than had been imagined. It has not been able to handle the thralls of this virus."

focus for tourists – both local, Indonesian tourists and people from many other countries.

The number of tourists has soared. So has the general opinion of the Government of Klungkung as the managers of the TWP. In 2012 the amount of visitors to the island increased from 127.836 to 503.708 people in 2019. In 2018, due to the eruption of the Agung stratovolcano, growth hardly slowed. In 2019 it was not uncommon for the area to have 2.000-3.000 visitors a day, and even up to 14.000. Hotels and simple guest houses popped up, and even a few hotels with star ratings. In 2019, according to the Government of Klungkung, the area brought in around Rp11,5 milyar ($110.000 USD).

This figure does not reflect the multi-layered effect of tourism at a local level. It does not calculate the profits, or the losses, of people who left farming behind to open a small eatery, for example. The figure does not include benefits to local people who rent villas out to tourists, hotels, homestays; restaurants; cafes; artshops; alternative tourism packets; vehicle rentals; diving gear rentals; or the sale of local foods, fruits, and vegetables. All told, all of these recipients of the tourist dollar have been made into dependents.

The popularity of the island of Nusa Penida has increased ever since the area was recognized with a few awards. In 2016, the area received two official recognitions from Anugerah Pesona Indonesia (API). The first of these recognized Nusa Lembongan as the "Second Best Surfing Spot" outside of Nemberala Beach, Rote Ndao Regency, East Nusa Tenggara. The second award recognized Nusa Penida as "Second Best Dive Spot" after Alor Island, Alor Regency, East Nusa Tenggara.

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These recognitions were received for two years, intermittently. Nusa Penida has made Klungkung Regency recognized as one of the "Top 10 Regencies at a National Level" according to *Wonderful Indonesia Tourism Award* 2018. Prominently, Nusa Penida was written of, by Hostelworld, as, "The Number 1 Backpacker Destination" for 2020. Hostelworld is a platform for booking hostels and it is based in Dublin, Ireland. Writers at Hostelworld wrote of the mystique of Nusa Penida and Kelingking Beach, with its rocks arranged in a strange way, resembling a tyrranosaurus rex. It was also mentioned that life in Nusa Penida is relaxed and welcoming to backpackers, and snorkellers and scuba divers can find manta rays and stingrays. They also wrote of local efforts to save the *jalak Bali* bird, which can be seen on a tour of the region. Motorbikes and cars were plentiful and easy to rent from the harbour itself, they added.

The popularity of Nusa Penida has motivated much investment. Data from the "Investments Office of Klungkung Regency" claims that investments in the region were around $580,000,000 US in 2015 alone. The next year, however, this figure rose to around one million US dollars. Future prospects of the regional government seem increasingly positive with commited investments from Singapore, Infinity Global Asia, Ltd in 2019. A premium hotel is in the works for the Nusa Penida region at a cost of one to two hundred million dollars USD. This was supposed to be finished in five or ten years.

The evolution of the economy in Nusa Penida has been fantastic. To start with the area was known for its poverty, especially prior to the 1980s (the island was once considered a place where Bali could send unwanted individuals). For a while the area became popular for its production of seaweed (while the province of Bali is the largest exporter of seaweed in the country, 65% comes from the Nusa Penida area) – and now it has evolved into a tourism hub. This latter step has earned it new monikers, such as "New Paradise Island."

"In the past, people were happy because at least there was seaweed. Nowadays, people are even more grateful. The tourists are here. This makes us uncertain, however. Our temples are empty, only used during large rituals. The bars are happening, however. Sacral dances, ceremonies, it's all become entertainment to satisfy our guests. I worry that there will come a time when this will all go under," says Mangku Makan Leser in an interview form the end of 2019.

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Mangku Makan Leser did not need to wait long. The COVID-19 pandemic struck hard at the start of 2020, and striking Indonesia especially in March. The glee and aspirations supported by tourism were now like a boat without an engine. Nusa Penida closed down entirely for a year, not knowing when it will open again. The hotels, villas, accomodations and facilities now sit empty. Farming plots on shore and under sea (*rumput laut)* have been abandoned for a long time. People have had to adapt in a flash. Local wisdom predating the unstable tourism sector has already been forgotten. Without tourism, Nusa Penida is facing a worsening crises than ever before.

Loss of Traditions and Symptoms of Crises

The economic undulations of Nusa Penida functions as an important lesson to help understand the loss of tradition at the four locations in this book. The Wisnu Foundation (Yayasan Wisnu) writes that the success of tourism in Nusa Penida has been the catalyst for the near end of agriculture. The farmers, livestock, and the youth of Nusa Penida are leaving the farmlands behind to find work in tourism, whether in hotels, villas, restaurants, as ticket agents, vehicle rental, guides, or as construction workers and general labourers.

Abandoned farms no longer produce a harvest, and hotels, villas, and restaurants are moving in on any remaining plots and empty spaces that remain.

From one perspective, these changes have made for scarcity of a diversity of produce. From another perspective, these changes have erased traditional knowledge of farming, fishing, and other teachings from older generations. Over time, these will disappear. Heritage-based knowledge has met its end, because the youth are no longer interested. Traditions no longer play a role here. Money is easy-come-easy-go, and with it the people of Nusa Penida buy their groceries form Bali – rather than stressing over the farming process, from planting to harvesting. Even the materials needed to pray and make offerings is imported from East Java and Lombok.

"Tourism has brought a fun and youthful mileau to the island, but it has also brought money and consequences. The new services offered by the people means that nobody can ever successfully arrange a gotong royong (group maintenance project) anymore – nor can they hold social events or practice old rituals anymore. "

It is not only the practice and knowledge of how to manage farmlands and marine plots that is being forgotten, but also the socio-cultural effects of change, which need to be recognized. Tourism has brought a fun and youthful mileau to the island, but it has also brought consequences. The new services offered by the people means that nobody can ever successfully arrange a *gotong royong* (group maintenance project) anymore – nor can they hold social events or practice old rituals anymore. The social problems of the people eat away at their remaining time to work or to think, and when they do think, it is about money and tourists and exploiting Nusa Penida. The multitude of cultural expressions that have long been transcendant are now profane – just another tourist attraction.

Turbulence is not the experience of the few who have already made enough money to ride out the storm, however. The government is planning and conducting the construction of an even larger tourism sector in Nusa Penida, which would then become the leading source of financial income within Klungkung Regency. Ecological issues do not receive any serious attention. Programs to conserve and maintain the bare minimum of sustinence farming are overlooked. Initiatives to provide the people with farming

supplies, also for rearing livestock, are marginalized. The people go along with the government.

It needs to be recognized that tourism is also not the only factor behind the movement away from tradition. Long before tourism, the "Green Revolution" (Revolusi Hijau), the "rice self-sufficiency" program, the planting of teak trees, and community initiatives for the cultivation of seaweed, had already been a push off and away from the calmer harbours of traditionalism in Nusa Penida.

The Green Revolution program introduced synthetic, chemical pesticides, and the people forgot about natural solutions; the "rice self-sufficiency" program (*swasembada beras)* popularized rice over *bleleng* corn, root vegetables, and nuts and beans that had long been the staples; the teak-planting initiative destroyed both farms and forest habitats of monkeys; and lastly, the initiative for the cultivation of seaweed forced the people to leave farms of the island's interiors and farm along the coastlines.

Yuval Noah Hariri, in the book *Sapiens: A Brief History of Mankind*, writes that people move forwards by following paths towards greater spiritual understanding, which accumulate in the form of mythologies. When these myths become large and strong and attractive, other groups will abandon their own beliefs, despite having worked hard to grow them for hundreds of years. Tourism, the Green Revolution, the rice self-sufficiency program, the teak wood initiative, and the various seaweed-related movements have planted a myth about *easy money*, well-being, a good future, and economic mobility. These are the latest cosmologies to approach the islands of Nusa Penida, forever altering the lifestyle of the peoples.

"It needs to be recognized that tourism is also not the only factor behind the movement away from tradition. Long before tourism, the "Green Revolution" (Revolusi Hijau), the "rice self-sufficiency" program, the planting of teak trees, and community initiatives for the cultivation of seaweed, had already been a push off and away from the calmer harbours of traditionalism in Nusa Penida."

