Sea-Change: Mambai Sensory Practices and Hydrocarbon Exploitation in Timor-Leste

by

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Dedication

This dissertation is dedicated to the memory of my grandparents, Avva and Thata, and Avo Roza in Timor-Leste.

Acknowledgements

I recall the times Avva, my paternal grandmother, whiffed deeply into a piece of fruit before placing it under my untrained nose. “Here, smell it. You can tell by the smell if it’s ripe,” she said. This memory rematerialized many years later when my Mambai host mother, Roza, beckoned me to smell the fish caught by her husband in the Tasi Mane. “You won’t smell the sea when you smell our fish, you will only smell death,” Roza would often remind me during fieldwork. Not only did Roza nudge me to study the vital role of the senses in people’s perception of environmental change, she also stirred memories of my grandmother’s olfactory teachings. Roza and her family Araujo shared more than food, safety, and shelter with me; they left me with a sense of purpose in documenting and writing about the sea-change experienced by people at the margins of international concern.

As an adviser once shared with me, an acknowledgement is the materialization of our lived memories. I am indebted to many people and their sensory practices throughout the completion of my doctoral work and dissertation. My greatest debt of gratitude is to the many Mambai residents of Betano and the highlands. While my host family would have welcomed another fisher into their community, their trust and generosity made my research possible. I am grateful to the fisher families and especially Marcelo who took me under his prow and allowed me to accompany him on daily fishing trips. Because of his training, I learned to listen to the waves and smell the fish. I left Timor-Leste with a different sense of balance than the one I came with. It is my hope that my newly acquired Mambai sense of balance will be adequate to process my grief when I think about Mario, my first friend and interlocutor, and his untimely death

during my fieldwork. More health care centers and preventative services are necessary outside of the capital, Dili. To the Mambai, major debts must be repaid threefold throughout the course of one's life. This dissertation barely makes a dent to my balance and I hope to make satisfactory payments to the Mambai henceforth.

In Dili, I am thankful for spirited and much-needed discussions and consultations with Timorese youth and recent university graduates, in particular Berta Antonieta, Mica Soares, and Guteriano Neves. I recall the many topics we discussed, including extractive development along the south coast, their memories of violence and trauma, their efforts on community health and well-being, geopolitics, and where to find a cold beer. Special thanks to the lively academic and support community in Dili, including Dr. Helen Hill, John Miller, Endie van Binsbergen, Charles Scheiner, Joshua Trindade, Fidelis Maghales, and the staff members of La'o Hamutuk. For hospitality and company, I thank Tricia Johns, Tracey Morgan, and José Ramos Horta, the former President of Timor-Leste. I also thank Tom Hyland, for working his *malae bo'ot* magic for my research visa.

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set the bar as an adviser and I plan to follow suit in my role as a college faculty member. In addition to Stuart, Webb Keane has been outstanding in his mentorship and advising during my time at Michigan. Webb often recollects meeting me for the first time at the Annual Meetings. I recall wearing a suit that hid my nervousness. Though my attire has changed much since our first meeting, Webb's commitment to my project and his sharp and insightful critiques have remained steadfast. Like Stuart, Webb encouraged me to pursue my own intellectual trajectory and to write with confidence. I am forever grateful for our many conversations on topics close to our fieldwork and for instilling in me the merits of good ethnography to raise new questions on the human experience.

My dissertation also benefited greatly from conversations with members of my committee including Erik Mueggler and Maria Lemos; I thank Erik for his critical insights and lucid conversations as well as his astute comments on this dissertation. Though Maria joined my committee at a later stage, she was vital in helping me frame my arguments to a broader audience interested in pollution and environmental problems. I thank her for helping me shape my dissertation and her mentorship in the final stages of the dissertation. At Michigan, I am also grateful to the many conversations over the years on perception and sensory experience with Matt Hull, Krisztina Fehervary, Alaina Lemon, Michael Lempert, Bruce Mannheim, Holly Peters-Golden, David Akin, Tom Trautmann, Damani Partridge, Mike McGovern, Barb Meek, Rudolf Mrazek, and John Mitani. In particular, Gillian Feeley-Harnik, provided stellar comments on chapter 3 of this dissertation.

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found in Warren Thompson, Adrian Deoanca, Obed Garcia, Georgia Ennis, John Doering-White, Matan Kaminer, Adrienne Lagman, and Barry Brillantes. Keep smelling the future! I further thank Stuart Kirsch and participants in the Michigan's Ethnolab workshop for their insights and feedback on many of my chapter drafts, including Allison Caine, Drew Haxby, Aleksandr Sklyar, Jessica Lowen, Jessica Worl, Jennifer Tucker, Nishita Trisal, Nicholas Caverly, Sonia Rupcic, and Ben Hollenbach. My sincere thanks to Andrew Foster for listening to multiple versions of my arguments over the years.

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Finally, I thank my parents and my grandparents for socializing me into their sensory worlds. As I look toward the future, I thank Renee Morss for being the most supportive partner I could have asked for during the chaos of dissertation writing. Amidst love, trails, and fried chicken, I can't wait to continue our sensory journey together.

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Note on Languages and Transcription

The languages spoken in the Betano subdistrict are the Austronesian languages called Mambai, Tetun, and Bahasa Indonesia. In 2015, there were an estimated 196,000 Mambai speakers living in Timor-Leste, about 6-7% of the total population.[1] I learned Mambai without access to any official guides or formal instruction. There are three publications about Mambai; two are in English, and one is in Bahasa Indonesia; these publications are written for tourists and offer some support with basic phrases and grammar. I learned to speak Mambai through daily communication during fieldwork. I had four years of formal classroom training in Bahasa Indonesia in Singapore and one year of formal training in Tetun in Dili, Timor-Leste.

The lack of published documentation of the Mambai language poses a problem for transcription. I carried out transcription with the help of Mario, Alberto, and Lica, whose assistance has been invaluable. I have tried to be as consistent and systematic as possible, but my transcriptions, especially of ritual speech, reflect my own idiosyncrasies as a listener. I have tried to resolve any remaining questions of transcription by modeling the spelling of Mambai words and language on the spelling of the national language, Tetun. I made this decision based on the close interactions between Mambai and Tetun speakers.

My fieldwork was conducted in Mambai, Tetun, and Bahasa Indonesia. Mambai residents in Betano typically use a mixture of Mambai and Tetun in their everyday communication. As

[1] National Statistics Directorate (NSD) and United Nations Population Fund (UNFPA), Population and Housing Census of Timor-Leste 2015. (Dili: NSD and UNFPA, 2015).

such, I have not marked the languages as being non-Mambai or non-Tetun words unless the speaker specifically recognized them as such. Ritual speech was always delivered in the Mambai language.

Abstract

This dissertation is a study of the ways that Mambai in southwest Timor-Leste *sense* and *make sense* of the socioecological changes in their lived environment. It pays special attention to the ways that sensory practices become fundamental to the lived experience of the Mambai, especially given the sea-change infringing upon them. Whereas prior research on the senses has treated them as secondary to the study of exploitative extractive development, this dissertation bridges phenomenology with sensory studies to argue for the primacy of sensory knowledge to Mambai efforts to overcome the uncertainty wrought by transformations in their socio-ecological relations. Embodied, sensorial experiences—sights, sounds, scents, tastes, and textures—of the lived environment are part of Mambai intangible cultural heritage that shapes how people define and confront extractive megaprojects and their consequences.

Since 2011 the coastal town of Betano and its hamlets, inhabited by over 5,500 members of the Mambai cultural group, have been undergoing preparations for a hydrocarbon infrastructure complex along their oceanic location. This complex is known as the Tasi Mane Petroleum Project, an on-shore cluster of power plants and refineries built on and alongside settlements, that supports off-shore hydrocarbon extraction operations. Assisted by the Timor-Leste state's appropriation of Mambai homestead and agricultural land for its operations, the project has transformed subterranean material into profitable products for the national and private oil companies. Unfettered profit, however, comes at a cost to the current residents. The project has released olfactory, sonic, and metallic pollutants into the atmosphere and ocean, and has challenged Mambai residents' familiar sensory practices in their place of dwelling,

contaminated the marine life that residents depend on for subsistence and income, and threatened their existential security with ongoing land appropriation and displacement from their homes. Combining over three years of ethnographic research with participatory GIS-GPS mapping of pollution, I trace how the Mambai perceive socio-ecological changes and grapple with extractive megaprojects and livelihood diversification. This dissertation argues that the sensorial practices of my interlocutors are fundamental to their efforts to confront megaprojects for hydrocarbon exploitation.

Introduction

"Ask your questions later. Right now, I want you to do something for me, ok, brother?" I nodded to my new friend Mario.[2] Speaking in Bahasa Indonesia, Mario continued "Ok, when you are ready, close your mouth and breathe in through your nose. A big, long draw. Good?" I closed my eyes and breathed in the salty air that wafted in from the *Tasi Mane* (Male Sea) on the southwest coastal town of Betano, Timor-Leste.[3] "Now, as you begin to breathe out, I want you to raise your tongue to the roof of your mouth and open your mouth, but just a little. Slowly, breathe out of your mouth, slowly. Listen carefully to your breath that you're pulling out. It is an 'eeesss' sound. That is the sound of breath, of life, and *iis* is the Mambai word."[4]

"Eeess" I exhaled, tasting the tanginess that hung in the air. It was May 18, 2006. I was standing next to Mario, on the grey sand beach that lines the shores of the Tasi Mane. I watched him scan the aquamarine sea until he spotted a black speck of a fishing boat. "Ah! They're coming back. Maybe they have some good fish for us. Are you guys staying for lunch?" he asked. Mario was referring to the seven men in the background, four of us were from Singapore, two men were from Bangladesh, and two men were from Mozambique. Together with our light tanks, we were part of a United Nations Peacekeeping (UNP) mission to the south coast of Timor-Leste. In the aftermath of unrest and violence in the capital Dili in 2006, our mission was

[2] I use pseudonyms throughout this dissertation.
[3] Tasi Mane, literally the Male Sea, refers to sea on the south coast of Timor-Leste. Also known as the Timor Sea, it separates the continent of Australia and Timor Island. Tasi Feto (the Female Sea) refers to the Wetar Strait.
[4] Although *pnel* is the Mambai word for "smell," it is no longer used by people for everyday speech or in ritual speech.

to provide security services to the World Food Program (WFP) and ensure that WFP personnel were allowed to distribute food and medical supplies to people.[5] At the time, I was a conscript in the Singapore Military as part of the country's compulsory national service policy for men aged 16.5 years and older. Several months earlier, my Singapore unit was selected to be re-trained for the UNP mission since we were among the countries closest to Timor-Leste with "combat-ready" tank support formation. Mario was a Mambai fisher who was also working as a local consultant with the WFP. His family lived in Betano and his knowledge of the area and generosity in hosting us proved invaluable to the UNP mission. Mario and I formed a friendship over lunch that day and over the years, he became one of my closest interlocutors. I left Timor-Leste in November of 2006 promising Mario that I would return as a civilian.

When I stepped back onto the shores of the Tasi Mane in 2010 and again in 2012, something about the air had changed. "Don't breathe in too much," warned Mario, speaking to me in a mix of Tetun and Mambai. We had just returned from a successful early morning fishing trip after netting tuna and shrimp. I laid out by the beach to rest and catch my breath after hauling in the heavy aluminum boat. Mario stared at me. "Don't breathe in too much," he repeated. I asked him what he meant. Shaking his head Mario replied "Something is changing, brother. Don't you smell it?"

"Smell what?" I asked, still unsure about what he was referring to.

"It smells bad. Something is changing in the air, and it smells bad."

"What do you mean 'it smells bad'? What's changing?" I asked, repeating his words.

[5] The roots of this violence lie in complaints of state mismanagement and discrimination against Timor-Leste's soldiers who hailed from the western districts of the country. Beginning in early February 2006, the soldiers' initial protest and demonstrations at the Government Palace in the capital erupted into protracted violence that expanded beyond the military and involved members of the police force, rival gangs, and civilians in Dili and in the surrounding districts. Violence ceased in late June of 2006, following intervention by the United Nations and the resignation of Prime Minister Mari Alkatiri.

"Many changes are coming here. Don't you smell it? The change smells bad. It smells of death. I don't want to smell like death" he replied, moving away from the shore.

Although I was puzzled about the significance of smelling of death, I found that I could not stop thinking about Mario's request that I practice caution when breathing in the Betano air. Mario was right. Sea-change was coming to Betano. It was nearly impossible for me to smell and sense the changes because of my original impression and assumption of Betano as a sleepy, Mambai fishing town.[6] As I would later learn, experience, and smell, the Timor-Leste government and its national oil company TimorGAP were planning to transform Betano as part of their Tasi Mane Project—a series of hydrocarbon infrastructure development projects that will form the backbone of the domestic petroleum industry on the south coast of Timor-Leste.

This dissertation is a study of how Mambai *sense* and *make sense* of socioecological changes in their lived environment. It pays particular attention to the ways that Mambai sensory practices become fundamental to the lived experience of the Mambai, especially given the sea-change infringing upon them. By posing the question, "what does change *smell* like?" this dissertation examines the embodied ways that people perceive change. As the chapters illustrate, to Mambai residents in Betano, Timor-Leste, the sea-change introduced by oil and gas extractive megaprojects reeks of death. Whereas prior research has treated the senses as secondary in the study of exploitative extractive development, this dissertation develops the concept of "sensory practices" to bridge phenomenological approaches with political ecology to argue for the primacy of sensory knowledge to Mambai efforts to overcome the uncertainty wrought by transformations in their socio-ecological relations. Embodied, sensorial practices around scent,

[6] The trope of imminent changes in a 'sleepy' fieldsite may be compared with James Ferguson. 1999. Expectations of Modernity: Myths and Meanings of Urban life on the Zambian Copperbelt (Berkeley, University of California Press) and Angie Bexley and Maj Nygaard-Christensen. 2013. Introduction to "Engaging Processes of Sense-making and Negotiation in Contemporary Timor-Leste," Asia Pacific Journal of Anthropology, 14(5):399.

sound, vision, taste, and balance are part of Mambai intangible cultural heritage that shapes how people define and confront extractive megaprojects and its consequences in Timor-Leste.

Locating Betano and the Mambai in Timor-Leste

The Democratic Republic of Timor-Leste is situated in the easternmost tip of the Lesser Sunda islands (see Figure 1). Its territory also includes the islands of Ataúro and Jaco, and the exclave of Oecussi, in Indonesian West Timor (see Figure 2). Timor-Leste sits at the crossroads between Southeast Asia and the Pacific region, about 380 miles northwest of Darwin, in Australia, about 390 miles east of the Indonesian island of Sumba, and about 1,200 miles west of Papua New Guinea. Timor-Leste's terrain features its highest peak located at the center of a mountain belt stretching across the interior; the Mambai call this peak Tatamailau, which stands 9,797 feet (2,986 meters) in elevation. Timor-Leste's south coast, where I conducted fieldwork, has a hot, tropical climate consisting of a dry season with slightly cooler temperatures (between 68-91 ℉) between the months of May and November. The temperatures in the highlands have also been known to dip into the low 60s. Monsoon rains between December and March cause frequent floods and landslides and regularly destroy roads and bridges, especially in the interior, affecting travel even along the most frequently used routes. This is contrasted with periods of droughts that lead to *bailoro* ("dry, hungry season") between November and March.