The problem arises when we see how these new myths rely on risk, or have unforeseeable consequences that cause the people to be helpless in the face of crises. The massive industry that is tourism in Nusa Penida, for example, risks damaging the environment irreperably. The need for clean water in an environment with limited resources, the change in the function of the lands from productive farms to rental properties, the diminishing of the younger workforce, these factors are also resulting in an entirely different ecosystem. Therefore, when the COVID-19 virus overcame the industry and the islands, the people no longer had the skills required to be self-sufficient. They are already hooked on the

tourism sector. And when tourism crumbled under the weight of the pandemic, there were no alternatives. If this continues for much longer, this crisis will result in much suffering around Nusa Penida.

The recession of the local, land-based systems of managing natural resources written about previously in this book can be seen as a symptom of a crisis in these communities. Like a virus, the loss of land-based knowledge creates illness, a depletion of functionality. These indicators require immediate attention to assure the health and survival of the people. We will not be passionate about this issue if we are not first aware of the potential of the value of these fading traditions, yet what good is passion if we don't also maintain the old knowledge -- so as to remind these communities of their resilience and the necessity for resistance.

The situation and Wakatobi in Southeast Sulawesi is similar in ways to that of Nusa Penida, though the former has been less affected by tourism. Visitors did begin to arrive to the area when Wakatobi National Park was designated in 1996 – through the "Agreement of the Minister of Forestry" Number 393/KPTS-V, across an area of 1,39 ha. More tourists came when the area was designated a Biosphere Reserve by representatives of the International Biosphere Reserve Program, UNESCO, in Paris, from the second to the fourth of April, 2012.

The difference with Nusa Penida is namely the volume of tourism, which is much less significant in Wakatobi. In the year 2013, there were 12.370 visitors to the area. By 2019, however, there was already three times this number (28.857), accomodated by 59 hotels and guesthouses mostly found on Wangi Wangi Island. Though there is an increase every year, Nusa Penida remains the more popular destination, even though Wakatobi National Park is 173 times larger than the area of Nusa Penida. For this reason, the people of Wakatobi are not overly dependent on tourism for their daily needs.

"Like a virus, the loss of land-based knowledge creates illness, a depletion of functionality. These indicators require immediate attention to assure the health and survival of the people."

The difficulty of accessing Wakatobi National Park is the main reason why the growth of the industry and investments are less substantial here. To visit different islands in Wakatobi, visitors must take boats, because the only useable airport is on Wangi Wangi Island. While there is another airport on Tomia Island, it is an exclusive airport for chartered planes arriving from Bali. Nusa Penida, however, is only a short distance from the tourist island of Bali. In 30-45 minutes, the travellers arrive. On one hand, logistical problems prevent the growth of Wakatobi's tourism sector, but on the other hand, nature is better off as a result of this bottleneck.

For the local people of Wakatobi, the conservation of nature is not a foreign nor recent concept. Since the Sultanate of Buton the people have managed their resources wisely,

introducing laws to protect their surroundings in traditional ways. Resource management for the sake of substinence farming requires striking a balance between sociology and ecology. This balance must be maintained at a practical level, but also in a legal or legislative way. Advocates of customary law in Barata Kahedupa were alloted significant authority by the government of the Sultinate of Buton, located in Bau Bau.

After becoming part of the government of the Republic of Indonesia, their authority was dissolved, however. Areas that were once under the control of these advocates (MHA) now fell under the control of the nation. In a legal sense, these authorities were only officially abolished by President Soeharto through Policy Number 5 of 1979. This policy unified the format and structures of village governments across the country. This was a form of Javanization, a grafting of the community structures from the island of Java outwards upon the rest of the country. The policy no longer recognized the existence of customary / Indigenous laws and principles, such as *nagari, huta, sosor, marga, negeri, binua, lembang, parangiu,* nor other concepts unfamiliar to the Javanese, such as *limbo, barata* and *kidie.* The latter group of the laws mentioned were once very dear to the islands of Wakatobi.

This coerced submission to foreign rules has had lasting consequences. Simple rules that once effectively kept peace in small villages were now seen as irrelevant. The New Order Government made promises to achieve the same results that the older systems had already been achieving for many years. For instance, in regards to the existence of Indigenous lands, the reformation of the Policy Number 5 of 1960 concerning agrarian development (UUPA)[18] put forth restrictions. President Soeharto applied the UUPA selectively, only enforcing policies that supported the powers of the state to manage resources and initiate largescale developments "of national importance." Policies pertaining to the social functions of land and safeguarding the livelihoods of people were largely set aside and ignored.[19]

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According to Forkani, the marginalization of local laws and customs has had a weighty effect on the usage and management of natural resources. The national government does not recognize the beliefs of the people in the

18 Officiated by President Soeharto on 24 September 1960, UUPA is still in effect to this day and has not yet been amended.
19 Nancy Lee Peluso *et al*, "Claiming the Grounds for Reform "(2008), *Journal of Agrarian Change*, Vol. 8 Nos. 2 and 3, April and July 2008, pp. 377–407, quoted by Arief Wicaksono on Public Policy and Resolution of Agrarian Conflicts and Natural Wealth in Disputes: The Struggle for Conflict Resolution, Indonesia Business for Sustainable Development, Jakarta: 2020.

slightest. The usage of resources is no longer limited to consumption, but is now openly exploitative.n. For example, the people of Wakatobi have never eaten the octopus precisely because of their beliefs about these animals. Nowadays, however, some fishers will catch octopuses to sell on the market.

The role of customs and land-based ritualized lifecycles is seen as performative. Sacral forests become farmlands or an extension of a town. Sacred places are no longer revered and no longer feared. Initiatives seeking to manage spaces and layout (Rencana Tata Ruang dan Wilayah) have been told to leave *tribal* (*"adat")* lands alone – as of *local policy* Number 12 of 2020. As for marine areas, they are zoned by park authorities, which do not recognize areas of traditional importance. The concept of conservation that shapes the limitations within them conflicts with local beliefs and traditions. However, the people themselves feel powerless to stop these changes.

The many plans made for the future of Wakatobi overlap but very little. There is synergy to speak of between the laypriests of the communities and the various parties, such as the Central Government (The Ministry of Forestry and the Environment (KLHK); the Social Ministry; the Ministry of Tourism and the Creative Economy; the Village Ministry, development initiatives, and others), Regional Government, BTNW, and Lembaga Swadaya Masyarakat (LSM). All of these initiatives involve the people, meet in the same buildings, and involve the same small islands. Each party stresses a different but equally important interest. Other initiatives, such as Rencana Zonasi Wilayah Pesisir dan Pulau-Pulau Kecil, focusing on the zonage of coastal areas and remote islands and supported by the provincial government, also occupy the same space and have a similar dynamic within the communities.

The varied interests of these many parties make it difficult for "Communities of Customary Law" (Masyarakat Hukum Adat (MHA)) to proactively uphold the customary laws of a certain location, whether that means place-based wisdom or just the local laws and associated traditions themselves. Aside from a few bottlenecks – worker shortage, lack of tools, lack of comprehension of a place – MHA continues to face the realities of change at the level of the people. The accessibility of transportation has resulted in the availability of supplies – staples, such as rice, flour, cooking oil, and others – which are well-received by the peoples of Wakatobi. Meanwhile, local produce, such as root vegetables, tubers, corn, and coconut oil, are no longer so sought after.

"The many plans made for the future of Wakatobi overlap but very little. There is synergy to speak of between the laypriests of the communities and the various parties,"

Changes are happening at the level of production. Consumers are less active and few see the point of planting local vegetables, tending to them, and utilizing the harvest. Gradually, a diversity of local produce is disappearing. Together with these plants go the traditions and place-based knowledge of the peoples.

The collectivism that was the key to survival in Wakatobi is also fading. Whereas communities used to fish together, nowadays most people work alone. On farms, productive plots are ever smaller each year, because what is planted is merely supplemental to imported produce. Out at sea, utilizing equipment imported from the cities, people no longer need the assistance of a crew in order to bring in their catch.

Fishers once used the traditional methods of *sero* in order to catch and capture fish. People would come to the beaches in large groups to assemble the bamboo fences that shaped the fish traps. They caught fish together, they ate fish together. Nowadays, the bamboo fences have been replaced by reusable nets that are easily installed. One person can do it by themselves, and so it is not necessary for a person to give fish to others in the community. They can keep it all for themselves, or sell it at market.

The shift at the level of production and consumption has been exasperated by the dwindling numbers of farmers and fishers. Local knowledge, place-based wisdom – typically these were kept alive in intergenerational teachings. If one generation misses these teachings, the keepers of these tradition will age, will forget, and will eventually pass away. How fragile a way of life is cannot be overstated.

The younger generations are experiencing a wave of change as well. Most children in Wakatobi are schooled in Kendari, Makasar, and other distant places. Most of them return home to become Aparat Sipil Negeri (ASN) or merchants, not fishers or farmers. Not a few of them will return home with new thoughts and ideas that conflict with the teachings of the elders of Wakatobi. They return to criticize their own community for partaking in sacreligious beliefs and sometimes conflicts arise. Because of technology and the wealth of information available to people, the idea of actively learning traditions from a relative seems both anachronistic and less credible.

"The younger generations are experiencing a wave of change as well. Most children in Wakatobi are schooled in Kendari, Makasar, and other distant places. Most of them return home to become Aparat Sipil Negeri (ASN) or merchants, not fishers or farmers. "

These fading wisdoms should be recognized as the symptom of a crisis – that of the disappearing staple produce of the small islands of Wakatobi. In a normal situation, when access to transportation is available, the problem does not feel like a crisis. However, when there are challenges, such as the lack of logistical options due to COVID-19, the urgency of the situation is realized. When subsistence farming is not maintained, and when more convenient options are introduced, a problem arises – one

which has been anticipated by the ancestors of the peoples of Wakatobi for centuries.

An even larger wave of change now crashes across Wakatobi. In 2015 President Joko Widodo released a list of ten areas to be developed for tourism, and one of these is Wakatobi. The program aimed at creating ten new destinations akin to the tourist island of Bali. This declaration invited investors and the improvement of infrastructure to make the islands more accessible to tourists from around Indonesia and from around the world. Hotels went up, villas were created, restaurants opened, and a myriad of other facilities appeared. The more visitors the islands receive, the more money the locals make. In the opinion of the government, this would increase the well-being of the communities. The rhetoric used made all of this seem appealing, and Wakatobi set out down the path that brought Nusa Penida to where it stands today, and therein the pitfalls of this sort of development become evident.

The map towards a functioning tourism-based economy has been grafted onto Semau Island, Kupang Regency, also. The Governor of East Nusa Tenggara, Viktor Bungtilu Laiskodat, is marketing tourism for Semau Island. The aim is to first attract local, Indonesian tourists. To achieve this, the Government of East Nusa Tenggara is advertising Liman Beach and Otan Beach of Semau Island as a superior tourism area. Bokunusan, Uiasa, Uitiuhana, Uiboa, Kera Island, and Kambing Island have also been designated as tourism areas in and around Semau Island – as per RTRW 2014-2034 Kupang Regency ("Regional Ruling" Kupang Regency Number 1 of 2015).

This ruling, known as a RTRW, has demarcated other regions as protected forests. On Semau Island, in the Southern District, the Oelmu protected forest is 1.066,42 ha. Buin Liman forest is 330,35 ha; and in the Semau District, there is also Pastelo-Amalato forest, at 3.753,11 ha, and Alenitu, at 3.145,17 ha. There are also other designations, such as the status of any beaches that are a minimum of 100 meters from the high-tide mark, and areas surrounding freshwater springs – at a radius of 200 meters.

"An even larger wave of change now crashes across Wakatobi. In 2015 President Joko Widodo released a list of ten areas to be developed for tourism, and one of these is Wakatobi."

The realities on the ground are very different from the opinions and rules handed down from the government. The forests and lands of Semau Island are controlled by local clans, usually by one individual who has been recognized as an elder. These people have authority to give or withhold permission for land usage, including forest areas, and any produce that may come from them.

Communal land usage, as overseen by these elders and their clans, is reliant on the clearing of forests for the expansion of farming lands. Land usage also involves the harvest of wood and sands from the beaches for the construction of houses. This has resulted in both

deforestation and the depletion of sand in a reckless manner. Larger trees are targeted and felled, and along with them, animals and traditional medicines are become scarce, and beaches are being eroded.

In a situation like this, the village government cannot assert control over the forests, because most of the forests are controlled by the people and their clans. Meanwhile, the owners of the land itself seem quite indifferent to its usage, and also seem reluctant to assert control. Along the coastlines, people must now pay a levy in order to take sand, but the rules are far from strict.

Access to drinkable water is still an issue in many villages. The availability of water sources is limited and not evenly distributed. In areas surrounding these springs, the people use the water for farming during the dry seasons. Just like the forests of Semau, soures of freshwater are also controlled by clans of respective areas. While some areas have been taken over by the villages, in a legal sense, they remain under the control of clans and selected leaders.

The capacity for understanding of these local actors and the communities regarding the management of resources in forests and along coastlines remains underdeveloped. This lack of understanding is in conflict with efforts to introduce laws to manage the use of the products of these two ecotones.

Unlike the aforementioned areas negatively affected by tourism, the crisis in Gorontalo is moreso a problem of land usage, the prevelance of monocultures (corn and industrial crops), and gold mining too. These projects are causing landslides and flooding. The effects are vast, inhospitable to local variants of wildlife, depleting the soils, and contributing to climate change.

In the farming sector, land usage has altered in a massive way since the agropolitan / agrocity program was launched, promoting the growth of corn. The clearing of new farmlands for the planting of corn began in 2004 – since Governor Fadel Muhammad released a "Governor's Decree" (Pergub) Number 2 of 2004 concerning the staple foods and investment in farming in Gorontalo. In just two years corn crops occupied three times more space, from 35.692,45 ha (2004) to 105.258 ha (2006). This expansion then doubled, reaching 200.000 ha in 2016, before rocketing to 405.352 ha in 2019. This spike in production was met with praise from the central government and local government, and produced around 1,75 million tons of dried corn.

"Access to drinkable water is still an issue in many villages. The availability of water sources is limited and not evenly distributed."

To achieve these numbers, the local government – regional government and provincial – produced a decree calling for the production of superior commodities. As this decree was made at the level of the Governors and Regents, local governments were then asked to supply assistance – in the form of seeds, seedlings, pesticides, herbicides, fertilizers,

and other supplies. This initial supply of aid marked the start of an exploitative relationship by "Big Agro," turning farmers into objects of the industrial sector, of the producers of fertilizer, seeds, pesticides, herbicides, and the middlemen / investors.

This prioritizing of superior produce did not result in farmers becoming more independent, nor in their well-being. Actually, many of them would become indebted to the middlemen, dependent on government assistance, subordinate to inspectors, and reliant on factory seeds and chemical products. What's more, these changes have resulted in environmental catastrophies, such as deforestation, flooding in the rain seasons, and the destruction of fertile farmlands due to chemical fertilizers and more. And with all of this, there has been no need to learn or to pass on the traditions of old, knowledge of subsistence farming, and the professions of various *panggoba*, the "ministers of farming," around the villages of Gorontalo.

In forestry, the threats posed by the degradation of the environment in the areas of Suaka Margasatwa (SM) Nantu-Boliyoto are detrimental ones. Prior to the protection of these areas based on Surat Keputusan (SK) Menteri Kehutanan (Menhut) Number 3029/MenhutII/KUH/2014, others had been permitted access to these resources through Hak Pengusahaan Hutan (HPH). Since 2010 and until now, however, the arrival of palm oil plantations and companies recognized under Hutan Tanaman Industri (HTI) in the SM Nantu-Boliyoto area have begun eroding at conservation measures. This is being worsened still by the farmers themselves, either legal or illegal, partaking in ever-expansive projects.

The association of JAPPESDA Gorontal states that the pressures to grow the economy are changing the way natural resources are being viewed, and that production in Gorontalo is no longer environmentally sound. The exploitation of the environment, the shift in usage of lands and forests for farming, the usage of hazardous chemicals in farming, the apathy regarding the forests and ecosystems – all are contributing to a decline in environmental well-being. The situation is made worse due to the lack of legal foothold even in regards to the obvious catalysts of destruction, the causes behind both landslides and flooding. Currently, nearly all areas, regencies, and cities in Gorontalo are experiencing both of these natural disasters during the rain season. This include Juriya Village and North Tamaila, Gorontalo Regency. However, in Saritani Village, specifically within Satuan Pemukiman (SP) 3 Pangea in Pabuto Hamlet, people struggle to find any freshwater at all – also because of deforestation; because all slopes of the hills and mountains now host crops of corn.