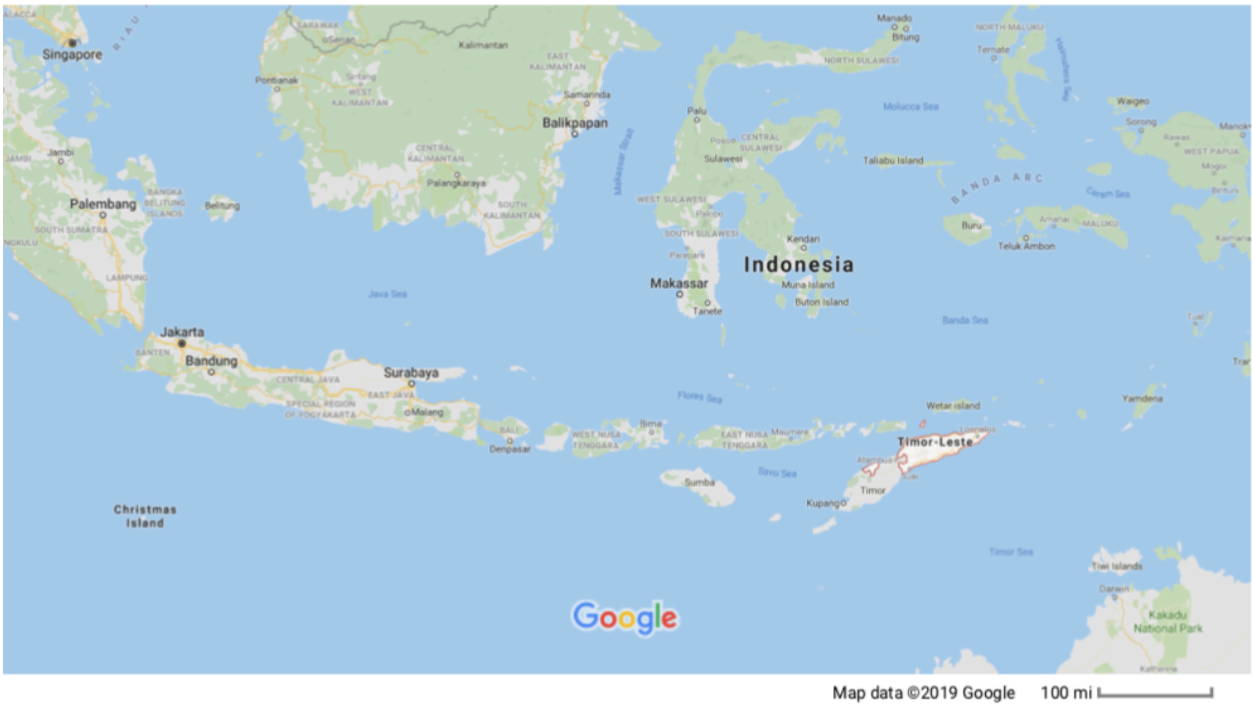

Figure 1. Timor-Leste in Southeast Asia for Regional Context [Map Data©2019 Google]

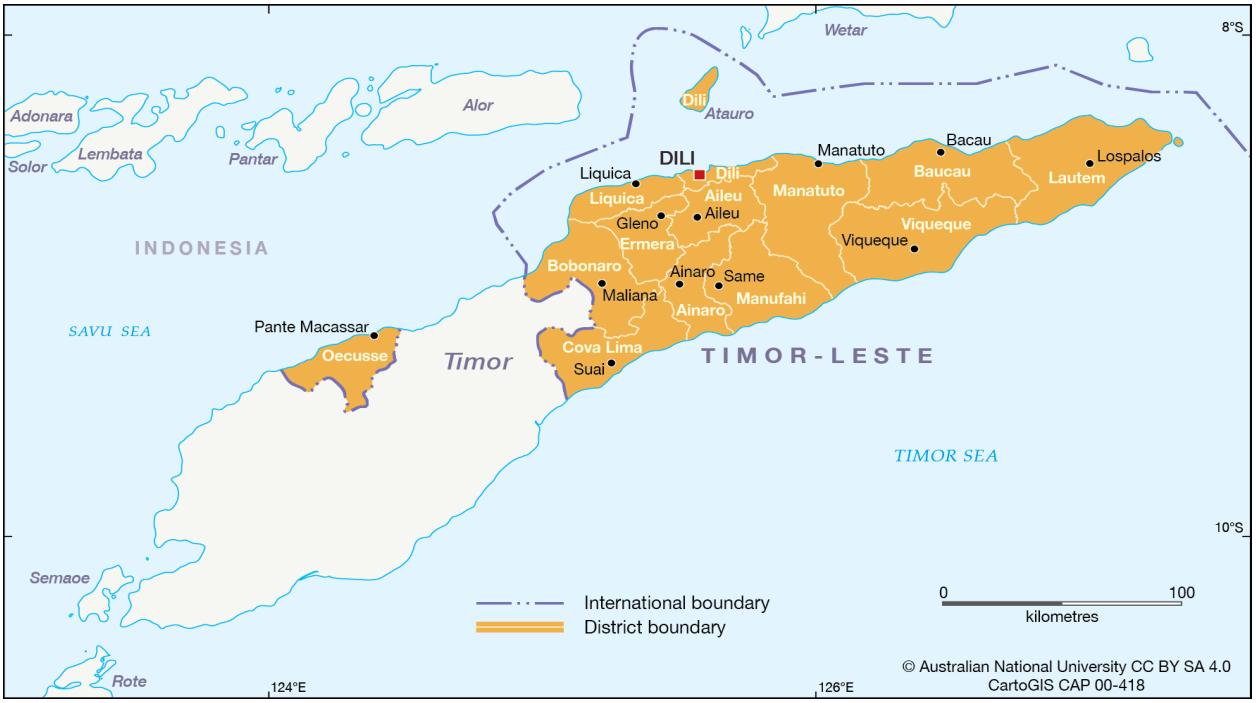

Figure 2. Timor-Leste with Districts [Map Data©Australian National University, accessed April 2019]

The capital city Dili is situated on the northern coastal plain in the Banda Sea, which Timorese people call Tasi Feto, the calmer "female sea." Adjoining the grey sand beaches of the south coast is the Timor Sea, or Tasi Mane ("male sea"), which is known for its rough, choppy waters. Since gaining independence in 2002, Timor-Leste's population has grown to about 1.3 million people, of which about 220,000 live in Dili. Over 30 different languages from 3 distinct language families (Austronesian, Indo-European, and Trans-New Guinea) are spoken in the country. Of these, the national language Tetun (an Austronesian language) is most widely spoken by about 91% of the population and serves as a common language throughout the country. Portuguese, the colonial language and an official language of the state, is spoken by about 16% of the population, while about 40% are fluent in Bahasa Indonesia after 25 years of Indonesian occupation from 1975-1999 (NSD & UNFPA 2015). Mambai is used in the Manufahi district and is estimated to be spoken by about 13% of the population. Although Mambai settlement pattern along the southwest coast began with the Manufahi rebellion (1911-1912), Betano was only established as a town after 1975 with forced resettlement from the highlands. During my dissertation fieldwork (2015-2016) in Betano, people typically communicated in a mix of Tetun, Mambai, and Bahasa Indonesia.

Betano is a breezy oceanic location populated with downward sloping deciduous trees (*ai-mamar*, *ai-muti*) and lowland grasses, which transition to coastal mangroves and beaches before blending into the lively sea. Residents in the five hamlets of Betano (population 5,500) live with various flora and fauna. Predominantly semi-subsistence horticulturalists and fisherfolk, residents' basic staples are fish, rice, breadfruit, cassava, and sago. Simultaneously they are integrated into a monetary economy, and selling fresh fish, dried anchovies, copra, and palm wine is their main source of cash income. Imported cattle, water buffalo (*karau*), goats

(*bibi*), pigs (*fahi*) and chickens (*manu*) are also widely raised for food. Cattle, water buffalo, and pigs are valued as forms of wealth and are given in house-based ritual practices involving marriages and deaths (see chapters 3 and 4). Mambai communities in Betano are deeply entangled in the kin-based networks linked to their rural villages (*knua*) and houses (*uma*) of origin. Indeed, Timor could be conceptualized as a "kin-based society" insofar as urban Timorese regularly refer to and address each other using age-specific and (partially) gendered kin terminology.[7] More accurately, Mambai families in Betano are part of a "house-society" of the sort described by Lévi-Strauss and various other scholars of Southeast Asia, since all Timorese belong to named ancestral origin houses dispersed across the landscape, and from which they derive their social status, identities, rights, and obligations vis-à-vis other Timorese people.

During my fieldwork, I found Elizabeth Traube's (1980, 1986) discussion of kinship in the highland Mambai communities to resonate with practices in the coastal Mambai communities. As the only other anthropologist to have worked with the Mambai, Traube's work was instrumental in my own research and fieldwork among the coastal Mambai communities. Among the Mambai in Betano, as with neighboring Austronesian societies in eastern Indonesia, ritual exchange is embedded in affinal relationships. Along with Traube (1986), I observed a strong preference for Mother's Brother's Daughter (MBD)/Father's Sister's Son (FZS) marriage, although alliances were also made with totally new lines. I describe an instance of this in chapter 3. In some of these marriages, I observed that an unrelated woman is classified as MBD once married. Similar to groups neighboring the Mambai, prestation is involved in relations between

[7] These include *maun* ("older brother"), *mana* ("older sister"), *alin* ("younger sibling"), *tiu* ("uncle"), *tia* ("aunt"), and *avo* ("grandparent").

lines, generation after generation, mainly in the form of mortuary payments, as well as bridewealth, and male ego continues to be responsible for the prestations arising from his own ascendants' marriages (see also Clamagirand 1980; Forman 1980; McKinnon 1991). I also observed a ban on FZD (Father's Sister's Daughter) marriage. Similar to Traube's observations, marriage between families of the bride and groom were also rooted in barlake exchange practices, which fundamentally prescribe Mambai sociality. As Elizabeth Traube described it:

> Every named ego-group recognizes three mutually exclusive categories of persons: *kaka nor ali*, "elder and younger brothers," including groups claiming agnatic relations and those sharing an affinal link with ego; *umaena*, "wife-givers," including all groups from which ego has received women; *maen heua*, "wife-takers," including all groups to which ego has given women. Thus, any descent group may be defined as a male-ordered unit embedded in a wider social universe through the movements of women.
> (Traube 1980: 95).

However, I also learned that several families (including my host family) anticipated forced removal from their costal homes by the Tasi Mane project and thereby sought new alliances with highland Mambai families. While the wife-givers are generally recognized by the Mambai as superior in status to the wife-takers because of their gift of life and fertility, the situation on the coast resulted in a reversal of status between wife-giving and wife-taking families. For example, if a coastal wife-giving family sought a highland wife-taking family, the wife-givers' status was recognized as inferior in relation to the wife-takers. I also observed that the inferior status position of the coastal wife-taking families remained the same if they sought wife-giving families in the highlands. In Figure 3, I have provided a kinship diagram showing the affinal alliances.[8]

[8] I produced this kinship diagram in consultation with the Mambai families I lived with and through my long-term fieldwork with coastal. Mambai communities.

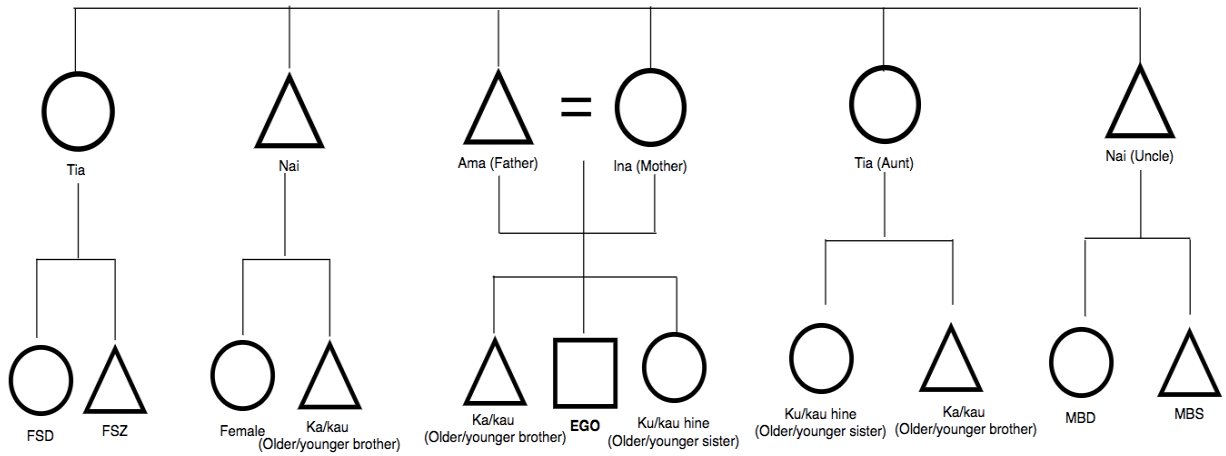

Figure 3: Mambai Kinship Diagram

Traube conducted fieldwork between 1972 and 1974 among the highland Mambai communities in the Aileu district, about thirty-two kilometers south of the capital Dili and about ninety kilometers north of my field site. Traube's (1986) ethnography, titled "Cosmology and Social Life: Ritual Exchange among the Mambai of East Timor," reflects her own fieldwork experience, in which she was drawn into a study of ritual and myth with the aid of two Mambai men, both ritual specialists, who became her primary interlocutors. Traube's focus was on the cosmological themes embedded in Mambai myth and ritual exchanges. The purpose of her study was "to preserve and convey the integrity, the wholeness, the total character of a set of ritualized exchange contracts that link persons with other persons, social groups with other groups, and human beings with the cosmos" (Traube 1986: 4).

In describing Mambai ritualized exchanges, Traube finds their ritual cycles divided into two complementary halves, known as the *buti* (white) and *meta* (black) rituals. "White" rituals are concerned with the fertility of humans and agricultural land while "black" rituals include the mortuary rites of death and ceremonies of the afterlife. Through ceremonies to honor a group of ancestors, "white" and "black" rituals are bridged transforming the ancestors to become a source

of fertility. In her writings on "black" rituals and mortuary practices, Traube focused on the ritual obligations surrounding death that extended maritally contracted affiliations into social space and time; her analysis and conclusions departed from the established anthropological endeavor to uncover rules that determined affinal possibilities and constraints and instead contributed a new perspective on how mortuary practices formed the very essence of marital alliances. In chapter 4 of this dissertation, I describe changes to mortuary practices among the Mambai and analyze a mortuary ritual following death of one of my key Mambai interlocutors. While Traube's analysis relied on the knowledge of ritual specialists, my chapter emphasizes often overlooked sensory experiences in mortuary practices.

Traube also wrote about a number of other themes that are of comparative interest in my dissertation. As I write in chapter 2, the predominance of botanical metaphors of "trunk" and "tip," like the trunk and branches of a tree to different contexts of Mambai life equally apply to Traube's interlocutors and mine. Understanding ritual, according to Traube's interlocutors, required a movement from the "tips" to the true "trunk" of knowledge, where all would become clear and unified. Traube described the way in which the Mambai wove the Portuguese into their botanical metaphors, seeing them as descendants of their ancestors. Importantly, this was a way for the Mambai to reconcile themselves to the presence of the Portuguese as legitimate rulers and participants in prestation. In my own research, I found my interlocutors turning to botanical metaphors of "tip" and "trunk" to understand hydrocarbon exploitation, infrastructural development, and the presence of the state and the hydrocarbon industry.