"In forestry, the threats posed by the degradation of the environment in the areas of Suaka Margasatwa (SM) Nantu-Boliyoto are detrimental ones. "

The people do not only have to worry about flooding, but also about conflicts in the management of land. An example of such can be seen in the case of Tumba Hamlet, North Tamaila Village. This area has been designated as a production area by HTI PT Gorontalo Citra Lestari (Katingen Group). This company was given permission (Izin Usaha Pemanfaatan Hasil Hutan Kayu (IUPHHK)) based on SK Menhut Number 261/Menhut-II/2011, for an area of 46.170 ha in Gorontalo Regency. This area is the former concession of another company, HPH PT Inimex Intra.

Local farmers who had already made farms in the area before HTI received permission are not pleased. They worry that the land that they own will be taken away by HTI. For this reason, the people have banded together to protest and obstruct the creation of new roads. Until now, the roads to this particular area can only be traversed on special motorcycles. However, even without roads, the corporations have started planting not far from Tumba. From time to time the conflict flares up before becoming transcendant once again.

Meanwhile, in two other villages, Saritani and Juriya, the potential for conflict between the people and palm oil plantations cannot be ignored. These corporations employ reckless methods of *land clearing* along slopes and hills, abolishing freshwater springs, and, once again, causing landslides and flooding.

What the people recall of responsible land usage remains limited. Their traditional wisdom has now almost all but faded. The elders and *panggoba* still keep the knowledge of seasons, an understanding of the signs of nature, techniques of subsistence farming, the creation of organic fertilizer, and how to control pests and illnesses in a nature way. Sadly, very few of them remain. What's more, women's roles in farming have all but vanished. The knowledge that they hold no longer has an outlet. The simple engine of transference that regenerates traditional farmers, either male or female,has been complicated.

Though the situation seems gloomy, the important first step is to acknowledge the problems behind the crisis. The aim is so that people have an understanding of what is happening on the ground so that solutions can be sought. From an understanding and a mapping out of these issues we can restore the resilience of these.

"Local farmers who had already made farms in the area before HTI received permission are not pleased. They worry that the land that they own will be taken away by HTI."

Rooting and Strengthening the Resilience of the Communities

It was early morning. The birds sat lazily in the branches of trees. However, Bunaeri already had a large stick swung over his shoulder and was climbing the steep slopes of the hills behind the SP3 transmigrant zone in Pabuto Hamlet, Saritani Village. This man, with his lithe and lean body, shows off the tops of the hills, which he has worked into plots for the planting of more crops.

"My land happens to be these slopes. If I didn't make it terraced, the water would just flow straight down and there would be a landslide," says Bunaeri.

To strengthen the lands, Bunaeri planted trees from the forest. He also planted some especially strong and resilient trees, such as rambutan, jackfruit, *duku*, mango, and others.

"The roots of these tougher trees are going to hold back the land. I let the trees be. One day, when they've grown too big, then I will cut them down," says Bunaeri.

Aside from these trees, Bunaeri also plants vegetables, primarily for consumption by his own family. While he does sell some of his harvest, most of it is enjoyed under the roof of his home. Bunaeri lives with an uncommon frugality, and he does not have to open his wallet often to purchase supplies from the markets. He eats what he grows.

"My harvest is diverse. It's not a lot but it keeps coming and almost every month there is enough. Outside of this, I do not need to purchase food from the market. My farms are complete with vegetables, fruits, spices, and even some traditional remedies (*jamu-jamuan)*," says Bunaeri.

Bunaeri has been farming for two years, managing an area of two hectares, which is the alloted size of plots for transmigrants here. In his hometown, Temanggung, Central Java, he was a labourer working on others' farms. His initiative, to create his own terraced fields, inspired others to do the same, and he became a member of Kelompok Tani Marsudi Lestatun (the Marsudi Lestatun Farmers Group).

"My harvest is diverse. It's not a lot but it keeps coming and almost every month there is enough."

Bunaeri's way of thinking is a rarity nowadays -- not only in Saritani, but also within the Gorontalo Province at large. When the Government of the Province of Gorontalo introduced the Agrotani program, the farmers began planting just one plant only, which was hybrid corn in demand by the livestock industry. Other plants were then removed from farmlands. For food, farmers had to make a trip to the market and purchase what they needs. As a result, the cycle of production and consumption was broken – at least, for the farmers and their families.

Bunaeri's methods have been immitated by at least 20 other members of Marsudi Lestatun. Each has created

terraced farms along the contours of the soil of the land. They also prefer to plant a variety of vegetables instead of monocrops. Bunaeri has become the exemplry user of sloped land and a reminder of the diversity of possible crops for personal consumption. Bunaeri has been invited to talk in various villages, and even to meet with local government officials from other regencies in Gorontalo in order to teach the technique of creating terraced fields – along with techniques of preserving staple foods once harvested. In October 2019 Bunaeri received recognition as an inspirational figure at the provincial level. This award came from the Sumo Foundation.

The initiative of Bunaeri and his apprentices in Marsudi Lestatun is widely considered the smart move. People realize that slopes and hills are not appropriate for monocultural crops, such as corn. Aside from causing erosion, the land will also be depleted of nutrients through the use of synthetic fertilizers. These are of course more costly as well. Learning from experiences in his hometown, Bunaeri created terraces on slopes and planted a variety of vegetables. With this simple method, they have rooted and fostered a resilient ecosystem.

Senior environmental activist, employed as the Director of the Indonesian Business Council for Sustainable Development's Conflict Resolution Unit (CRU IBCSD) Arief Wicaksono states that there are four aspects that need to be attended to in order to plant and restore the resilience of communities and ecosystems. These are 1) legal representation; 2) investments; 3) the "sustainance of prosumption" (*ketahanan prosumsi)*; and 4) the preservation of the remaining, entact ecosystems. These four aspects can be useful when observing the situation and the efforts being made by the communities in the four areas focused on in this study.

"The initiative of Bunaeri and his apprentices in Marsudi Lestatun is widely considered the smart move. People realize that slopes and hills are not appropriate for monocultural crops, such as corn."

1. Legal Representation

The decree published in the Constitution (MK) as Number 35/PUU-X/2012 gives hope that *tribal / Indigenous* forests will receive proper protection. This decree returned the ownership of these forests to the traditional communities residing in the area. Since then, many communities have come up with schemes to declare themselves Indigenous / tribal peoples. Despite the decree, however, there are still many challenges for authentic Indigenous groups wishing to achieve recognition. These peoples require legal representation via Perda or the head of the SK area.

The Director of the "Indigenous Zoning Registration Body" (BRWA) Kasmita Widodo

states that, in the government's "Midterm National Development Initiative" (RPJMN) 2015-2019, around 12,7 million hectares of forest were promised for allocation -- despite much of that being Indigenous forest *(hutan adat).* Until November of 2018, social forestry achieved 2,13 million ha, or only 16%-18% of the target. From this amount, there were 33 Indigenous forests that remained, at 17.234.61 ha with these specifications: 10.919,62 ha are regional forests (Areal Penggunan Lain/APL), 313,99 ha are non-APL regional forests, and the remainder consists of a combination of APL and regional forests. From here it can be seen that the agenda for the fulfillment of the rights of the people over their forests has been made very complicated. The political will of the national government and the local government in rolling out this agenda will determine the development of pro- Indigenous / *adat* policies.

In a meeting with the International Union for Conservation of Nature and Natural Resources-Work Parks Convention (IUCN-WPC) in Barcelona from the 8-14 October 2008, the Indigenous and Community Conserved Area/ICCA was officially adopted as a new model for conservation.

In many cases, for local communities, the connection to the conservation areas is richer than the expression of any label that it has been given. These areas concern local well-being, energy, and health. These are the sources of identities and cultures, autonomy and freedom. These are knots that connect the generations, preserving the memories of ancestry, and align the people with a future that they once desired. This has become the base for communities to study, identifying values, and governing themselves accordingly. For many groups, these areas are also the thresholds between what we can see and various energies that seldom take a concrete form, the material and the spiritual. Recognizing and restoring the sovereignty of these areas means upholding the dignity of these people and their right to decide their own fate.

"In many cases, for local communities, the connection to the conservation areas is richer than the expression of any label that it has been given. "

Indonesia – as the host of the Convention on Biological Diversity (CBD), the Cartagena Protocol, and the Nagoya Protocol, which have been ratified in national policies – has a responsibility to meet the targets that have been agreed upon. The Indonesian government needs to initiate a few conservation initiatives that include 1) demarcating conservation areas outside of prexisting ones, wherein usually these would be stewarded by Indigenous / tribal communities; 2) attend to and protect the needs of woman, Indigenous / tribal communities, the impoverished, and vulnerable populations. 3) initiate the Nagoya Protocol in keepingn with national legislation; 4) lift up traditional knowledge, Indigenous innovations and practices as a subject of national legislation (policies) – setting new international requirements that should be integrated and analyzed during each CBD, through close observation of the

roles of Indigenous (and non-Indigenous local groups) both critically and across multiple levels. Aside from these four initiatives, there is also Mosi IUCN No.29, commanding the respect of "Community Managed Conservation Areas" (AKKM) where they overlap with national conservation initiatives.

Based on international agreements, signed by the Government of Indonesia, and the policies that have been made by the government, there is an opportunity now to achieve legal protection for these traditional / community conservation areas and the traditional / local wisdom as found in the four areas in the preceding chapters. GEF-SGP is currently working together with Working Group ICCA Indonesia (WGII) to document a few AKKM, which are Tumba Hamlet (at 3.533 ha), Juri Village (57,19 ha), and Tamilo Hamlet – all three of which are in Gorontalo; Alas Tambeling (19,6 ha), and Alas Pura Saab (11,6 ha), in Nusa Penida, Bali (freshwater spring conservation area), and Uiade Forest in Uiasa Village (coral reefs conservation area), Batuinan Village (freshwater springs conservation area), Uiade Forest in Uiboa Village, and Uitiuhana Village (a freshwater springs conservation area in Uisiunai), all of which are on the island of Semau, Kupang Regency.

The key points for conservation that have been assembled in relation to these four points are as follows. 1) Land-based communities and original rural communities (the unification of these two forming the subject of control and management of forests); 2) land-based community areas and local communities (as the *territory of life*, not merely in terms of physical proximity, but also in terms of social and spiritual cultures); 3) local wisdom and lay-knowledge (for its application in the management of forests as living environments based on norms of protection of forests); and 4) law and institutionalization (as the cornerstones related to the management of forests and natural resources).

The documentation that exists needs to be added to and strengthened. Either in the context of observing the potential of AKKM or refering to the participative map that has been made by communities, and also in documenting AKKM that have been facilitated through looking at the movements and developments of local advocates pushing for the acceptance of AKKM through schemes developed by Indigenous and local communities and local wisdom. This documentation is the basis of advocasy based on the ICCA in supporting the conservation of nature and the environment as it is hoped will lead to acceptance by the public and result in greater legal protection.

"... and the policies that have been made by the government, there is an opportunity now to achieve legal protection for these traditional/ community conservation areas and the traditional/ local wisdom detailed as found in the four areas in the preceding chapters."

Beyond the work done by WGII, supporters from communities within these four areas area also active in their efforts to achieve recognition and legal protection by utilizing multiple schemes that have potential, such as social forestry, *adat* forestry, community forestry, the conservation of other areas as advocated by communities, and others.

However, in actuality, legal protection has become insufficient in helping the Indigenous and original rural communities gain control of their natural resources. We can see this in the case of MHA Barata Kahedupa, which received recognition and legal protection through the Regent Decree Number 44, 2018. Despite this, and the acknowledgement of the protection and management of natural resources by the original peoples of Barata Kahedupa of Kaledupa Island in Wakatobi Regency, in practice, MHA Barata Kahedupa still does not have any power – only in so much as their's overlaps with the authority of the local lay-priests, anyway. For this reason, the following steps need to be pushed forwards and implemented – to prompt these local lay-priests to play a role in managing natural resources and ecosystems in a collaborative and cooperative way.

In the opinion of an anthropologist from the University of Indonesia, Dr. Mia Siscawati, in the virtual discussion *TM Share,* entited *"Memulihkan Wilyaha Kelola Rakyat,"* on the 14th of November 2020, there are three steps to unlocking and restoring the living environments of the Indigenous and local communities. These are recognition, protection, and the restoration itself. Recognition is the most absolute of these steps towards this restoration. Recognition is required not just in a formal legal sense, but also conceptually, through the recognition of certain areas as *living homes*, including nature as a component among people, social structure, culture, spirituality, economy, and politics too.

"However, in actuality, legal protection has become insufficient in helping the Indigenous and original rural communities gain control of their natural resources."

Aside from this, protection is also very important – whether it is through law, through policies, or community rules and local agreements / pacts. The third step would be the work of restoration itself – through reeducation of the younger generations, and through once again lifting up women for the integral roles they play in traditional socities.

2. Cultivation of a Social Model

In one conversation, La Ode Sariu Muantiu'u Laulua, a lead figure of the Indigenous region of Kadie Laulua Barata Kahedupa, states that the capacity of MHA Barata Kahedupa is very limited. MHA may have a decent structure and the people-power to move it forwards perpetually, but it does not have significant control over the management of Wakatobi's natural resources. This is true as it applies to infrastructure,

capacity, and limitations imposed on studies of the changing ecosystems, and the deductive reasoning often employed in solving problems on land and in the marine areas of the archipelago.

The capacity required for the continuation of the MHA program may have its limits, but this does not indicate a lack of a social model in Wakatobi. The existence of MHA Barata Kahedupa, as it has been recognized by the provincial government, as well as the *adat* communities on other islands around Wakatobi, suggests a strong social model that is indeed healthy. These *adat* or Indigenous communities are still counted on by the laypriests of Wakatobi. For example, in the case of Wakatobi's National Park, organizers were forced to recognize marine areas that are important to *adat* or Indigenous groups – important under a traditional understanding of conservation. In the end this resulted in protection of these areas -- from destructive fishing practices such as using poisons or *fish bombs.*

Another example of the strength of the social model can be seen in the practices of the people of Tomia Island. Communities here overcome environmental limitations by spending a part of their time away from the island, making a living elsewhere. We can see evidence of this in the BPS data. For years population growth on Tomia Island was negative. In 2019, population growth for the Tomia regency was -0,21, and in East tomia Regency it was -0,65. This indicates that more individuals leave than arrive on the island.

"Another example of the strength of the social model can be seen in the practices of the people of Tomia Island. Communities here overcome environmental limitations by spending a part of their time away from the island, making a living elsewhere."

It is interesting that these merchants forced into travelling abroad to make a living have now formed a collective, called Forum Fotapaki, with their leading members in Maluku, Papua, Flores, Batam, and even in Malaysia and Singapore. This forum often receives donations and materials for the development of the villages, such as water basins, pipes, roads, and even a festival that takes place only once every three years. These investments may come to be hundreds of millions of Rupiah. These investments will be lauded over the Mosque's loudspeaker systems during a village festival, calling the travelling merchants home. A social model such as this is very important to those doing the difficult work of creating functional villages.

Aside from the Fotaki Forum, in Tomia there are others groups who care about the creation and management of their villages, and espeically the need to protect natural resources for years to

come. For example there is the Poassa Nuhada group of Kulati Village and the Kahianga Membali in Kahianga Village. On other islands, there are community groups striving to protect, care for, and utilize natural resources for the benefit of future generations, such as on Binongko Island, the "Binongko Fishers Forum" (FONEB) and in Wali Village; on Kaledupa Island there is the Forum Kahedupa Toudani (Forkani), the "Weavers Group of Pangilia Djalima" (Panglima) in Pajam Village, the "Commercial Fishers Cooperative" (KUN) Mantingola in Mantingola Village, and Toudani in Horuo Village; meanwhile, in Wangi-Wangi, there is the Wangi-Wangi Fishers Collective (Komanangi). Aside from these, there are many others – organizations, institutes, and individuals who are concerned about the maintenance of natural resources. Together, all of these groups exist as an integral part of an important social model.