There is a key way that my dissertation departs from Traube's writings. In her pursuit of the "meaningfulness" of Mambai ritual life, Traube "came to believe in univocality and closure with ever increasing fervor" (Traube 1986: 236-237). The search for closure, for the "trunk" of

symbolic understanding which her interlocutors urged her to attain, renders a rather static, synchronic picture of Mambai life. As she details in her book, her research with the Mambai was cut short due to the Portuguese departure, Indonesian invasion, and sociopolitical turmoil that followed in 1975; Traube returned to Aileu in 2000 and had made periodic visits ever since, focusing on how narratives of the colonial past continue to shape lives in post-independence Timor-Leste. Although the questions that motivated structural anthropology and Traube's early ethnography are not what I'm pursuing in this dissertation, our interests align in the effort to understand how the Mambai sense changes in post-independence Timor-Leste.

Infrastructure and Hydrocarbon Exploitation on the South coast

My field site of Betano can be located in terms of Mambai people's sensory engagements that shape their "senses of place" (Feld and Basso 1996). In chapter 1, I discuss an origin story involving the anthropomorphic topography of Timor-Leste. The story introduces the centrality of smell to the Mambai and the paradox around the indispensability and deadliness of *hoe*—a very particular form of malodor that gains new significance from people's sensorial experiences with infrastructure development and hydrocarbon exploitation. In discussing the origin story, it becomes clear how the smell of two dead bodies should be so overwhelming as to set in motion a chain of events that make life on the eastern part of Timor possible. Malodors play a pivotal role in another origin story, which tells of forced migration from their villages in the mountains to the present coastal town of Betano. It relates how the original Mambai village in Lekitehi (near Same) was attacked by the Indonesian military in 1976. The numerical superiority of the Indonesian soldiers left hundreds of Mambai dead. The military offered the surviving Mambai to stay in their village or move south. The dead and rotting bodies of Mambai family members, however, were left un-buried and soon the smell became overpowering—*hoe* completely spread

and infected the village, forcing the Mambai population to move, leading to their resettlement in the coastal town of Betano. Some 45 years later, Mambai residents in Betano are experiencing *hoe* emanating from extractive industries and infrastructure development in their place of dwelling.

Since 2011, Betano and its residents have been undergoing preparations for the Tasi Mane development project—an on-shore petroleum infrastructure complex along the south coast of Timor-Leste, while off-shore petroleum operations have been in operation since 1998 in the Timor Sea (Guteriano and Scheiner 2005). The project connects Betano to two towns along the coast, Suai to the southwest of Betano and Viqueque to the northeast, with each having various infrastructure and roles in the petroleum industry (See Fig 3 for Tasi Mane Project). [9]A refinery, petrochemical complex, and a new town named Novo Betano are planned to be constructed in Betano, though at the time of writing, official construction has yet to commence on the refinery. Nova Suai will provide logistics and maintenance for the industry while Nova Viqueque will house a Liquefied Natural Gas (LNG) plant (See Figure 4).

[9] Cryan (2015) and Fundasaun Mahein (2013) have written about the development efforts in Suai and Viqueque, including the social and economic effects of the Tasi Mane project to residents in these towns. Scheiner (2014), an American researcher with extensive first-hand knowledge of Timor-Leste, has detailed the socioeconomic and political effects of resource extraction in Timor-Leste.

Figure 4. Map of the proposed Tasi Mane Project, Courtesy of La'o Hamutuk

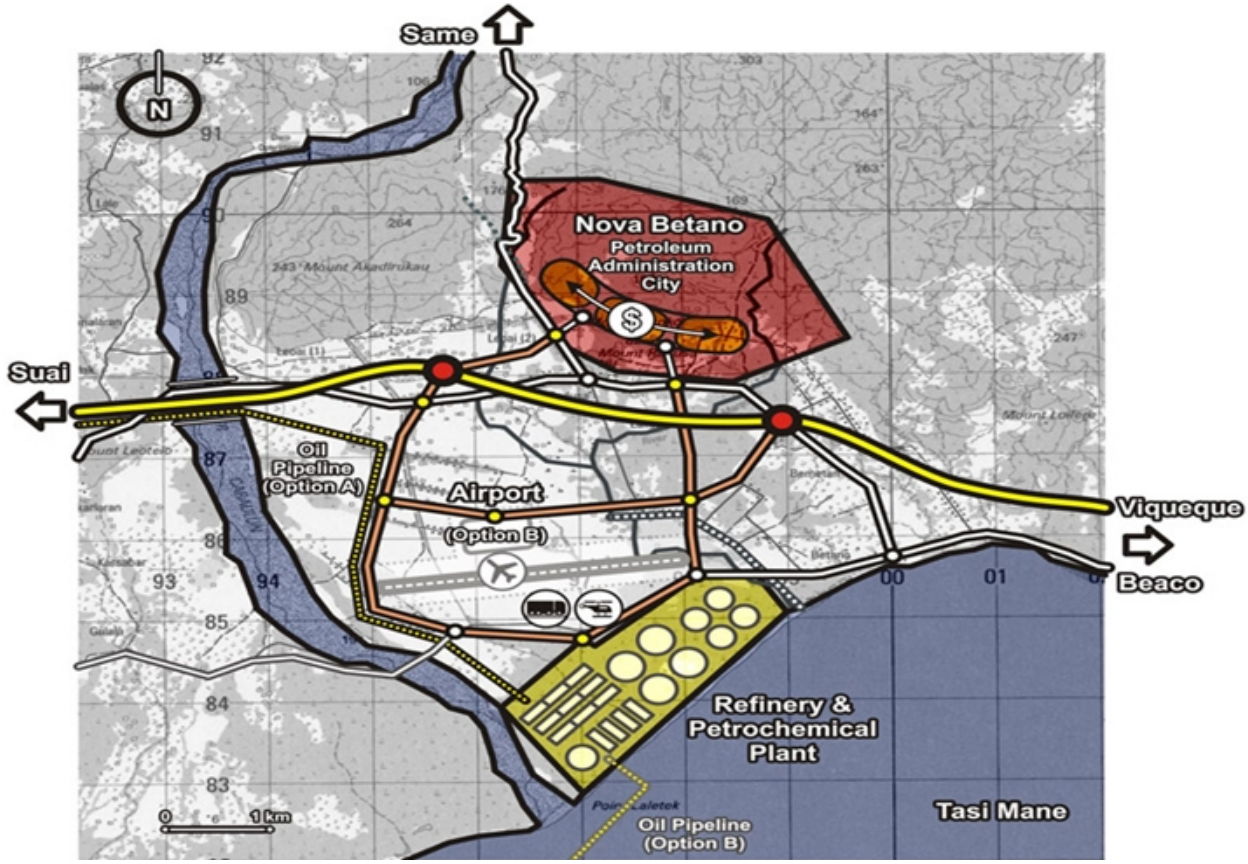

Figure 5. Map of Novo Betano, Courtesy of La'o Hamutuk

In June 2011, contractors of the national oil company TimorGAP appropriated 16 hectares of land (approx. 40 acres) for future infrastructure projects in Betano. In 2013, the Betano power station was completed on the site to support the future construction of the Tasi Mane development project and households in the region. The construction was carried out without a prior environmental impact assessment and released considerably felt sonic and olfactory pollution into the environment and. Other preparations for the development project include "socialization" visits by TimorGAP to educate the public on the petroleum resources in the region, make announcements for the development project, conduct preliminary impact surveys, and identify more land for future infrastructure construction (La'o Hamutuk 2012).

The presence of oil is not news in Timor-Leste and even influenced support for the country's independence from Indonesia. During the 1960s and 1970s, the Australian company Timor Oil searched for onshore oil deposits along the south coast, including in Betano; however, none of the deposits identified were deemed to be economically viable at the time.[10] Hence the presence and potential of oil itself was not news to residents in Betano and during fieldwork elder residents frequently acknowledged the historical presence of oil in their lived environment. What was new, however, were the felt atmospheric impacts and socioeconomic insecurities that accompanied oil. During my fieldwork, Betano residents frequently associated malodors intruding on their familiar sensorium with the Betano oil power station and the offshore petroleum facilities. Given these developments, my Mambai research collaborators' greatest concern was that the planned Tasi Mane development project in Betano would intensify malodors and atmospheric pollutants, affect food security, and drive residents to destitution.

[10] Drawing from materials in the National Archives of Australia and interviews with officials, Kim McGrath (2017) details Australia's resource claims in the Timor Sea.

As I describe further in chapter 2, "socialization visits" are also part of Timor-Leste state's efforts in establishing its presence in the Betano region. During my fieldwork I attended all three visits, which were organized by TimorGAP and the state. I learned from my Mambai interlocutors that the inaugural meeting was announced via a phone call from a TimorGAP representative to both the Administrator of the Manufahi municipality and the Betano chief Taur. In addition to announcing the meeting, the representative requested the administrators to organize a town meeting and to cater a lunch for the TimorGAP and Timor-Leste state delegation, assuring the administrators that monetary funds will be provided for catering and the event. In a personal communication, Chief Taur shared with me that the delegation's purpose was to discuss the development plans with the residents and to hear their concerns. "But this was not the first time they [the state] has asked us to do something for them," Taur added. He continued:

> When they built the roads without consulting us first, they asked us [the town's residents] to organize a ceremony to "socialize" us to the roads. But when we asked them before [the Tasi Mane project] about what they will do about our food shortage and *hoh* air and water, they did nothing, they never visited. It's clear to me. When they want something, they will ask. When we need something, they will avoid us. Whether we want development or not, there's nothing we can do about it. All of us have fought for this country and now the only way the government helps us is by taking away our land, water, and air. If the Tasi Mane project is how the government shows itself to the people, then it makes me very sad. All that we have fought for is for nothing.

Taur's comments resonated with many other Mambai interlocutors I've spoken to during my fieldwork. Collectively, my interlocutors' experience the state as an entity that "shows itself to the people" only when it wants something and fails to account for people's concerns and needs beyond the Tasi Mane project. The state makes its presence and expectations known to my interlocutors through the development project, while disregarding its other obligations to maintain and improve the living conditions of the people.

Echoing my interlocutors' statements, Bovensiepen and Nygaard-Christensen (2018: 3) have proposed the Tasi Mane project to be "manifesting and *producing* statehood" (emphasis in original text). Bovensiepen and Nygaard-Christensen find that the development project exemplifies what Danilyn Rutherford (2012: 10) has called the "paradox of sovereignty," where sovereignty is defined as "supreme and absolute power." Bovensiepen and Nygaard-Christensen suggest that Timor-Leste's history of occupation, record of receiving external aid, UN administration, and status as a newly independent nation state have prompted political desires to be externally recognized as a sovereign nation. Building on Rutherford's work, they find that sovereignty, the desire for "supreme and absolute power," and full autonomy to be paradoxical with wanting external recognition by other nation states. For Bovensiepen and Nygaard-Christensen, it is the "paradoxical dual desire for full sovereignty and external recognition" that fuels the Timor-Leste state's attempt to complete the Tasi Mane project.

The "paradox of sovereignty" is also at the heart of what I call "hydrocarbon exploitation" in my dissertation. I define exploitation as acts of making the environment (for example surface and subterranean land, water, and atmosphere) more profitable to some actors over others. The state's exploitation of natural resources like hydrocarbons pivots upon their dual ability to have access and control of land and waters currently occupied by residents while showing to the residents that the state is acting in the best interests of its constituents. For example, in exchange for residents' land to construct the Tasi Mane project, the state and TimorGAP delegation have promoted the positive impacts to affected residents in the form of prepaid electricity, clean drinking water, and new homes. However, at time of writing, Suai and Betano (in Figure 3) are the only towns where there have been concrete buildings as part of the project. An airport and highway have been under construction in Suai while a heavy oil power

plant and roads have been constructed in Betano. Meanwhile, the state has appropriated land for the project from Betano residents and off-shore oil operations have restricted access to preferred fishing areas, contributing a pervasive sense of disquiet among residents who anticipate increased state surveillance of their lives. My argument on the paradox of sovereignty in hydrocarbon exploitation thus draws from and builds on studies that show how natural resource extraction interacts with and produces particular state institutions, megaproject plans, and environmental degradation (Coronil 1997; Mitchell 2011; Sawyer 2015; Weszkalnys 2011, 2014). In my dissertation, I show how even prior to the project's actualization, there are sensory and environmental effects detrimental to my Mambai interlocutors' livelihood and wellbeing. At the same time, I show how people's sensory perception of such effects also motivates them to understand the sea-change ahead of them through Mambai sensory practices and cosmology.

Sensory Practices

Mario's cautiousness when breathing in the coastal air motivates this dissertation's focus on sensory experiences. Such experiences are vital in people's understanding of infrastructure development and environmental degradation. The concept of "sensory practice" is key to the argument in this dissertation. I posit "sensory practices" as a means of understanding and analyzing the embodied practices involved in making sensory experience meaningful for Mambai residents in Betano. I weave insights from semiotic anthropology (Peirce 1955; Keane 2003; Silverstein 2004; Munn [1986] 1994) into foundational work on the senses (Classen 1990; Howes 2003) to analyze how Betano residents experience changes in their place of dwelling. As I discuss in chapters 1 and 2, sensory experience comes to matter for the Mambai particularly through ongoing practices of contextualizing the changes they experience as well as the social contexts in which these changes come to have significance. By working from the starting point

of sensory practices, this dissertation does not privilege one sense over another but instead examines the production of social and place-based relations through multisensory practices.

In using the term "practice," this dissertation also discusses the embodied forms of perception that give significance to Mambai people's sensory experiences. Taking a cue from Mauss's assertion that bodily techniques are actions both "effective and traditional" (2007: 55), this dissertation expands Bourdieu's (1977) notion of "practice" as a site where structure and agency exist in constitutive tension with each other. Embodied practices of perceiving the environment allows Mambai residents to draw upon their sensory experience in order to understand changes in their environment. Anthropological research in the senses often overlooks the concrete ways that people come to learn, acquire, and put to practice the kinds of experiences that matter to them (however, compare to Feld 1982; Geurts 2003; Harkness 2013; Hirschkind 2006). This dissertation suggests that it is within the domain of practices, as evidenced in human-environment interaction, that sensory experience gains significance.

My use of "sensory practices" also responds to David Howes' (2003) concern that there is a tendency in recent anthropological work on the senses to focus on one sense at a time. There are studies in the visual, auditory, olfactory, tactile, and of taste and also on senses beyond these. Howes argues that while these studies lend specificity to particular senses that have gone unnoticed by scholars also demonstrate a tendency to reify a particular sense in order to examine its cultural significance (2003: xii; 6–10). Counter to this tendency, this dissertation focuses on the processes where these senses are linked and when they are discrete. In order to facilitate such an analysis, this dissertation draws on the work of Mauss (2007 [1979]) to propose that "techniques of the senses" keeps the body at the front of attention (cf. Howes 1990).

This attention to the role of the body in listening to one's breathing and sound as meaningful allows for an examination of how different sensory modes—be they olfactory, auditory, tactile or other—gain significance within sensory practice. For example, Avo Francisco describes in chapter 2 how listening to bird calls also requires listening to one's breathing and cultivating a feeling of "tranquil time." Mambai sonic practices, then, gain significance within a broader range of sensory engagement.

This dissertation also examines people's sensory practices in their lived environments under conditions of resource extraction and atmospheric transformation (Casey 2009; Choy 2011; Desjarlais 1992; Feld and Basso 1996; Geurts 2002; Howes 2003; Ingold 2000; Jackson 1989; Plumwood 2002), this dissertation also suggests that attunements to sensory practices are a means of investigating the construction of desired and undesired places of dwelling. By expanding Merleau-Ponty's (2013[1945]) notions on the embodiment of perception to include the effects of external stimuli (like smells, sounds, vision, taste, and balance), this dissertation explores the multi-sensorial mode of knowledge production, the interconnections between olfaction, sound, and other senses, their variation across genders and ages, and examines their significance to social relations, placemaking, kinship, death, and subsistence activities among the Mambai. My work draws from scholars who have emphasized the transformative potential of embodied experience (Cheungsatiansup 1999; Csordas 1994; König 2013; Stoller 1997), to attend to how the Mambai negotiate bodily effects of industrial odors, sounds, and contaminants released by the hydrocarbon industry. This dissertation also develops "sensory practices" as a response to Val Plumwood's (2002) call to resituate humans within the environment, my own sensory experience within environmental, cultural, and ethical domains. By engaging with research in the environmental humanities (Haraway 2008; Kirksey & Helmreich 2010; Parr 2010) and collaboratively developing

participatory research methods including sensory diaries, geo-spatial technologies, and transect walks, this dissertation shows how socioeconomic and atmospheric transformations are recognized, evaluated, and addressed through Mambai people's sensory practices, involving reflective interaction between humans and other life forms with which they share their daily lives. This dissertation suggests that sensory practices, as a focus of anthropological inquiry, serve as a means of inquiring into the relations between embodied sensory experience, lived environment, and sociality. Sensory practices allow investigation into the material and symbolic modes through which the senses have political, ethical, and aesthetic effects in Timor-Leste.

Research Methods

My dissertation is based on 15 months of dissertation fieldwork (2015-2016) and long-term engagement with Mambai communities since 2010. I first came to Betano in 2006 with a United Nations peacekeeping mission following the period of civil unrests in Dili. Towards the end of my mission, I made contacts with members of La'o Hamutuk — a Timor-Leste non-government organization which analyzes and reports on the policies and programs of the government and of international institutions operating in the country. I returned to Timor-Leste in 2009 and spent four months working with La'o Hamutuk and other local non-governmental organizations on sustainable development projects. While I mainly worked in Dili and Ataúro Island, this experience also helped me gain broader knowledge of different ethnolinguistic groups in Timor-Leste. In particular, I was drawn to the impact of the national language policy on the vitality of local languages and knowledge production. I returned to Betano in 2010 and 2011 to conduct linguistic research and wrote a Master's thesis on language acquisition and socialization among Mambai persons under conditions of a national language policy that favored use of Tetun and Portuguese. During this research period, I also encountered Timor-Leste state's influence

expanding beyond language policy and into resource extraction and infrastructure development along the southwest coast and in the Timor Sea. As part of my preliminary dissertation fieldwork, I interviewed Betano residents about their experience with changes in their lived environment. Almost every person I spoke to commented about their sensory experience of infrastructure and hydrocarbon extraction. Their comments led me to shift tack and propose a dissertation project examining the sensory experience of infrastructure development and environmental degradation.

During dissertation fieldwork, I implemented three sets of ethnographic methods to examine how Mambai sensory practices shaped their response to socioeconomic and atmospheric change. The first set of methods allowed me to examine inhabitants' interaction with and perception of their environment. In the beginning of my fieldwork, I made it a point to go fishing everyday with Mambai fishers, which allowed me later on to embark on new projects. Mambai fishers taught me how to fish and socialized me into bodily techniques where I learned how to "feel the waves through my feet" and "keep balance" on choppy sea waters. Over time, through active participation in fishing, I learned about Mambai ways of navigating the ocean. With permission from my fishing partners, I carried an audio recorder and a GPS tracker with me during the first four months of fishing and recorded soundscapes of the oceanic waves and fishers' activities and accurate geospatial marking of fishing routes and marine species; the audio recorder proved to be more reliable than taking notes on the rough, choppy waters. During the first sixteen weeks of fishing, I conducted weekly interviews with fishers about their daily fishing activity and asked follow-up questions about fishers' sensory practices while fishing. Combining audio recordings, soundscapes, geospatial data, and interviews, I was able to

systematically examine the embodied practices of fishing and the ways to discriminate between various scents associated with the sea and marine life.

As I discuss in chapter 2, I also engaged in collaborative, participatory-action research, and worked with group comprised of Mambai leaders and youth in Betano to develop methods including sensory diaries, transect walks, and GIS-GPS mapping. These methods allowed the community to engage with their vernacular conceptualizations of atmospheric changes in the landscape and to examine how hydrocarbon infrastructure affected mobility and their sensory practices in their lived environment. These "sensory diaries" were kept by consenting participants over a period of seven months, where twenty women and fifteen men recorded their sensory experiences, including familiar and unfamiliar smells and sonic pollution encountered in everyday life in their diaries. They also marked the approximate time of day and location and provided a description of the sensory phenomena and its bodily effects (See Fig. 6 in chapter 2). Once a month, participants plotted their sensory experiences onto a topographic map to examine their collective experiences with the geographical and temporal dispersion of atmospheric pollution. Through this exercise, the working group gained a more nuanced understanding of the ways that they mobilized a range of senses to perceive the environment. Importantly, Mambai participants shared with the working group that their sensory diaries represented long-term documentation of atmospheric pollution and that the topographic map visualized their embodied experience with the industry's activities. The findings from these methods inspired the Betano working group to initiate conversations with the Timor-Leste Minister for Petroleum around the effects of the hydrocarbon industry. As of 2017, the working group had also begun discussions with Mambai community members about pursuing litigation against the industry and the state.

Our collaborative research also revealed to me the possibility of unique lexical terms for smell in the Mambai language. As part of the first steps in documenting Mambai lexical categories of smell and related sensory experience, I carried out elicitation exercises with twenty-four members of the Mambai community comprised of sixteen women and eight men, aged between nineteen and sixty-two years old. I customized a version of the CALMSEA wordlist (Culturally Appropriate Lexicostatistical Model for South East Asia) by including Mambai-appropriate word pairings to elicit nouns, verbs, adverbs, adjectives, and morphology to catalog Mambai lexical categories of sensory experience. After completing the standardized elicitation, I asked participants follow-up questions to probe for further vocabulary in the Mambai language. This is similar to "free-listing," in which the participant was asked the following questions: "What are all the different smells an object can have?" and "Things can smell flowery, musky – how else can things smell?" In the Appendix, Table 1 provides a list of 15 Mambai smell terms while Table 2 provides common exemplars. An example of a term for unpleasant smells is *hoe*, which is translated as "to stink; have a stench like quality" and is used to describe the smell of mushrooms, rotting bamboo tubes and bodies, snakes, and the power plant. An example of a term for pleasant smells is *mro*, which is translated as "a smell that induces thirst and cravings. It is used to describe smells of roasted meats and fish like the Barramundi and Yellow Snapper varieties.

During fieldwork, I also carried out elicitation exercises using a "smell kit." This exercise was a failure, but it revealed more about what Mambai residents thought about such experiments. Let me explain: I had previously consulted about sensory field methods with Asifa Majid who conducted research in the Malay Peninsula with the Jahai and Maniq communities and had developed experimental methods, including using a "smell identification kit," to investigate

olfactory lexicon in these communities (Majid et. al. 2011, 2014). Like any research, there were shortcomings with their conclusions; they had not spent enough time living with the Jahai and Maniq communities to understand just how olfactory lexicon is used in everyday life. It was one thing to document olfactory lexicon using a smell kit; it was another challenge to actually learn the significance of smell to sensory practices, cosmology, ritual events, and everyday aspects of life. I was interested in Majid's methods because I wanted to know if experimental sensory methods might enhance sociocultural anthropology's engagement with sensory practices.

The smell kit and picture booklet used for the Language of Olfaction Test, developed at the University of Pennsylvania, is called *The Brief Smell Identification Test* or B-SIT (Doty et al. 1984). Through discussions with researchers at the Max Planck Psycholinguistics Institute in Nijmegen, I developed a twelve-odorant version of the B-SIT for a quicker test. In this test, the odorants are micro-encapsulated and the odor is released by scratching a card with a pencil. The twelve odorants were: cinnamon, lemon, smoke, chocolate, rose, pine, banana, pineapple, gasoline, soap, clove, and onion. Some odors were selected to be familiar to participants, while other odors invited participants to comment on unfamiliar stimulants with familiar vocabulary and phrasing. There is also one picture booklet for the task. The picture booklet depicts the objects from the smell kit so as to cross-check the participant's familiarity with the objects featured in the smell booklets. Each smell booklet contains twelve pages. At the bottom right-hand corner of each page is a brown-colored label, which contains the scent.

For each page I presented the scent to the participant by releasing the fragrance from the label. As soon as the fragrance is released I presented it to the participant so that they can sniff the released scent. The process was repeated with the same stimulus until the participant is able to smell and name the scent. After each scent I asked the participant: "What can you tell me

about this smell?" and "How does this smell seem to you?" Here is a small selection of their responses for two of the twelve scents:

"Smoke" odor
Participant 1, male, 54 years old: "Eh…It's *ap-masu* (smoke). Is there a fire? Why would anyone put smoke in this?

Participant 6, female, 41 years old: "This is not good smoke. The people who made this should come to me. If they wanted good smoke, they should have just asked me. I would have burned some sandalwood and put it inside it."

"Banana" odor
Participant 3, female, 23 years old: "It's like *poe ae-era* (sap from the gum tree)." She smelled it again. "Actually, it's *lem* (Indonesian for glue). Why are you making me smell *hoe*?!"

Participant 2, male, 62 years old: "Hoe. There's enough hoe here already, put it away. I'm not taking you out to fish tomorrow if you don't burn this today." [I apologized profusely and wanted to avoid upsetting him further. I burned the booklet in front of Participant 2 and went out fishing with him the next morning.]

When I showed the pictures corresponding to the odors, participants 1, 2, and 6 all said the same thing with a chuckle: "if they [the manufacturers] really wanted banana and smoke smell they should have just come to us. Our bananas and sandalwood smoke would make the book more fragrant (*iis morin*). Go and tell them!" In conclusion, if someone from the University of Pennsylvania involved with developing the "smell kit" is reading this, kindly consult with the Mambai for your next version of the 'kit.' Another more qualified researcher might have gained interesting results on olfactory lexicon using the kit, but Mambai residents taught me more about the possibilities and limitations when using such kits.

Plan of Dissertation

Chapter 1 introduces three Mambai sensory practices around (1) breathing and smelling, (2) hearing and listening, and (3) taste and hunger. Beginning with breath (*iis*), I show the significance of life-giving, good smells (*iis morin*) and life-taking, bad smells (*iis dois*) to

Mambai sensory practices and the constitution of their bodies in the lived environment. I focus on a particular type of bad smells called *hoe*, which refer to stinks and malodors that invoke sensations of "something is not quite right." While *hoe* specifically refers to the smells coming from human corpses, infected wounds from crocodile attacks and rotting animals, and putrescent animal meat, it came to be associated with the bitter, sour air and pollution emanating from the hydrocarbon industry.[11] To further illustrate the significance of *hoe*, I discuss the anthropomorphic origins of the island of Timor-Leste and the paradox posed by *hoe*: Mambai persons strongly reject *hoe* yet the bitter, sour air, these malodors are also the focus of their preoccupation. I argue that their preoccupation with malodors and bad air is indexical of fundamental categories of Mambai life that make it possible for people to sense and make sense of the hydrocarbon industry.

I discuss the significance of breathing, waiting, and listening in the second set of sensory practices. I begin the section by describing how a visitor announces their arrival to domestic residence occupant(s) through knocking on doors and how occupants hear the knocks and listen to their breath before opening the door and greeting the visitor. Listening to one's breathing is said to instill tranquility and cultivate cooling words. Next, I discuss how people benefit from pigeons, whose calls not only alerted and announced the arrival of a visitor or stranger but also reminded people to listen to their breathing, allowing them to cut off anger in favor of cultivating tranquility and cooling words. I then discuss how these sensory practices of listening are under threat due to the destruction of avian habitats by the Tasi Mane project. Finally, I discuss how breathing and morality is tied into the Mambai sensory practices of hearing and listening. In the

[11] The Yonggom in the upper Fly-Digul plateau of south central New Guinea have a similar association between bad smells and death (personal communication with Stuart Kirsch).

third set of sensory practices, I discuss how land appropriation, the destruction of forest gardens, and the introduction of processed foods resulted in *miis* (tastelessness) and feelings of hunger among Mambai residents. The mutually beneficial relationship that people had with subsistence agriculture and certain types of garden foods promoted satiety and good- fragrant smells. People also associated the increase in their consumption of processed foods with transformations in their bodily constitution. Mambai women and men, for instance, spoke of their stomachs bloating and their thighs sagging from the absence of cassava and fresh fish. In examining Mambai sensory practices, this chapter also shows the mutually entangled relationship between people's sensory practices and their lived environment. In other words, while people's sensory practices give meaning to the experience of places, plants, and animals, sensory practices also gain contours and significance through Mambai interactions with their lived environment.

Organized into two sections, chapter 2 discusses the political and aesthetic effects of Mambai sensory practices. The first section brings together semiotic and sensory anthropology to examine people's understanding of atmospheric changes and socioeconomic challenges. Using the concepts of qualia and qualisigns, this chapter analyzes three events in which Mambai *sense* and *make sense* of olfactory pollution, damaged marine life, land appropriation, food insecurity, and potential destitution from future relocation. In the first event, we meet members of a Mambai fishing community, Avo Roza and Tiu Jose, for whom ulcers found on fish caught in the sea threaten food security and deathly smells floating inland from the sea are felt as conventional qualisigns of atmospheric and socioeconomic changes introduced by the petroleum infrastructure projects. For Roza, damaged fish cease to smell "like the sea" and instead gain the olfactory qualia of "death." Roza and her fellow fisherfolk question whether consuming damaged marine food and absorbing deathly smells might in turn contaminate their own bodies and threaten

residents' familiar sensory practices. In the second set of events, fears over onshore food security arose from governmental appropriation of agricultural lands to construct a power station, and resulted in peaceful protests by Betano residents against future infrastructure development. In the third set of events, a town hall meeting is held to discuss future infrastructure development plans distributed by the national oil company to Betano. Meeting attendees invoked botanic and cosmological metaphors of trunk and branch to analyze petroleum infrastructure plans and maps, rendering these printed documents as the dreams of new arrivals to their homes. Engaging with Austronesian themes of incorporating foreign others into existing social configurations traces the interplay between visual qualia and local politics that emerged from the interaction between meeting attendees.

The second section of this chapter shifts tack to demonstrate the utility of engaged anthropology. Developed in collaboration with Mambai residents, I discuss how novel research methods including sensory diaries, transect walks, and geo-spatial technologies are used to document people's sensory experience with olfactory pollution from the hydrocarbon industry. By triangulating the data obtained from these methods, this chapter introduces a series of Geographic Information Systems (GIS) and Global Positioning Systems (GPS)-based maps and discusses how participatory mapping translates air pollution and its olfactory dimensions onto visual maps. Mambai residents plan to use these maps in their environment justice campaign to show how something has fleeting as air pollution can in fact constrain the sensory practices and livelihoods of people. In discussing how these methods were developed and deployed, this chapter also provides insights for future research on citizen-sensing topics related to pollution. Building on the analysis presented in both sections, this chapter proposes new modes of analysis

and engagement in demonstrating how sensory practices motivate people's responses to new political and economic systems.

Because of the ongoing socioeconomic pressures and existential insecurity, Mambai residents are seeking to relocate to their ancestral homes in the highlands. Chapter 3 follows families searching for new income streams while hoping to rekindle estranged relations with families living in highland communities. This chapter focuses on a series of events where a family of "wife-givers" has to prove prior relations with a family of highland alliances or "wife-takers" by presenting ritual items that were historically circulated between alliances in ritual events concerned with the ends and beginnings of life. One well-guarded and adored item that makes this journey is a pig whose lineage, the wife-givers claim, can be traced to a sow with prophetic capacity to foretell danger that was provided by the wife-takers during the inaugural *barlake*—practices that surround marriage between families of the bride and groom. This chapter also introduces the sensory practices of humans in shaping the barlake event. Sensory practices around heat, cold, sounds, and smells have tangible effects on human participants and ritual outcomes. For example, if too much heat was generated, it can be balanced with some coldness, so that the negotiation between wife-givers and wife-takers may continue.