In the three other places that were involved in the GEF SGP phase 6, also the study locations of this book, there was much variation across local social models. For those in which land-based Indigeneity was important, Nusa Penida Island needs to be recognized as strong. The people of Nusa Penida still follow place-based, traditional rules, such as observing Nyepi Segara despite being stuck in a flow of thousands of tourists. They also have many other rituals related to the management of both nature and agricultural zones. The same applies to Semau Island, where there are still many rituals and tenets supporting the preservation of nature and the future-oriented management of resources.

"Community groups and village governance working at a grassroots level shape the social model important to GEF SGP in facilitating these programs. To inspired such social interactions, the National Secretary of GEF SGP suggests a few best practices."

In other areas, even long before present-day programs were initiated, certain factions formed groups to ensure the future protection of nature and resources. On Semau Island there is a group known as Tani Dalen Mesa, facilitated by Perkumpulan Pikul in Kupang and Sanggar Melati, while in Gorontalo there is the Tani Marsudi Lestatun Group in Saritani Village, and Badan Usaha Milik Desa (BUMDes) in North Tamaila.

Community groups and village governance working at a grassroots level shape the social model important to GEF SGP in facilitating these programs. To inspired such social interactions, the National Secretary of GEF SGP suggests a few best practices. The first is to designate a host within each area. The host will function as the coordinator of the program within the area. The main aim of the host will be in consolidating a plan to support the achievement of the program's goals, organize and mobilize support channels, support and monitor the carrying out of the program, and evaluate the results from various groups of the area. The host in the four aforementioned areas, are Forkani in Wakatobi, Yayasan Wisnu in Nusa Penida, Perkumpulan Pikul on Semau Island, and the Jaring Pengelolaan Sumber Daya Alam (JAPPESDA) for the area of Gorontalo.

Each of these host also needs to utilize social connections to the best of their ability. In Wakatobi, Forkani has formed strong relationships with other community groups such as those listed above, and encouraged the creation of new groups to expand their reach, such as the Kelompok Pariwisata Famokosa in Kelurahan Rukuwa, Binongko; and the Kelompok Nelayan Mandiri ("Independent Fishers Collective") in Horuo Village, Kaledupa.

In Nusa Penida, Yayasan Wisnu ("Wisnu Foundation") helps community organizations that are competant and experienced within Bali in the in rolling out these programs within Nusa Penida. For example, Pusat Pendidikan Lingkungan Hidup (PPLH) Bali exists to boost awareness of waste-related issues and the management of the environment in Suana and Ped villages; Yayasan Kalima Jari is a foundation that manages and develops seaweed farming in Suana Village, Nusa Penida, and Jungut Batu Village, Nusa Lembongan; Jaringan Ekowisata Desa (JED), as an ecotourism venture, both manages and develops ecotourism in Adat Nyuh Kukuh Village, Suana Village, Tanglad Village, and Batu Kandik Village; Kelompok Wisanggeni91 is a group of organic farmers focused on restoring the forests of Batumadeg Village; furthermore, I Ni Timpal Kopi introduces alternative forms of clean energy in Kutampi Village and Nyuh Kukuh Village as well. Yayasan Wisnu also facilitates the creation of local community organizations such as Yayasan Taksu Tridatu, which oversees the supply of animal feed, helps in the management and rearing of cattle, and supports information centers in Klumpu Village, Kutampi Village, Adat Nyuh Kukuh, and Sakti Village.

"In Nusa Penida, Yayasan Wisnu ("Wisnu Foundation") helps community organizations that are competant and experienced within Bali in the in rolling out these programs within Nusa Penida. "

On the island of Semau, Perkumpulan Pikul coordinates across chains of organizations of community members in Kupang City to convey the procedures and inner-workings of the program. For example, Kupang Batanam is in charge of restoring the sovereignty of sustenance farming, and the reeducation of teenager girls of Huilelot Village, Uiasa Village, Onansila Village, Uitiuhtuan Village, and Uiboa Village; Geng Motor Inovasi dan Mobilizasi untuk Transformasi (GMI) communicates how to produce food, water, and energy independently in Batuinan Village, Uitiuhtuan Village, Uitiuhana Village, Huilelot Village, and Hansisi Village; Tafena Tabu is involved in organizing policies and multiparty forums for the entire program

in Semau; Yayasan Alfa Omega (YAO) provides a critical education about the environment and the creation of an ecotourism area in Bokonusan Village; CIS Timor conserves and manages fresh water in Huilelot Village, Uiasa Village, Hansisi Village, and Batuinan Village; Ocean Cozy Destination (OCD) Beach and Cafe promotes conservation along the coast, introducing ecotourism in Uiasa Village and Otan Village; Yayasan Cermin Masyarakat Rasional (Cemara) creates installations and manages fresh water for the people through the application of clean technologies in Batuinan Village.

Meanwhile, in Gorontalo, JAPPESDA supports community groups that are already in the location of the program and coordinates and mobilizes Non-Government Organizations to work in the three locations of the program, which are North Tamaila Village, Saritani Village, and Juriya Village. The organizations that are involved, such as Pusat Kajian Ekologi Pesisir Berbasis Kearifan Lokal (PKEPKL) Jurusan Biologi FMIPA Universitas Negeri Gorontalo – to manage nature resources based on local wisdom / lay-knowledge in Tumba Dusun (North Tamaila Village) and SP3 Pangea, Tamilo Hamlet (Saritani Village); Lembaga Penelitian dan Pengabdian Masyarakat (LPPM) Gorontalo University, fosters multiparty partnerships to build and manage innovative energy solutions based within the community of Tumba Hamlet; WIRE G focuses on cultivating the skills and knowledge of women and the management of future-oriented farming practices in Juriya Village; the Agraria Institute teaches awareness of local knowledge, as well as the local wisdom of farm management, in Juriya Village, North Tamaila Village, and SP3 Pangea.

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The second strategy involves the National Secretery of GEF SGP gathering together various social chanels at a national level to support the efforts of the host organizations, institutions, and grassroots movements. These parties are, among others: 1) Principia Learning Lab, which gives lessons and support in using the Strategic Alignment methodology in Development (STRIDE) and System Thinking; 2) Perkumpulan Indonesia Berseru (PIB) encourages a discussion about the investment models of development, and is also able to address environmental problems,-- especially climate change, the gradual extinction of wildlife, the drop in quality of soil for the benefit of a future-oriented economy; 3) Gajah Mada University investigates the possibilies of using technology and socialization in implementing new forms of energy production; 4) Kaoem Telapak travels abroad to evaluate the programs; 5) Terasmitra diseminates knowledge and offers experiences for partners regarding entrepreneurship for the people as a future-oriented economic strategy; 6) D-Pannel shares information through social media; 7) Sekolah Multimedia untuk Semua (Skolmus) documents and writes about the successes of the program; and 8) Kapasungu documents and publishes traditional knowledge concerning the management of nature.

The mobilization and involvement of multiple social channels, or networks, has successfully produced many actors and new groups at the local level that have both a vision and a mission to manage natural resources in a future-oriented way. Aside from this, these groups have begun to make connections, one area with another, forming a broad network. This network offers mutual support in spreading information and sharing experiences, technical support, the development of products, opening access to markets and investments, and advocating new directions, or new policies, when others are forced to make large structural changes. Included in all of this might be the construction of a new school in a small village, but with a transparent process, so that the communities can learn from the experience. For example, Rumah Belajar Bukit Keker was initiated by Yayasan Taksu Tridatu and Yayasan Wisnu, and various supporters from around Nusa Penida. Sikola Kampo was initiated by Kahia Menangi on Tomia Island. Rumah Baca Wali on Binongko, and Sekolah Kampung in SP3, Juriya, and Suana were initiated by Terasmitra.

With wider networks and greater intensity to study and work together, the potential to increase the resilience of the communities in solving crises in a certain area is slowly increasing. If it is done quickly, the strength of all of the many parties involved in this network, which was built by themselves, is becoming an exemplery social model for communities in their continued efforts to avoid disasters and protect the environment through these programs – and for long afterwards.