Aided by inherited knowledge, memories, and hearsay the phenotypic features of the pig are compared and contested among wife-takers, wife-givers, and onlookers. In addition to verification, the pig had to copulate with a sow owned by the highland wife-taker's family—to seal the deal as it were, so that both families may take the next stage of rekindling relations. The pig failed in courting the sow and its provenance was questioned. In particular, highland Mambai residents questioned whether the pig's failure was related to it breathing and living in the bad air on the coast. The pig's stanch and *hoe* from his coastal home posed a further challenge to

negotiations between the wife-givers and wife-takers. The pig and by extension of ownership the coastal Mambai wife-giver's family, were accused of olfactorally polluting the highland atmosphere with their "fishy dirty smell." While the hydrocarbon industry and the Tasi Mane project were not active in the highlands, their effects were still felt and open to interpretation. In this case, atmospheric pollution in the form of bad air was perceived to have affected the pig and its ability to facilitate the rekindling of two families. This chapter, then, is also a story about a pig and his failure to end up on a plate.

Chapter 4 discusses the significance of smell in mortuary practices and for maintaining a connection with the world of ancestors and spirits. I describe a range of resources used by the Mambai to work on the dying and the dead, including techniques to trap liquids and oils from the dying person. I argue that social relations among living and the dead take the form of a mutual entanglement through shared substance by showing how land appropriation altered inhabitants' mortuary practices.

Chapter 5 examines the ethical pedagogy of balance among male fishers engaged in pelagic fishing. Mambai fishers capture pelagic fish in the Tasi Mane (Male Sea), including favored barracuda species. The muscular strength and endurance of pelagic fish and the capricious conditions in deep seas, however, can outwit a lead fisher's ability to capture them. Importantly, a fisher's decision to pursue his prey can result in destabilizing the boat and threatening the crew with drowning. If the fisher survives, he loses trust among his crew and is stripped of his leadership. A fisher accrues trust by either cutting his losses or maintaining balance and returning home with fish. In considering "balance" as sensory practice and ethical pedagogy, this chapter poses two interrelated questions: How do Mambai fishers acquire, share, and collectively cultivate techniques of balance and how do they do so at an early age? And in

what ways is an ethical pedagogy embodied through habituated practices of perceiving the oceanic environment? To answer these questions, this chapter describes a set of proprioceptive training repertoires during daily fishing trips in which senior fishers tasked juniors to sense oceanic conditions like wind and wave patterns, constantly attune their bodies to maintain balance, and consequently build trust among their peers. By utilizing what I call "corporeal mimicry," this chapter analyzes how junior fishers were tasked to mimic seniors' bodily techniques to achieve balance. This chapter ultimately argues that trust among fishers is an ethical project premised upon individual and collective capacity to acquire and maintain techniques of balance.

Chapter 6 examines the relationship between sensory practices and memory, especially how people's lived experience shapes their retelling of the past. Using the Mambai method of retelling memory (*hakerek memória*) I provide narrativized accounts of the past as a response to two questions: How, for example, do an individual's recollections of the past challenge that of another individual in Mambai society? How do different recollections contradict the collective practices of remembering the past by citizens in post-independence Timor-Leste? I also reflect on how people's sensory practices contribute to how they live, how they recollect their lives, and how they continue to respond to the sociopolitical and atmospheric changes that were discussed in the preceding chapters.

Chapter 1: Mambai Sensory Practices

Introduction

This chapter introduces three Mambai sensory practices around (1) breathing and smelling, (2) hearing and listening, and (3) taste and hunger. Beginning with breath (*iis*), I show the significance of life-giving, good smells (*iis morin*) and life-taking, bad smells (*iis dois*) to Mambai sensory practices and the constitution of their bodies in the lived environment. I focus on a particular type of bad smells called *hoe*, which refer to stinks and malodors that invoke sensations of "something is not quite right." While *hoe* specifically refers to the smells coming from human corpses, infected wounds from crocodile attacks and rotting animals, and putrescent animal meat, it came to be associated with the bitter, sour air and pollution emanating from the hydrocarbon industry. Next, I describe the significance of breathing, waiting, and listening in the second set of sensory practices. I discuss how breathing and morality is tied into the Mambai sensory practices of hearing and listening. In the third set of sensory practices, I discuss how land appropriation, the destruction of forest gardens, and the introduction of processed foods resulted in *miis* (tastelessness) and feelings of hunger among Mambai residents. The mutually beneficial relationship that people had with subsistence agriculture and certain types of garden foods promoted satiety and good, fragrant smells. In examining Mambai sensory practices, this chapter also shows the mutually entangled relationship between people's sensory practices and their lived environment.

Good Smells and Bad Smells

If popular science magazines and friends are to be trusted, it seems that something new is discovered each month about the sense of smell. Ever since my friends and colleagues learned about my interest in olfaction, I've received, by e-mail, over 450 articles, references, and personal experiences with smell accompanied by witty subject lines. "Did you know that cats can smell better than dogs?!" read one e-mail. "Did you know that the Mambai think dogs smell of life and death at the same time because they eat their own poop?!" I wanted to reply but held back. These e-mails also reminded me of Rachel Carson's (1965: 83) lament: "the sense of smell, almost more than any other, has the power to recall memories, and it is a pity that we use it so little."

While the Mambai would agree along with Carson about the "power" of smell to "recall" memories, they would also warn her that certain smells can take away life. As I detail in chapter two, the construction of a heavy power oil station, oil rigs, roads, and other infrastructure for the Tasi Mane project caused a stink (*iis dois*) that seeped slowly into human nostrils and pores, stuck on homes, infected marine life, and tested the limits of Mambai cosmology and people's participation in environmental politics. Malodor and olfactory pollution initiated me into the smellscape of Betano and into the lives of the Mambai. *Iis* (breath and smell), however, was a challenging topic for research, especially as iis represents both a person's breath and the smell in the air she breathed in. Smells, both *iis morin* (good smells, fragrant) and *iis dois* (bad smells, stinks, malodor) are suspended in air and also sit in places where Mambai live and make livelihoods. Among the Mambai I lived alongside, *iis morin* is life-giving and rejuvenating while *iis dois* is life-taking and deadly. Construction fumes, dust, airborne contaminants released by the

hydrocarbon industry constitute iis dois: they take away life with every breath inhaled and exhaled.

Stinks and malodors also induce *hoe* — a Mambai term (pronounced hoh) that refers to the feeling that something is not quite right. In two linguistic manuals on the Mambai language, *hoe* is translated as stink by the Australian linguist and historian Geoffrey Hull (2001, 2003); this translation is only partially accurate. While *hoe* would be used to refer to a really bad smell, it specifically refers to the smells coming from human corpses, infected wounds from crocodile attacks, rotting animals, and putrescent animal meat. Funeral and post-funeral ritual for people who die by murder, suicide, and crocodile attacks are also referred to as *hoe mate* (stinky death)*;* human deaths occurring in such events are said to be *hoe* because the bodies (*isin*) are typically found by others after some time has passed while in the case of death by crocodile when the corpse and body parts (*fukun*) are found. In both cases, the smell of *hoe* has begun to emanate from the corpse. To be sure, smells emanating from human and non-human feces are stinky, but they are *iis dois* (bad smells), not *hoe*.

Further, and this is where it gets interesting, the smell of *hoe* invokes the bodily sensation that "something is not quite right." An analogy might help: If I may discomfort you for a moment and ask you to recall the odor wafting up as you open a milk carton that has been sitting in the refrigerator for at least two weeks; the liquid still resembles milk, but the smell tells you something is off or not quite right about the milk. Something is not quite right because of your prior interactions and practices with both milk that's good/safe to drink and milk that's going bad/unsafe, and that odor in-turn prompts you to doubt the properties by which you know that the milk is good to drink. Odor and flavor defects may also prompt you to dispose of the milk. Likewise, the sensory practice of *hoe* suggests to the Mambai person that something is not quite

right, and actions need to be taken; people avoid *hoe* by walking away and distancing themselves from its source, cleansing themselves in *iis morin* (good smells), burning a small piece of fragrant sandalwood directly on infected wounds (a variant of moxibustion), and disposing of *hoe* from corpses through burial. *Hoe*, then, is a particular kind of stink and that sensation carries with it a set of consequences and possible actions.

However, with the arrival of the hydrocarbon industry in Betano the Mambai sensory practice of *hoe* began to widen in its reference and people began using *hoe* to refer to phenomena emanating from the industry. In daily encounters, I observed that Mambai persons started using *hoe* to refer to the odors, fumes, and dust emanating from land clearing and road construction. The roads were followed by the construction of the Betano Power Station that supplied electricity to the hydrocarbon extraction and refinery development. The air we breathed in constantly smelled like a mixture of burning oil (*dois mina motuk*), rotten eggs (*dois* tolun doduk), and root rot (*dois abut dodok*). The power station, which I discuss in Chapter 2, had the capacity to provide electricity to the south coast of Timor-Leste (Government of Timor-Leste 2013). Pointing to the power plant, Ricardo, the eldest son of my hosts commented "Ida ne'e forsa Timor-Leste, maibe'e ne'e mak oho ita" — "It powers Timor-Leste, but it kills us." Smells of rotting life (eggs and roots) and dust intensified in the air and floated in the wind, settling in people's lungs, homes, rivers, and places of dwelling. For the Mambai living along this extractive frontier, everything from the air they breathed in, the rivers they drank from, and the seas they swam, bathed, and fished in was increasingly *hoe*; as my Mambai host mother in *Aldeia Lalica* (the sub-village of Lalica) would lament each morning in between coughs while tending to her *kumbili* and *ai-luka* (sweet yams and cassava plants) in her garden:

Buta ida ne'e hoe, hau nia iis hor-mate.	Something is not quite right, my breath stinks of death.

My interest into Mambai sensory practices around smelling and breathing was motivated in part by my host's lament that "something is not quite right" and by frequent complaints by Mambai residents of breathing in *hoe* and feeling *hoe*. When asked to elaborate, people said that, because of the rotting smell, they associated *hoe* with *mate* (death), *aat lo'os* (the smell of evil), and *aat* (harm and danger). Further, *hoe* composed of *dodok* (rot), *moruk anin* (bitter air), *siin anin* (sour air), and *iis dois* (stink; malodor). *Hoe* was present in every breath taken; it replaced good smells (iis morin) and affected people's daily lives. The following exchange about the moruk anin between two fishers during our pre-dawn walk (referred to as the *rai huun mutin*) in the Mambai language) to the fishing dock illustrates how olfactory pollution affected Mambai subsistence and livelihood:

J: Let's stop. I can't smell the sea anymore.

Y: It's that smell again…bitter and sour air (*moruk no siin anin*) …the smell of rotting corpses (*hoe*).

J: Aiiii, my skin is burning (*motuk*). I'm feeling itchy (*katar*) all over.

Y: Something is not quite right. Come, come, let's find another put-in point (*hatama tasi*). The catfish (*ikan lelo*) won't bite (*tata*) if we smell evil (*aat lo'os*).

The fishers' experiences were not isolated events; at the usually sparsely attended village (*suku*) meetings, I noticed an uptick in people attending monthly to express their concerns around the malodors in their places of dwelling. Four themes emerged from their concerns: first, people frequently commented on the absence of the scent of the sea. As I describe in chapter 2,

residents remarked that the air smelled bitter and sour depending on the time of day, intensifying in pre-dawn hours when fishers prepared to go out to sea and fish. Second, when the Betano Suku leadership asked for elaboration, residents said that bitter and sour air and the smell of death replaced the scent of the sea. Further, residents said that the bitter and sour air had also entered their homes, the sea, and the river; some feared that by breathing in the dois (stink), evil and death had also infected their bodies, the food crops, the fish in the sea, their pig herds, and their chicken broods. Third, olfactory experience had somatic consequences for residents; several *matan do'ok* (eyes that see into the distance in reference to Mambai healers) who attended the meetings affirmed that more people had visited them to complain about rashes, burns, and severe itching from breathing in the bitter air, being in the sea water, and drinking from the river; their techniques of healing only alleviated the symptoms but not the feeling that something is not right within their bodies.[12] Fourth, all of the residents who spoke up at the meetings connected their experience to the 2011 to 2013 construction of the Betano Oil Power Station and the on-going Tasi Mane Project.

The concerns raised during village meetings points to a central paradox of hydrocarbon exploitation in Betano: while Mambai persons strongly reject *hoe* and the the bitter, sour air, these malodors are also the focus of their preoccupation. I argue that their preoccupation with malodors and bad air is indexical of fundamental categories of Mambai life that make it possible for people to sense and make sense of the hydrocarbon industry.

[12] While the matan do'ok treated more people, the Betano residents also started to sense changes in their bodies, tracing patterns in their symptoms such as coughs (*mear*), headaches (*ulun moras*), colds (*isin malirin*), itches (*katar*) and watery eyes (*matan be'en*), and dry throats (*kakorok moras*). These symptoms quickly became a part of everyday life.

A number of other olfactory terms in the Mambai language refer to both pleasant and unpleasant smells; I have listed these terms in Appendices 1 and 2. While the other olfactory terms retain symbolic significance none of them have the semantic range of the term *hoe.* My interest in *hoe* relates to the ethics of smell, but also to the olfactory practices motivated by a concern with this particular sense of "something not quite right." Although Mambai persons prefer never to experience *hoe*, it is still part of their sensory practice; as I explain below, smells make myths possible because bad smell clings to the fabric of social life.

Stinky Origins of Life

According to a story that Mambai people share with their Tetun and Makkasae neighbors to the west and east of the island respectively, the eastern part of the island of Timor was formed as a result of a crocodile's gift to a child. Below, I provide the official version of the story from Timor-Leste Government's tourism website; this version is identical to versions used by the State Government, NGOs, the tourism sector, and entrepreneurs to market the mythical origins of Timor-Leste to foreign visitors. Following this, I present the Mambai version of the myth that suggests an origin of *hoe.*

Many years ago, before East Timor existed, a small crocodile lived in a swamp in a faraway place. He dreamed of becoming a big crocodile but, as food was scarce, he became weak and grew sadder and sadder. He left for the open sea, to find food and realize his dream, but the day became increasingly hot and he was still far from the coast. The little crocodile – rapidly drying out and now in desperation, lay down to die.

A small boy took pity on the crocodile and carried him to the sea. The crocodile, instantly revived, was grateful. “Little boy,” he said “you have saved my life. If I can ever help you in any way, please ask. I will be at your service.”

A few years later, the boy called the crocodile, who was now big and strong. “Brother Crocodile,” he said “I too have a dream. I want to see the world.”

“Climb on my back,” said the crocodile “and tell me, which way do you want to go?”

“Follow the sun,” said the boy.

The crocodile set off for the east, and they traveled the oceans for years, until one day the crocodile said to the man “Brother, we have traveled for a long time. But now the time has come for me to die. In memory of your kindness, I will turn myself into a beautiful island, where you and your children can live until the sun sinks in the sea.”

As the crocodile died, he grew and grew, and his rigid back became the mountains and his scales the hills of Timor.”