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3. Subsistence & Self-Sufficiency

Tumba Hamlet is at the foot of Boliyoto Mountain, in the buffer area of Suaka Margasatwa Nantu-Boliyoto. To get to this hamlet, in the center of North Tamaila Village, one must travel along a dangerous road on a customized, off-road motorcycle or dirtbike. Hills are on either side of the road, and they have been cleared and made into corn fields; even areas along the riverbanks are farmers' plots. However, once one enters into the hamlet, the ambience changes. The farmers fields have all been covered by leaves, giving the area a more natural feeling – as though one were still in the forest.

The plots of the farming community are filled with strong, tough trees – such as coconut, *pala,* rambutan, durian, *petai,*cloves, jackfruit, cacao, avocado, oranges, and seasonal plants – such as *palawija,* various vegetables, spices, bananas, and other supplies for the common kitchen. Aside from farming, the people also keep livestock, such as cows, goats, and chickens. For feed, at the corners of their crops they plant *rumput gajah* ("elephant grass"). "Our spot is far from anywhere and difficult to reach. So, we have to live from these farms. We eat what we can plant," says Rahma Dako, a female farmer from Tumba Hamlet. When the villagers go down to North Tamaila Village, they usually only need to buy some rice and salted fish.

Unlike most farmers in Gorontalo that clear the forests and plant only corn, the people of Tumba plant a colourful explosion of flora. There are a few reasons why they have chosen to distinguish themselves in this way. The first reason is that they were forced to do this in order to survive. Accessibility is limited, and this has pushed them towards subsistence farming. As much as they can avoid it, they still do purchase items from the outside world from time to time. This is how they survive in an environment of harsh limitations.

Their second reason is that the farmers can enjoy these vegetables without having to purchase seeds for the following years. "Every month there is something for us to harvest. For example, this month it's coconuts, next month it's cloves, then cacao, then durian, then coconuts again, continuing on with rambutan, and so on. There's only a little, but it keeps coming," says Rahma Dako, smiling happily.

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The third reason for planting a variety of crops is to avoid pests and infections. This reason is based on cumulative experiences from the past. When first opening new farms, they would plant, for example, soya beans and corn. "There were many pests that attacked these plants. We couldn't beat them. And it's too expensive to use pesticides forever," says Danggu Nani. The inability to destroy these pests made the people think twice about planting monocrops.

The last reason is that the planting of varied strains of vegetables or fruits has helped the farmers keep their farms, because the land where they are working is in the concession of the HTI company. It is the popular opinion of the people that, if they were to plant a monocrop such as corn at the same time as HTI did, they could be evicted. "We could be kicked off the land after harvest," says Danggu Nani. So, by planting steadfast and resilient plants that survive for tens of years, the likelihood of them being evicted becomes smaller. Aside from this, these plants have become a tool of negotiation. If the land dispute ever reaches a breakpoint then, "At the very least, if we were evicted, they'd have to pay us for our crops," says Danggu Nani.

Aside from the reasons given by the people, the practice of planting varied crops is a pillar of "*ketahanan prosumsi"* -- subsistence and self-sufficiency. This practice allows the people to detach from marketing mechanisms. In crises, when the economy plummets, the people can rely on their crops. Aside from this, by planting a variety, the people are helping to protect the environment, because the water and the soil used to grow their plants are both clean. By the same token they are not draining the soil of its nutrients as fast, and they are doing their part to stave off climate change – without having to use the habitat of Sulawesi's legendary wildlife.

These practices are also common in the Kelompok Marsudi Lestatun. This group focuses on sewing crops on the farm plots of transmigrants – as wide as two hectares per family, with a multitude of plants, including endemic plants that are disappearing from Gorontalo. Farmers have become more passionate since the arrival of COVID-19. The disruption of distribution chains to and from the cities due to limited transportation has made them more enthusiastic about their crops, which they rely on directly for food. "If we sold the harvest it'd go for cheap and we'd lose our food. So we've got to be frugal. We don't need anything from out there. If we can get it from the farm, why would we import it from elsewhere?," says Bunaeri.

Subsistence and self-sufficiency in Wakatobi, as another location of the GEF SGP program, have proven dependable solutions to contingency. Though rice still dominates as a staple, the older and more tried-and-tested food sources, such as cassava, corn, root vegetables, tubers, and fish are still on the menu – especially in Kaledupa, Tomia, and Binongko. The people still cultivate these plants for their own needs even though available farmlands are decreasing in size every year.

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Subsistence and self-sufficiency on Semau Island and Nusa Penida, however, have proven insufficient as support systems during crises. The intensification of farming to supply markets in the city of Kupang is why most farmers are planting monocultures, such as watermelons, hybrid corn, and shallots. Despite this, in the yards around the villages, locals still plant corn, nuts and beans, pumpkins and gourds, spinach, moringa, chilli peppers, basil, flowers, papaya, bananas, and others. However, if rain seasons are too long, these plants do not last, and in the dry season (*kemarau)*, they stop producing, and so the people remain reliant on Rupiah and local markets (*pasar).*

In Nusa Penida, before the pandemic, a majority of the people depended on supplies from Bali Island – even though they themselves already had farms. However, since the growth of the tourism sector beginning in 2014, many farms have been abandoned. Farmers began to cater to tourists, either starting small businesses or offering services to benefit from the bounty of money coming in. Seaweed farming has also been abandoned. Recently, following the start of the pandemic and in lieu of a sharp decline in tourism, people began heading back to their old plots and resumed farming seaweed. Farming – on land and at sea – is now the substitute, and is a means of survival.

Since its very beginnnings, the GEF SGP Fase 6 program has encouraged communities and institutions to diversify and grow crops ala subsistence farming. Activities supported by the program have promoted this return to more traditional methods. For example, farming on dry or infertile soil in Nusa Penida, Semau, and Wakatobi; the growth of seedlings and the cultivation of seaweed in Nusa Penida and Nusa Lembongan; also the farming on uneven lands in Gorontalo, through an integrated agricultural approach, and agro-forestry. These activities would have involved documentation and the revitilization of tradition – and sometimes *habitual* – practices, in managing natural resources on land and at sea. Examples are, the strengthening of the role of the *panggoba* through the creation of *panggoba*-run farmlands – for the growth of *ritual plants* and traditional medicine – in Gorontalo, and the promotion of the traditional fishing traps around Wakatobi, as a more environmentally friendly option. Other efforts encouraging the planting of a more traditional array of plants has happened throughout almost all areas of the program.

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Aside from encouraging the growth of staple foods for subsistence, the program's institutes and partners also assist in farming, or producing products, as a source of income for the local peoples. There are various ways that harvests can be utilized and processed in order to increase the value of the end products. For example, the female farmers in SP3 make crackers (*keripik)*; the women of Juriya make *corn sticks*; the people of Tumba make chocolate and VCO; Semau produces flour and *sorguhm rice*; Kaledupa exports various raw materials from mangrove forests, also root vegetables, tubers, and products of the ocean – as in Tomia, Binongko, and other places too. These *post-harvest* products are sold in local markets, village markets, distributed throughout communities in Java, and the market communities that have been built up independently.

The system of producing for self-sufficiency and subsistence is important as a foundation for the revival of cultural resilience. With this system the people are not

negatively affected by crises. The pandemic of COVID-19 has provided evidence that the market is not meant to be relied on. Now it can be seen that limited production on a local level to fulfill only the basic needs of the people through a system of limited distribution offers a means of sustainability and survival. This amounts to an integral lesson to be referenced in the planning out of steps and strategies to further promote subsistence and self-sufficiency.

4. Saving what remains of the environment

Nusa Penida has experienced a crisis of the mismanagement of natural resources in lieu of the decline of tourism, but fortunately not all natural environments have been completely altered or destroyed. The construction of infrastructure and tourism facilities without thought of natural ecosystems is most obvious along the coastlines. Meanwhile, on land, and in the interiors of the island, many places remain unchanged. At some of these locations, the forests are as they always have been, such as the forests aroudn Saab and Puncak Mundi temples in Batumadeg, which remain entact. Outside of Batumadeg Village, other forests are host to a great diversity of flora and fauna, especially near Tunjuk Pusuh Temple of Tanglad Village, Guyangan freshwater springs (Batukandik Village), Pura Puncak Mundi village (Klumpu Village), and teak and *gamal* trees (Sekartaji Village).