There are, however, additional sensory contributions to the Mambai version of this story.[13] The dead crocodile offered a gift of shelter and home to humans, but the crocodile was never buried in the ground; because he grew to be a giant, his corpse is rotting to this day and *hoe* continues to dissipate from his body. And what about the boy? He too grew older, married a

[13] I obtained two very similar versions of this story from Matan Ruak, a Mambai ritual elder in Betano, and from Mario Soares, a Mambai man from Maubisse. According to Matan Ruak, there are other versions of the significance of smell in the origin story of the Habun people, who live north-east of the Mambai villages in the mountains, while Mario Soares thought that the origin story is unique to the Mambai. Traube clearly stated that the totality of origin stories is rather imaginary: “It was not lying about, waiting to be scooped up in the ethnographer’s net as one picture of ethnographic ‘discovery’ would have it. Instead, I freely admit that I contributed to the production of a narrative, by participating in a lengthy process of listening and speaking, a long, twisting, and occasionally painful conversation, repeatedly interrupted by meaningful silences” (Traube 1986: 34). I would like to use Traube’s contribution to highlight how origin stories are reconstructed with the anthropologist and my retelling of the Mambai origin story should be read as a form of reconstructive contribution than as “collected evidence” (ibid.: 36–45).

woman who arrived the island from the sea north of the mountains (Tasi Feto). They had their own children and after their children had their own children, the couple moved away to the hills. The man and his wife, now grandparents, did not see their children again.

Some years passed before the man and his wife died. Unaware of their parents' death, the children failed to provide a funeral to their parents; soon their corpses began to decompose and rot and smell of *hoe* like the smell emanating from the crocodile. After three days, the stench covered the entire island and became so unbearable that the man's children left the hills and returned to the mountains in search of their parents. Crocodile who had provided shelter was saddened by the disrespect shown to his friend and his wife. Disappointed with the children, Crocodile shook his tail back and forth causing the island to shake. It was the first of many earthquakes. When the island stopped shaking the children traced the source of the *hoe* and found the rotting bodies of their parents. The children quickly buried their parents next to their homes but could never rid themselves of the stench.

Disappointed at the lack of respect shown by the children, Crocodile shook the island exactly one week after their parents were buried. When the shaking ceased, the children returned to their parents' graves hoping to ask Crocodile why they continued to smell *hoe*. Instead, they found that their parents' bones had been risen back up to the surface of their graves. With no sight of Crocodile, the children re-buried their parents in a deeper grave with the hope that the depth would help them rid themselves of the *hoe*. When this did not work, the children returned to their home in the hills and resumed their lives.

Exactly one week later, Crocodile shook the island again. The children returned to their parents' graves hoping, once again, to ask Crocodile why they smelled *hoe*. Just as before, they found their parents' corpses had risen back up to the surface of their graves. Crocodile told the

children: “If you want to rid yourself of *hoe,* you must not forget your parents. You must mourn them.” This time, the children reminded themselves of the sacrifices their parents made to raise them. They re-buried their parents and returned to their homes.

Exactly one year had passed since their parent’s death. Seeing that the children had forgotten about their parents, Crocodile summoned the children back to the graves with another earthquake. The children admitted that they did not mourn and honor their parents. This time they threw a party and invited all of their family to honor their parents. After three days of ceremonies, the children re-buried their parents. The man and his wife finally joined together with Crocodile to form the land of the ancestors.

Crocodile came to visit the children at the end of the ceremony. The children once again asked for help from Crocodile in ridding themselves of *hoe*. Crocodile told them: “Always remember your parents by their fragrant smells (*iis morin*) when they were alive. Every day remember to surround yourself with good smells. Honor your parents with a proper funeral. One week after the burial, visit their graves and make sure they don’t rise up from the grave. After the second week, visit them again. If you don’t visit them and give them a proper funeral, *hoe* will never go away. One year later, visit them to end your mourning. *Hoe* will always remain to remind you to never forget your parents.” “How is this so? What do you mean?” the children asked in protest against Crocodile’s response. “Your parents and I—the ancestors—will always be watching” said Crocodile before returning to the land of the ancestors. From that day onward, the people who came from the children were known as the Manbae — meaning “how?” “what do you mean?” The Mambai in Betano continue to ask themselves: How do we cultivate and surround ourselves in *iis morin* (good smells)? Why is something *hoe*? How do we get rid of *hoe*?

An initial act of kindness by the boy to the crocodile set in motion a chain of events in which the zoomorphic topography of the area created from the dead body of a crocodile makes life on the eastern part of Timor possible, because the hills and the mountains have always provided shelter against invaders while in more recent time, the elevation sustains cash crops like coffee. Returning to the paradox posed earlier: that while Mambai persons strongly reject *hoe* and the bitter, sour air, these malodors are also the focus of their preoccupation. Mambai attention to malodors, bad air, and the feeling that something is not quite right are indexical of fundamental categories of life that make it possible for people to sense and make sense of the hydrocarbon industry. Sensory practices around smell is at the basis of Mambai existence—at once indispensable and deadly.

Hearing and Listening

Mambai persons distinguish sonic activity through two modes: hearing and listening. Hearing is not the same as listening; you can be hearing something without actually listening. I begin this section by describing how a visitor announces their arrival to a domestic residence by knocking and how the occupants hear the knocks and listen to their breath before opening the door and greeting the visitor. Listening to one's breathing is said to instill tranquility and cultivate cooling words. Next, I discuss how people benefitted from pigeons, whose calls not only alerted and announced the arrival of a visitor or stranger but also reminded people to listen to their breathing and cut off their anger in favor of cultivating tranquility and cooling words. I then discuss how this is no longer possible with the destruction of habitats due to the oil and gas industry and the Tasi Mane hydrocarbon infrastructure development project. Finally, I discuss how breathing and morality is tied into the Mambai sensory practices of hearing and listening.The sensory practice of listening, for the Mambai, involves two systems working in tandem: the first in which the

Mambai persons draw on their practices of hearing, listening, and breathing to take an ethical stance and the second where people draw on their listening and breathing practices to decide between cultivating cool words or delivering warm words—words that build up heat, anger, and frustration. The Mambai sensory practice of hearing affords people with opportunities to make ethical evaluations; like all sensory practices for the Mambai, hearing has ethical affordances.

Amelia tensed up, her shoulders arched upward, as she knocked on the zinc door. Two knocks in quick succession followed by one firm knock. She breathed in, her chest heaved up, then breathed out once before delivering a second volley of 2 quick knocks and one firm knock. Two rounds of three knocks delivered at that 2-1 cadence indicated to the occupant that an acquaintance was at the door. It suggested that the knocks carried with it an offering of food and conversation. It indicated to the occupant to be dressed from the waist down to receive the offering and respond to the offering with conversation. Knocks delivered at the 2-1 cadence indicated that *lia malirin* (cooling words) were to be exchanged between the visitor and the host. It would be disrespectful toward the acquaintance, especially one who had brought an offering, to engage in *lia manas* (warm words). Several seconds passed. I counted Amelia engage in seven cycles of breathing in and out—the breathing cycle being the preferred form of counting time among the Mambai. Amelia turned to me with a worried expression on her 11-yr old face. “Did I get it wrong?” she whispered into my ear. “Did I knock two sets of three knocks?” I nodded to indicate that she knocked the right way. “Did I wait too long or not long enough between each knock sequence?” she continued to ask. I wasn’t sure. “Were her knocks loud enough to be heard?” she asked again. I think so, I replied to Amelia and wondered to myself: “Was anyone even home?” Mired in my doubts, I recalled my initiation to Mambai knocking practices.

It’s July 2013 and I’m standing outside Helio’s home in the village of (Lalica), Betano.

Helio, a Mambai man close to my age, built boats in Betano and I wanted to talk to him about boats and what it's like being out in the deep ocean on a small skiff. He told me to come after waking up from a lunch siesta. Thankfully, I had a few weeks of lunch siestas, Mambai style, under my belt and I had worked it out that I should arrive approximately 45 minutes after I finished my lunch. A thunderstorm raged outside when I woke up. I hopped on my motorbike and made my way to Helio's. He lived at the far west end of the shore and the bike seemed like the easiest option. I arrived, walked up, and knocked three loud, short raps against his bamboo door, waited one second, before delivering three more loud, short raps. I waited and heard no one stirring inside the house, no sound of feet. Hearing nothing but thunder around me, I got back on my motorbike and returned home. I was staying in a room in a friend's house in Same, a town north of Betano, and the next stop on the sole road connecting Betano and Same. Early next morning, I heard knocks on my door. I answered almost immediately in case it was something important. Instead, I saw Helio looking back at me with a puzzled look. "Maun (brother) Helio, good morning, everything good or no?"

"Good morning Maun, all is good with me, thank you, and all is good with you or no?"

"Yes, it is all good here, thank you. But, is something wrong? You seemed a little upset when I opened the door."

It's important to wait" answered Helio after I welcomed him into my room.

"Oh yes, I should have waited longer yesterday, Maun Helio. I waited for a little while in the rain and returned home."

"No, Maun, it's about just now. You opened the door so quickly and you looked upset when you saw me." Helio continued, "You opened the door so quickly after hearing me knock; you didn't wait to breathe after I knocked. You didn't have time to breathe and listen to your

own breathing. And when you answered the door, you looked upset. You didn't give me enough time to listen to my breathing after I knocked. And when you opened the door, I didn't have time to listen to my breathing and listen to why I was there, and so I looked upset to you."

At this point, I was truly puzzled. What did breathing have to do with knocking and looking upset? I apologized to Helio and assured him that I wasn't upset with him or any issue. After he was certain that I wasn't upset, I asked Helio to talk me through knocking and breathing. "The time we wait, Maun, the breaths both house occupant/host and visitor-knocker take in between opening the door and greeting someone can allow us to listen to our thoughts, our reason for engaging with someone." Seeing the puzzlement on my face, Helio added that "breathing in and out before opening the door means that bad feelings like anger and frustration can subside and anger and frustration brings cold words. If you put warm words away, cool words can be delivered."[14]

"All [of] that just from breathing?!" I had remarked to Helio that day, in a playful tone but also with a keen interest in cultivating cool words with people at the door. "Yes, *maun*, when you hear a person knocking, it is important for the house occupant to listen to a few breaths before answering the door," even if it is to ask the person "Who is that, what do you want?" My

[14] While I did not have the opportunity to ask my hosts about the addition of doors in Mambai housing, I asked some of my non-Mambai Timorese friends and acquaintances in Dili about their experience with doors. The younger persons (22-35 years in age) remarked that it must be the "Indonesians" while acquaintances in their 60s told me that they were most likely introduced to doors and locks in homes when they started renting or buying houses left behind by the Portuguese in the aftermath of 1975. With doors, one could maintain access to their homes by deciding whom to let inside while keeping some others out. In his research on house reconstruction in post-conflict Timor-Leste, Tusinski (2017) suggests that doors impacted how people interacted with each other in the capital Dili, creating new levels of exclusivity and privacy; what were once areas of the house where guests would be received became refashioned to areas reserved for the occupants of the house. In Betano, where applicable, access was maintained through a variety of means: under key and lock, latch and padlock, or a heavy stone was used to keep the door closed. Doors were made out of zinc and bolted to the adjoining wall. While most Mambai houses I entered and lived in featured doors and main entranceways, there were a handful of houses that had no doors and were used seasonally for grain and food storage.

initiation to Mambai practices around hearing and listening opened my ears (and my lungs) to hear and listen differently to everyday life. Whereas the poetics of greeting rituals has long been studied (Firth 1972; Caton 1986; Irvine 1974; Duranti 1997), Mambai practices of hearing and listening beckon attention to the ways that sensory experience foregrounds greetings and interactions between persons. My initial interest in Mambai greeting rituals and prosodic patterns suggested a number of linguistic and sociological practices, including gender roles, power dynamics, status negotiation, and creativity. But it was only when I learned to pay attention to sensory practices I began to recognize and understand the stakes behind greetings, prosody, and emotion. Mambai sensory practices of hearing and listening nudge anthropologists to think about patterns of knocking, breathing, waiting, and answering as ethical practices.

Returning to Amelia's concerns about her knocking patterns and the nervousness which accompanied her knocks suggested that there are real stakes here. What are the consequences to Amelia if she had failed to deliver two rounds of three knocks in the cadence appropriate of an acquaintance? Although she had breathed in and out seven times after knocking, what did it mean when the occupant did not answer the door? Were they upset with her? Did she doing something to anger the occupant? Could it be that no one was home to respond to the knocks? Were they asleep? And would Amelia respond in the way I had with Helio's absence and return home? If so, might she respond with the same indifference I felt? Finally, how did people announce their arrival before knocking on doors?

Listening to Pigeons

As these questioned coursed through my mind, I noticed Amelia's chin perk up. We heard feet shuffling inside. Someone was home. My questions would have to wait another day. We saw shadows on the ground, the outline of a man approaching the door. *Avo* Francisco (Grandfather

Francisco) opened the door outwards to where we were standing, the zinc plate screeched against the insecure makeshift hinges.

Avo peered at us, a frown on his face. “I did not expect you to visit me so soon. What have you brought me?” “Grandfather, please excuse us, please excuse us for visiting you like this,” said Amelia. I flashed a smile before following Amelia and bent my torso slightly, our left arms folded against our backs. Amelia stretched out her right hand to Avo with a bag offering. Inside were bananas, a bottle of palm wine, and two packs of kreteks —clove cigarettes. Avo ushered us inside his home. Avo’s home was sparse, a thin, foam mattress, a small wooden table that had a kerosene lamp and a stack of papers and pens. He motioned with his right hand indicating for us to sit on the mattress. We complied, torso still bent until we sat on the mattress, cross-legged with our feet touching the ground. I couldn’t help tracing my fingers over the many, small holes on the foam. Avo directed our gaze to the wooden beams supporting the conical thatched roof. Resting above us were two *Manu Pombu* — pigeons, with foam bits sticking out their nests.

“They like the foam,” said Avo with a wide smile. “It’s soft and doesn’t break easily.” I nodded in agreement.

“So, are you ready to learn about the pigeons?” asked Avo. Amelia nodded. Avo was her grandfather and used to be a respected healer and expert fisher. Ina, Amelia’s mother, had warned me that her father kept to himself and that was deeply affected by the torture he experienced under Indonesian occupation. Ina’s mother had died some 20 years ago, and her father was devastated from his loss and was never the same again. He stopped fishing and went into the mountains where he remained for several years. Ina did not know if he was alive or dead. Every so often, people who saw him would report back to Ina that he was sleeping in a cave. A

few years ago, he returned to Betano, embraced his family and took a liking to his granddaughter Amelia. Avo built a small house and welcomed the pigeons into his home with uncooked rice grains. "At first there were just one or two pigeons that came inside his house to eat," Ina later told me when I inquired. "But the rest of the pigeons watched from their home in the *Ai-kami* (Candlenut trees) and got jealous of the other birds and [so] they decided to go into the house. Soon, they just started living there. I visited him once a few years ago — there were a hundred pigeons living inside, eating, coo-cooing, and shitting in that house. I think my father smelled all their shit and finally went *bulak*[15]. And now everyone calls him *Manu Mane* — Bird Man, but I think he's just *bulak*."

Ina later confided in me that she had insisted Amelia visit her grandfather with the hope that Amelia would establish the ties that Ina failed to form with her father. Ina had wanted to remind her father that he still had family so that he won't go bulak. Ina suspected that the constant smell of pigeon shit was related to her father's bulak; among the Mambai, feces/shit is considered to be the remains of life consumed. Shit retains the smell of the entity that provided life to another entity consuming it. For example, rice and seeds gave life by having their life consumed in turn. Shit possess a challenge to the human who smells it because shit retains the scent of both life and death. Her father, the Bird Man, was constantly surrounded by the smell of pigeon shit—the smell between life and death. Smelling both life and death at the same time leads people to feel alone and unwanted, unable to live and unable to die just yet. "He was alive and dead at the same time; he went bulak." By making Amelia take food that Ina had packed for her father and the grains for the birds, Ina wanted to remind him that he had family. Our weekly visits would remind him to be social and return to his family.

[15] Bulak has a literal meaning of "sore in the head" and is used to refer to people who are aloof.

Amelia and I visited her Avo (grandfather), the Bird Man once or twice a week in the afternoons after Amelia returned from school. During these visits, Avo would perk up and take us for a walk in the forests abutting his house. The three of us would set off into the *hae* (tall, coarse grass, mostly of the lalang variety) that was around 2-4 feet tall. There were no pathways, no trails, where Avo led us on our lessons. During the first few walks, Avo pointed out candlenut trees where pigeons liked to nest and taught us to differentiate pigeon calls. Although we would start at the same point of the trail, we never went on the same path. As the weeks went by, I noticed that a few elders had joined in on our walks, though they kept a distance from Avo, who did not seem to mind the company. His attention was focused on Amelia and the pigeons. He would pause and explain to Amelia about the right way to breathe, listen, and identify the *lian* (voices) of birds. Although Amelia picked up on Avo's cues she had a harder time differentiating between the pigeon calls. I shared in Amelia's challenge. Part of our difficulty came from the sonic life of other birds. But drowning out the life of birds was the noise from infrastructure construction for the hydrocarbon industry. While Avo remained focused on the pigeons, other birds were also calling out, singing songs, alerting others to the presence of humans, prey, and predators. Not far away from where we were walking, tractors were shoveling out the earth, a heavy oil power generator hummed on, and a pile driver was hammering into steel foundations into the soil. I conveyed the reason behind our difficulty with listening to Avo. "*Tetebes* (of course) there are other birds and animals. And *ema minak* (oil people). What did you expect?!" he shouted at me, half in disgust and half in astonishment that I could think that he was not aware that there were only pigeons in the trees. Avo walked over to Amelia and put a hand on her shoulder. "Ita ona, maibe ita lae rona ona" — "You hear, but you do not listen," he started saying.

"Of course, when you are only hearing you will hear all the lian (voices) around us. But, in order to listen, you must first breathe in and breathe out. Listen to your breathing, ok?" In…and….out. In…and…out. When you listen to your breath, you are *sente tempo rai-diak* (feeling tranquil time). Ok? Now, look at the pigeon that you want to listen to. Keep listening to your breath, *dada iis* (breathe in) …and *husik iis* (breathe out). While you are listening to your breath and looking at the pigeon, think about the pigeon and how you want to listen to it and not the other birds. If you don't listen to your own breath first, then when you look at the pigeon and try to listen to it, you will also hear all the voices. First, listen to your breathing. Next, look at the pigeon. Because you are already listening to your breathing and you are in tempo rai-diak and when you look at the pigeon, you will begin to listen to the pigeon's voice and not the voices of the other birds and animals around us. Go on, let's watch both of you listen to the pigeons."

Amelia began to listen to her breathing just as she had when she knocked on Avo's door weeks ago. I followed with her, but the chatter-and-chuck calls of a Timor Oriole interrupted our focus.

"Try again, maybe tomorrow," Avo said looking at us.

"It takes practice. Listening takes practice. Every day, you have to practice listening to your breath and after that you will be able to listen to the pigeons. You will be able to focus your hearing and listen to anything you want."

"Will I be able to listen to the great Timorese *Lamukan* (also known as *Manu Matak* or (green pigeon) too?" asked Amelia.

Avo's head dropped as he shook his head. "No. They are gone. Ever since *ema minyak* (oil people) came, the Manu Matak are gone. They (oil people) cut down the rubber trees. The

green pigeons like the rubber trees. But they cut them down, they cleared the land, they even poisoned one of the streams, and now they are gone."

Hearing Loss and Ethical Vulnerability

"So is he going *bulak* (sore in the head), or is he returning to the living?" asked Ina one evening as I escorted Amelia back home, some four months since we began our weekly walks. "I really don't know" I replied. Avo was eccentric in his ways, I told Ina, but the attention he showed to Amelia in teaching her about the Mambai ways of listening meant he was still in the world of the living and not with the ancestors. Avo opened my ears in many ways. Walking with Avo Francisco helped me to listen differently than I had been used to. I began to listen to my breathing more but listening to my breath did not always mean that I was not distracted by the calls of other birds and infrastructure construction. My walks also helped me to establish a rapport with Avo to ask about him going bulak. "Why do you think people say you are going bulak?" was not an easy question to ask but he answered anyway.

"I am not *diuk* (deaf), I can hear. I know what people speak about me. I am not bulak, but I have been very sad for a while. I have been thinking about the oil people since they came in 2011 and about what they have done. When I said that the trees are gone and the birds too, I also mean that people have stopped listening to their breathing. When they stopped listening to their breathing, they also stopped using cooler words. People speak with more hot words, more anger, more frustration these days. All because the pigeons are not here."

The hydrocarbon industry and Timorese State officials announced their presence in Betano in May 2011, though industry consultants and officials had made several visits to the Betano area prior to unveiling their plan to build infrastructure for hydrocarbon exploitation; I elaborate on these events in chapter 2. Since 2009, I had conducted linguistics-related fieldwork

in the area and learned that people preferred to negotiate interpersonal conflicts, disagreements, and wrong-doings in private, between the involved parties and their respective *Chefe Sucos* (Town Chiefs). With the increased presence of the hydrocarbon industry and infrastructure development, I encountered people engaging in *lia moruk* (bitter words) at the market and in the local shop. During the weekly market day, I witnessed people discussing with storekeepers and even passersby about disagreements and grievances they had with their neighbors; prior to hydrocarbon exploitation, families would have kept their disagreements private.

I soon came to be the subject of hearsay. On more than one occasion during dissertation fieldwork (2015-2016), I had been accused of spying for the hydrocarbon industry. I later found out from the Chefe Suco of Betano that these accusations came from people living in Same (half an hour away by motorcycle) who associated my South Asian appearance with South Asian work crews in Same and Betano. This accusation was fortuitous as it gained me some sympathy with the Chefe Suco. According to records kept by the Chefe Suco, theft of pigs and grain had increased five-fold between 2013 and 2016 in Betano. He remarked to me that the "stolen goods will be replaced threefold by the perpetrator, but few people will be able to pay," making the increase in thefts all the more puzzling to both of us. Prior to my interactions with Avo Francisco, I had dismissed any connections between the increase in the public airing of grievances and the porcine and grain theft with the increased presence of the hydrocarbon industry, the pollution from the extractive operations, and the existential threats to livelihoods that followed.

Avo and the elders who had followed us on our walks offer a different set of explanations. What becomes clear from the narratives presented below is the importance to Mambai persons to have a sense of resonance with pigeons and with their lived environment

more generally. By resonance I mean an indexical association that arises between human sensory practices and the activities of pigeons, as represented in the sounds produced by pigeons. As Mambai elders revealed to me, they benefitted from hearing pigeon calls that indicated if an unknown person was approaching their house and to remind themselves to cultivate virtue ethics by using cool words and feeling tranquility.

One elder remarked: "There was a flock of pigeons that used to visit our family. Once in the morning and once when the sun set. We would give them old grains or food we had from the night before. They lived and slept in the rubber and candlenut trees around our houses. It is not that just one pigeon recognizes that people are nice to him, but all of them [the flock] recognize that you care about them and look after them. And if someone they haven't seen before, or someone with bad intentions, approaches the house, all of them will start *hakilar de't* (shouting). Of course, only in the morning and evening, they sleep in between. We caught two pig thieves from pigeons alerting us a few years ago!"

Another elderly woman responded that the flock of pigeons living by her home would always shout when her drunk son approached before sunset adding that "But now, they're all gone. Maybe one small flock is left in all of Betano. It happened not long after the oil companies came. And I don't have enough food to feed my family, so I cannot feed the pigeons. I try sometimes with old corn. One or two come but they don't shout and alert me anymore. My *feto faun* (daughter-in-law) is beaten up more by my son before I can stop him. I want the pigeons to return."

Two elderly men said that the calls and songs of the pigeons reminded him to *lere si'ak* (to cut anger) and listen to their breathing and feel tranquility. "Coo-coo, the pigeons sing. When I am drunk and angry or feeling hot words come into me, I listen to their "coo-coo, coo-coo",

and I remember to breathe and listen to my breathing."

"And now they are gone," added the other. "Maybe the pigeons are telling us not to rely on them. Yes, we have doors on our houses now that a visitor can knock, and we can still practice listening to our breathing and cultivating cool words and tranquility, but it is not the same without the pigeons. I would like them to return to us."

The resonance that these elders described in relation to the sounds made by pigeons is, I argue, part of Mambai virtue ethics presupposed on sensory practices that draws together the lives of Mambai residents and sonic practices of pigeons together. The desire for pigeons to return to Betano derives from Mambai sonic practices around listening and breathing and how a Mambai place of dwelling should be experienced, and this ethical concern is thrown into relief by the gradual disappearance of the pigeons with the arrival of the extractive industry.

Listening to pigeons, for Avo and the elders, is not simply about listening to the sonic activity of pigeons but about trying to understand how sounds relate to their own activities and the places and temporalities they inhabit. Changes in local bird populations and the loss of species and their sounds due to hydrocarbon exploitation fosters a sense of anxiety and loss. Listening to pigeons and longing for the return of pigeons for Avo and the elders is, as Thomas van Dooren (2014: 46) has argued, profound elements of resonance with birds on "the dull edge of extinction." Finding resonance with pigeons also requires sensory translation both by Mambai persons and with the sensory practices between Mambai and other species.

For some time now, scholars have questioned the categories by which comparison and translation is made—the very categories that allow for anthropological inquiry into interlocutors' lives (Asad 1986; Chakrabarty 2000; de la Cadena 2015; Haraway 1991; Keane 2003a; Kohn 2013; Rafael 2003; Strathern 2004; Viveiros de Castro 2004; Wagner 1991); curiously, there

hasn't been much attention paid to sensory translation. In the sensory practices I have discussed above, Avo Francisco's sonic techniques and pedagogy involved translating sensory experience between interlocutor and anthropologist. For example, in order to practice Avo's instructions, Amelia had to listen to their breathing and "feel tranquil time"—a spatial-temporal and chronotopic category of experience—followed by thinking of cooling words, thereafter locating a pigeon and its voice in space, in a tree or elsewhere the pigeon resides. Avo's instructions also relied on my own capacity to engage in his instructions. When I listen to my own breathing in…and out…I am listening to my breath with the desire to feel tranquil time and cultivating cool words. Listening to my breathing slows me down so that I may direct my sonic attention toward a pigeon (or another entity) that I am interested in listening to. I am not simply translating words but transducing between categories of sensory experience; to engage in transduction across the senses is to engage in sensory translation.

As I write here about Avo's instructions on listening to pigeons, I am also reminded of Eduardo Kohn (2013:134) writing of his Amazon-dwelling interlocutors: "The multispecies encounter is a particularly important domain for cultivating an ethical practice… We are confronted with an otherness that is radically (significantly) other—without, I would add, that otherness being radically incommensurable… they force us to find new ways to listen; they force us to think beyond our moral worlds in ways that can help us imagine and realize more just and better worlds." Contra Kohn, Avo Francisco, the elders, and younger Mambai like Amelia cultivate an ethical practice without needing to acknowledge a radical otherness between pigeons and people. A Mambai person can feed pigeons, encourage them to take shelter in their houses, and listen to their calls and still distinguish otherness—pigeons are not humans after all for the Mambai. But closer examination into the mingling of pigeons and Mambai sensory practices has

unfolded more complicated set of connections around listening, breathing, and ethics.

The pigeons are sensible to human modes of existence, their presence encouraged by Mambai ethics of care shown to them and their ability to communicate back, giving meanings to their numbers that are also diminished as a result of arboreal habit destruction by the hydrocarbon industry. The existence of the pigeons exerts an effect on the sensory practices of Mambai. While my research did not lead me to undertake an ethology of pigeons, my research suggests to me that the manner by which this effect is exerted on the Mambai (and other human communities) warrants further inquiry. Reflecting on my time with Avo Francisco and Mambai elders helped me to have a better understanding of pigeon calls; but I also recognized something about the Mambai and their interactions with animals. While the narratives I have discussed above suggest a reciprocal relationship between Mambai persons and pigeons, they also show how the pigeons are affected by hydrocarbon exploitation, and how these have an effect on Mambai ethical life.

Tastelessness and Hunger

Two weeks after returning from fieldwork, I had dinner with my dissertation committee member and his wife. I found myself ladling several, heaping spoons of parmesan over the freshly prepared pasta dish, savoring the richness of the velvety noodles, woodiness of the mushrooms, and the sweet and nutty parmesan. In between bites, I remarked to my hosts about my cravings for cheese since returning home to Ann Arbor. "You probably miss the fat," my host replied. He was right. Along with missing fat, I also missed eating cheese. Likewise, Mambai residents in Betano also longed for fat and foods they enjoyed eating. Along with my host family, our daily diet would typically consist of the following foods at three mealtimes *matabixu* (breakfast), *ha'an meiudia* (lunch), and *ha'an kalan* (dinner):

Breakfast: *sedok* ("rice porridge" made with rice leftover from dinner and soaked in water and salt). Alternatively, *paun* (crusty bread rolls baked over charcoal fire) with honey and a banana or piece of melon.

Lunch: *batar da'an* ("boiled corn" soup with corn, mung beans, pumpkin, red beans, and leafy vegetables like water spinach) served with rice and *ai manas*—a fiery concoction of fresh chillies, onion, lime juice, and salt.

Dinner: fish leftover from market sales, that are dried or grilled over charcoal and stuffed inside a ball of boiled cassava or fish eaten with freshly cooked rice. Alternatively, *Indomie* (a brand of instant noodles imported from Indonesia), especially for fussy children.[16]

The daily diet is heavy in carbohydrates with moderate amounts of protein and fat. Since my first visit to Betano in 2005, there has been a tremendous increase in the variety of processed foods available for purchase at the market and *loja* "corner-store" operated by people outside of the Betano area. The rice, banana, corn, beans, cassava, and pumpkins that made up our daily meals were all purchased at a store, along with the Indomie. The price of fresh, harvested foods also increased in an inverse relation to instant noodles, meaning that a Mambai resident could only purchase fresh foods if they had money to spare. But with a family income of between less than USD 3.00-5.00 per day, most residents had to decide between spending the money on fresh foods they own grew and harvested on their lands or buying noodles and bread and spending the rest of their income on diesel for their boats and fishing lines and nets.

During *bailoro* ("dry, hungry season" between November and March, we first tap into rice, corn, and dried fish storage before turning to *akar* (dried sago palm). To make *akar*, you

[16] During my fieldwork, meat from pigs, cows, and ducks were eaten at the culmination of marriages and death rituals. Chicken meat was consumed occasionally and used to flavor noodle-soup dishes or fried and served with rice in dishes like *Ayam Goreng* (Indonesian for fried chicken) and in *Nasi Ayam* (Indonesian for rice with chicken).

first strip the bark from the palm tree, dry it, and then pound it into powder. Soak the powder in water until it turns translucent and jellylike. Shape this mass into a tortilla and cook it over a fire. As the Mambai would say, "when you eat *akar*, you are tasting hunger." Since infrastructure development intensified in the area, the taste of hunger has stretched beyond the time of *bailoro*.[17]

Beginning in 2014, Mambai residents have seen nearly 60 acres of *to'os* (agricultural gardens) located in forests razed to make way for infrastructure development projects. These developments are promoted and carried out by the Timor-Leste State and its multiple contractors as part of the Tasi Mane project. Meant to support the operations of the hydrocarbon industry, these developments have also undermined the local food and water security of Mambai residents. The forest gardens had sustained the growth and cultivation of a variety of food, including corn, sweet potatoes, cassava, sago, rice, beans, bananas and pineapples, pumpkins, melons, water spinach, chilies, and onions. According to the residents, these forest areas were razed by the State because they appeared to be unused when, in fact, the areas were being left to fallow. The forests left to the Mambai are uncleared and not as fertile for agricultural growth. "In the past, in times of hunger, we would catch small reptiles and birds, but even those are hard to encounter" said a Mambai fisher. As I discuss in chapter 2, all marine life, including fish, has seemingly become contaminated with chemicals thought to be released by offshore oil rigs.