In Wakatobi, an area that has previously been well protected vis-a-vis complex mythologies and mysticism, has also managed to stay mostly entact. For example, the forest areas and freshwater springs of Liang Kuri-Kuri at Huntete Beach of Kulati Village, Tomia Island; Mbara-mbara Beach, Latuempo Beach, Latuempo Forest, Sampua Bueya Beach, Sampua Bueya Mangrove forest, Waode Goa Cave, Lasikori Cave, Lapungga Forest, and Bambubaruga tua Lapungga Forest, all within Binongko Island.

"Nusa Penida has experienced a crisis of the mismanagement of natural resources in lieu of the decline of tourism, but fortunately not all natural environments have been completely altered or destroyed. "

It is this way on Semau Island as well. Forest areas, though threatened by loggers and quaries (sand for construction), are still mostly protected, and this includes the freshwater springs which supply the people with drinking water and more.

Restoring and securing these remaining environments are parts of the GEF SGP Fase 6 program. A few activities undertaken by the local peoples and supported by various industries are aimed at this goal – to take care of what remains and prevent its degradation. For example, in Nusa Penida, activists from Wianggeni91, together with

the *pengempon* of Saab and Puncak Mundi temples, often hold events to raise awareness and restore forests – namely through the planting of hardwoods and plants that will serve as food for the many monkeys in the area.

Meanwhile, in Gorontalo, especially in Tumba Hamlet, activists at LPPM UNG and associated communities are building their of system of hydroelectric supply, also known as pico-hydro, to supply the people with power. This alternative was chosen precisely because it is environmentally friendly. Aside from cutting emissions, this system is also reliant on waters that flow down and through local forests, meaning that deforestation is not an option.

In SP3, there is an initiative for the usage of terrace farming methods and the planting of specific species of plants to create the balanced blend of agro-forestry that will benefit future generations. These methods reduce damage to the environment and the soil, do not disturb the wildlife, guarantee fresh air and clean water, and do their part to stave off global warming. The people are also struggling to receive permission to manage a forest area of 75 ha near their villages in order to prevent it from becoming farmland. In Tumba, the people have successfully petitioned to have 3.000 ha of forests declared protected.

"On Semau Island, the key to environmental protection is through the management of freshwater springs. One of these initiatives is under Yayasan Cemara, delivering water to the villages using environmentally friendly / clean technology. "

On Semau Island, the key to environmental protection is through the management of freshwater springs. One of these initiatives is under Yayasan Cemara, delivering water to the villages using environmentally friendly / clean technology. Otherwise, there are also advocacy efforts underway requesting that locally-owned forest lands become protected from excessive logging. Recently, the people, together with environmental activitists, and supported by Perkumulan PIKUL, held an event known as Pukun Lulin, in Uiasa Village, and a Talas ritual in Batuinan. Pukun Lulin is a ritualistic encouragement for the recognition and restoration of protected forests surrounding freshwater springs, while the Talas ceremony seeks to restore the forests of Uiutlui back to their original state: "the Earth is the meat, the rocks are the bones, the water is the blood, and the plants are the clothes."

Wakatobi provides an exemplery case for the conservation of coastal ecosystems through the *adat* / Indigenous groups of Tomia Island and Derawa. In Kulati Village, traditional peoples safeguard the waters of Ampombero as a place where fish spawn. In Derawa, the traditional communities manage the fishing of octopuses through a system of opening and closing their breeding grounds. The introduction of a more energy efficient stove in this area has also resulted in fewer trees having to be cut

down as firewood. Figures of these traditional communities join together in Sara Barata Kahedupa, also throwing themselves at the task of planting appropriately within forest areas.

Aside from these initiatives explored above, there have been many other steps made towards protecting what remains here, such as the planting of seedlings around freshwater springs, the creation of customary rules, or village regulations, to protect the enviornment, the usage of conservation-related teaching materials in schools, campaigning and petitioning various groups and figures, the creation of a forum for communication between lay-priests, and so on. Essentially, communities cannot stand idly in the face of a potential crisis that threatens the safety of the people and the environment. The spirit of collective action, though humble, across the four areas of the program, has encouraged other, similar efforts around the country and around the world.

Conclusion

If we browse through all of the intelligent practices of the communities in creating a resilient ecosystem based on the four aspects above, we will see that a few parameters offer certainty. These practices are relevant and consequential to the local situation, and can be spread through socialization, through education, and require strong leaders who also have a pioneering spirit. These parameters suggest the conditions required for these initiatives to move forwards and succeed. Of the many practices written of in this book, there are also many and varied aims, such as survival, recovery, restoration, rehabilitation, development, and even investment. Despite this, in the end, the main goal is to develop a reliable system to act as the bottom line – namely through the provision of staple foods, water, and energy.

In conclusion, what we tend to see as local lay-knowledge or Indigenous wisdom should not be resigned to the past, nor as something romantic and fixed. It is not something that needs to be gripped and adhered to in austerity into the future, what's more when challenged by novelties and technological developments. In the context of managing natural resources, lay-knowledge can be shaped, shifted, or put down and set aside. Local wisdom can be forgotten and then resurrected. However, most importantly, habits and traditions should only ever be referred to as Indigenous knowledge if these practices are a reliable means of survival for the communities and the environment.

"In conclusion, what we tend to see as local lay-knowledge or Indigenous wisdo m should not be resigned to the past, nor seen as something romantic and fixed."

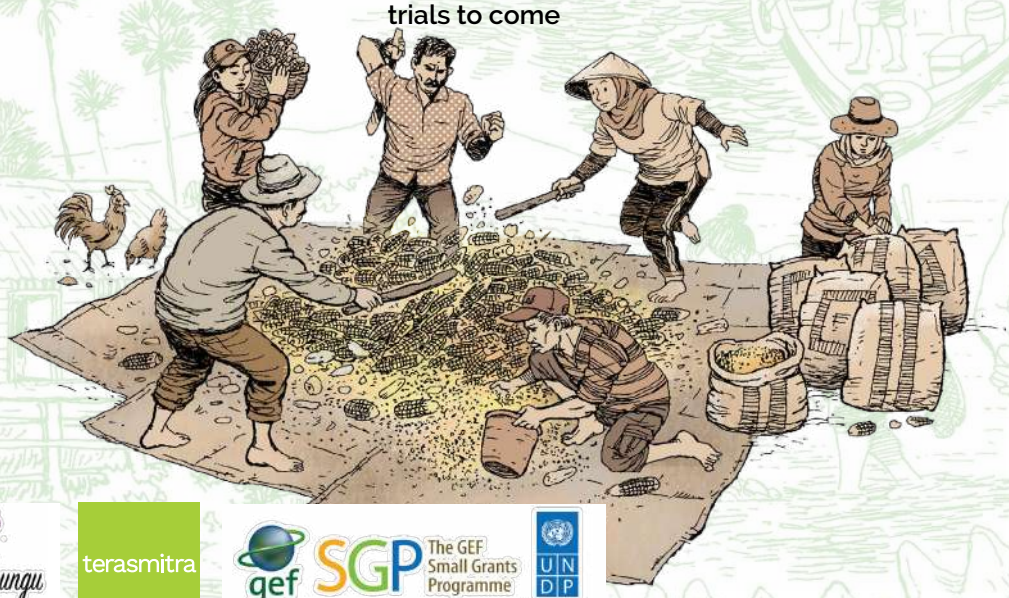
Sangia, *Hui*, the Almighty Dollar, and Readers of Stars

Documentation of Local Knowledge in the Management of Natural Wealth

"The Almighty Dollar arrived. The original God has gone. The bars are bustling, the temples are empty. Sacred dance and ceremony are now just a spectacle for tourists. We are approaching a disaster."
(Mangku Wayan Leser, public figure of Nusa Penida).

Place-based, traditional wisdom has begun to recede off of the islands of Nusa Penida, Wakatobi, Semau, and in Gorontalo. The reasons for this are many -- from tourism, mismanagement of farming methods, government programs, improvements in transportation, information availability, and even the stigmatization of folk belief and lay-knowledge. The resilience of the communities has been worn down, and they are no longer prepared for what the world will throw at them next..

This book is a compilation of these fast-fading memories of priceless, traditional, place-based systems of management, and the many ways the resilience of these communities is, or could be, revived – so as to stand a chance of surviving inevitable trials to come



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