Food from the garden forests have also been increasingly replaced by processed foodstuffs, like instant noodles and biscuits imported from Indonesia, that are either purchased by Mambai from the Betano *loja* or from stores in Same. However, *malae hahaan* ("foreigners'

[17] Seasonal droughts and crop rot intensify people's experiences of the dry season. Small lizards and reptiles are also eaten and are easier to hunt during the drier season when reptiles suffer from dehydration along with humans. There were two memorable occasions during fieldwork when a python was trapped, killed, and eaten.

food"—processed foods) are said to be *miis* (tasteless). As Carlos, a young Mambai man from Lalica, explained to me, "These foods are salty, but they do not taste of the land. I eat a lot and it makes me full quickly. But within an hour, I am not full like I used to with *hahaan to'os* (garden foods) like cassava and corn. Instead, the noodles make me more and more hungry."[18]

For Carlos, like many other Mambai I lived with, connected the destruction of the garden forests and the arrival of the hydrocarbon industry with a pervasive and constant sensation of hunger and tastelessness. Packaged, instant noodles like Indomie are experienced as *miis* (tasteless). Despite the abundance of Mono Sodium Glutamate (MSG) in Indomie, people often reported that these noodles were tasteless. "It's salty, the children like it, it gives me energy to fish, but it's tasteless" said a fisher during one market day. Pointing to men unloading several boxes of Indomie and Popmie (a variant of instant noodles where you add hot water into the cup of noodles) "We have to eat it [Indomie] because we can't grow enough food in the *to'os* (agricultural garden)." Another fisher who was listening to us soon chimed in, "whatever land they [hydrocarbon industry] left us isn't good enough yet to grow food. Now, I fish, sell the fish, maybe take one home back to my family and spend the rest of the money on Indonesian rice and Indomie so that we are not hungry." Hunger is also more than just the desire to eat triggered by the lack of food or a particular macronutrient like my craving for fat. Rather, the experience of hunger is provoked by the disappearance of *hahaan to'os* (garden foods). Like my craving for cheese, the significance of "garden foods" goes beyond calorie intake.

Hunger is also experienced as a moral, affective, and sensory experience—the significance of which transcends the need for nourishment. In other words, hunger for the

[18] In their book, *The Noodle Narratives* (2013), Errington, Frederick, Tatsuro Fujikura, and Deborah Gewertz write about the fascinating history behind the instant noodle, its rise as a food staple and popularity around the world, and how noodles help low-wage workers hang on when the going gets tough.

Mambai is more than a lack of food. Rather, hunger speaks to the effects of environmental destruction on Mambai sensory practices with the garden forests. As Fernando, an elder from Bemetan village told me, "When I feel hungry, I remember the gardens that are gone. I remember the trees, crops, birds, and animals that have died. I remember the candlenut trees and the sandalwood trees that were cut down. Ya, I can eat Indomie, but it's not the same. This hunger I feel makes me sad and lonely. To know why we're hunger, you must know the meaning of the gardens. For me, to know the meaning of the gardens means to know my ancestors." As I learned from Mambai residents, garden foods obtained through hunting, fishing, and gathering derive from plants and animals with whom Mambai entertain relations of kinship through shared descent from *Tata* and *Kala* (the ancestors).

As I discuss in chapters 2 and 3, Mambai-ancestor relations are anchored in practices of reciprocal exchange with plants and animals; plants and animals grow to support humans by providing them with food and other resources. In return, humans promote life in the environment and perform rituals as they cultivate, hunt, and consume plants and animals in the garden forests. But if the humans take away the conditions of life or if they take too much at once, then neither plants nor the humans will survive. As Fernando added, "the balance will be disrupted and who knows what happens after that? Probably, we all die because we did not take care of the plants and animals and they are no longer around to take care of us."

In addition to disrupting practices of reciprocity, the disappearance of garden foods is associated by the Mambai with transformations in their bodies. Both women and men, for instance, spoke of their stomachs bloating and their thighs sagging from the absence of cassava and fresh fish. Almost everyone I spoke to about hunger reminisced about the loss of good, fragrant smells (*iis morin)* that emanated from the garden forests and questioned the provenance

of Indomie. As Lica, a Mambai elder from Bemetan explained:

"I know Indomie is made with wheat. Mambai don't even eat wheat! But who grows the wheat? Are they fragrant people? We don't know. Did they take good care of the wheat? We don't know? What was the wheat's journey to us? We don't know." Lica continued, "Indomie is cheap but something is not quite right about Indomie. That's why Indomie is so tasteless for me. You know, even when there was no food and we ate *akar*, even that had a fragrant smell. Now, I smell hoe when I don't eat from the gardens."[19]

Hunger, (mal)nutrition, food insecurity, and the transformative capacity of food in human sociality has long been studied (e.g., Phillips 2018; Farmer 1999; Kahn 1986; Munn 1986; Young 1971). Whereas hunger is often subjected to nutritional and political economic analyses, for Mambai residences in Betano, hunger, satiety, and tastelessness takes shape as a sensory and embodied experience. This is not to say that political economy is not important. Where people are now longer able to surround themselves in *iis morin* from their gardens, they feared that *hoe,* and the feeling that something is not quite right, will consume them. People thus linked hunger to the spread of *hoe* emanating from the *miis* (tastelessness) of Indomie, which in turn, was consumed more due to environmental destruction and infrastructure development for hydrocarbon operations.

[19] Mambai women mourned the destruction of corn, cassava, and sago groves where they had once celebrated their role as mothers in the company of a plant whose fertile flesh and fluids, much like their own, had provided their children with nourishing sustenance. Pigs, chickens, and cows also find little to eat and have even said to develop a taste for Indomie.

Chapter 2: Sensing Change, Changing Place

This chapter is organized into two sections. In the first section, I explore three sets of events that took place between 2011 and 2015, which illustrate how Mambai residents in Betano sense atmospheric and socioeconomic changes in their rapidly changing place of dwelling. After discussing my theoretical framework of sensory and semiotic anthropology, I outline the stakes for residents in light of the proposed petroleum infrastructure development. I then explore the interplay between sensory experience and political engagement, teasing out how olfactory, haptic, and visual *qualia* (the sensory experiences of abstract qualities) together with cosmology, played a pivotal role for residents across the events. I conclude the first section by showing how attention to sensory experience complicates narratives of how people respond to political and economic systems introduced by infrastructure projects. In the second section, I discuss the potential of citizen-sensing methods to document evanescent forms of pollution in environmental justice campaigns. I introduce sensory diaries, transect walks, and GIS-GPS methods to document people's experience with atmospheric pollution.

Smelling Like the Sea

One sun-drenched afternoon in June 2013, I lost my balance and fell off the outrigger into the Tasi Mane. My eyes stung as I clamored up to the boat only to be greeted with howls from Tiu Jose, the patriarch of my host family. "After all this time you're still so clumsy!" When I reached for my bottle of water to soothe the burning, Tiu cried "Aii, what are you doing?! You don't want to smell like us? Like the sea?!" Duarte shushed his father. "Do you think any one of us

will smell like the sea anymore now that there is oil?" Pinching his nose Tiu replied, "Then, I will fight or stop breathing!"

I remember stepping onshore awash with questions about the coupling of smells to person and place invoked by Tiu Jose and his son Duarte, and the role of the senses among their fellow Mambai-speaking residents of Betano. Instead of taking advantage of my clumsiness at sea, I was about to wash away the opportunity to olfactorally acquaint myself with my host. Tiu's response to my nearly ill-fated act indexed olfactory markedness among Mambai to whom smelling like the sea linked relations among persons with one's place of dwelling. How dare I squander an opportunity to soak up the smell of the sea, with the hope that some of it might cling to me, and eventually bring me closer to my host? Duarte, on the other hand, cast doubt into this particular coupling of sensing and sociality. Since 2011, Betano has been undergoing preparations for the Tasi Mane Petroleum Infrastructure Project, which has introduced existential challenges to residents' knowledge of self and sociality. Faced by impending oil infrastructure development in Betano, Duarte's reflections prompt us to ask, in what ways does oil and its distillates affect Mambai knowledge of self and sociality? Tiu, however, would not give into oil's demands upon the reorganization of his sensual awareness. Tiu's response – that he will fight before ceasing to live – invites us to reflect on a central question in this chapter: How do people's sensory experiences motivate their responses to new political and economic systems, such as those introduced by megaproject development?

Qualia in Sensory Practices

In the introduction, I wrote about sensory practices. In chapter 1, I discussed several of these practices. In the current chapter, my goal is to show how semiotics and phenomenological approaches can be applied to the study of infrastructure and the senses to examine the interplay

between sensory experience and political engagement with infrastructure projects. I focus on people's reported experience of the perceptible qualities of their lived environment (*qualia*) and the conditions in which those qualia are endowed with cultural value, hence serving as *qualisigns*. The concepts of *qualia* and *qualisigns* are utilized to discuss the dynamic connections people make between sensory phenomena and socioeconomic and political changes. By applying semiotics to the domain of sensory experience, my approach foregrounds people's interpretive labor in their engagement with infrastructure projects in Betano.

Anthropologists have long been interested in the significance of sensory experience and placemaking for various peoples and communities (Basso and Feld 1996; Geurts 2002). They have examined how places are conceptualized through a particular constellation of senses—with acoustics and place (Feld 1996; Meintjes 2003), sight and place (Pink 2009), and taste and place (Besky 2013; Pérez 2011). In an *Etnofoor* special issue, scholars have alerted us to the indelible connections that senses have with memory (Brenneis 2005; Young 2005), the body's movement through space (Lund 2005), and identity (Walmsley 2005).

Shifting focus to Southeast Asia, König (2013, 2016) investigated identity contestations based on bodily odors and food consumption patterns between Dayaks and Madurese transmigrants in Kalimantan, while Chuengsatiansup (1999) studied the somatic aggression of unfamiliar noises experienced by Kui women in rapidly industrializing northeast Thailand. König's research on violence between indigenous Dayaks and Madurese transmigrants in Kalimantan who rely on smell and patterns in food consumption, among other sensory cues, to differentiate between themselves and direct violence at neighboring ethnic groups. König suggests that "sensory ethnicity" is produced when sensory experiences are recruited for ethnic differentiation and violence (König 1993: 121). These findings lend support to my analysis of the

Betano situation as one of contrast and contestation between familiar (e.g., smelling like the sea) and unfamiliar sensory experiences (e.g., atmospheric pollutants from infrastructure development and hydrocarbon exploitation). Chuengsatiansup's (1999) provocative account of the somatic aggression of unfamiliar noises upon illness experiences among Kui women in rapidly industrializing northeast Thailand. Chuengsatiansup argues that daily noises from "blasting motorcycles, drunkards, quarreling neighbors, and machines eating up the forest" are perceived as highly unpleasant and contribute to illness and disease among women, including deep tiredness, numbness, and insomnia without any physiological explanation (1999: 297). Because of their somatized hyper-sensibilities, residents associated these noises with rupturing the relationships between themselves and their environment. Chuengsatiansup suggests that specific sounds can only be understood as noises having the power to somatically affect people when they are connected to other contexts, such as the intrusion of modernity and the more familiar and intimate soundscape of rural life.

Though neither König nor Chuengsatiansup utilized semiotics, their approach hews closely to semiotic analyses of sensory experience, as they explored how individuals related sensory phenomena to a material form or event and, importantly, qualified or expressed a reasoning for this relation. This chapter develops their approach more explicitly by using the concepts of *qualia* and *qualisigns* to analyze how Betano residents perceive olfactory pollution as a threat to their familiar sensorium. Building on the foundations of semiotic anthropology (Keane 2003; Silverstein 2004), the concepts of *qualia* and *qualisigns* are useful in two interrelated ways. First, these concepts allow me to trace how people relate perceived or experienced sensory phenomena to scalar interactions and events, including between past and present time-space. This provides an ethnographic perspective that emphasizes people's scale-

making projects mediated through sensory experience (see Carr and Lempert 2016). Second, focusing on semiotic mediation draws attention to an individual's agency in engaging with politics. Focusing on *qualia* and *qualisigns* foregrounds how individuated, subjective, or internal sensory experiences come to be related by individuals to larger socio-political domains.

The terms *qualia*, *qualisign*, and *conventional qualisign* inform my semiotic approach. My usage of *qualia* comes specifically from Peirce's (1955) writings on semiotics (see also Chumley and Harkness 2013; Hankins 2013; Munn [1986] 1994). *Qualia* are "the sensory experiences of abstract qualities (such as colors, textures, sounds, and smells) and feelings (such as satiety, anxiety, proximity, and otherness)" (Chumley & Harkness 2013). *Qualia* are also "firsts" in that they are the potential for signification and not merely sensory symbols. For Peirce "insofar as qualia are known by somebody as standing for something, they serve as *qualisigns*" (Hankins 2013: 52). Importantly, as Keane (2003: 414) argues, qualia come in bundles, where the qualia of color or scent "cannot be manifest without some embodiment that inescapably binds it to some other qualities as well." Following Harkness (2013: 15), a *conventional qualisign*, thus, is sensory experience or bundled qualia "signifying a culturally valuated quality."

Let me illustrate this by returning to the conversation between Tiu Jose and his son Duarte in the opening vignette, where the qualia of the sea served as an explicitly coded qualisign for Mambai persons at their oceanic location. The scent of the sea invokes an intimacy and familiarity that comes to be associated with a shared sense of identity; that sense of self can be perceived through the concatenation of scents bundled into the sea. In echoing sensory sociality, Mambai persons in Betano perceive petroleum's qualia as a conventional qualisign both of threats to their familiar sensorium and to their social position in relation to the Tasi Mane development project. Conventional qualisigns circulate among people, acquire publicity, and

thereby invite people to engage with novel sensory practices arising from infrastructure development in their place of dwelling.

Drawing on the concepts of qualia and qualisigns, this chapter analyzes three sets of events that exemplify residents' responses to the Tasi Mane development project. In the first event, we meet members of a Mambai fishing community—Avo Roza and Tiu Jose (from the opening vignette)—for whom ulcers found on wild fish threaten food security and deathly smells floating inland from the sea are felt as conventional qualisigns of atmospheric and socioeconomic changes introduced by the petroleum infrastructure projects. For Roza, damaged fish cease to smell "like the sea" and instead gain the olfactory qualia of "*hoe* and death." Roza and her fellow fisherfolk question whether consuming damaged marine food and absorbing *hoe* and deathly smells might in turn contaminate their own bodies and threaten residents' familiar sensorium. In the second set of events, fears over onshore food security arose from governmental appropriation of agricultural lands to construct a power station, and resulted in peaceful protests by Betano residents against future infrastructure development. In the third set of events, a town hall meeting is held to discuss future infrastructure development plans distributed by the national oil company to Betano. Meeting attendees invoked botanic cosmological metaphors of trunk and branch to analyze petroleum infrastructure plans and maps, rendering these printed documents as the dreams of new arrivals to their homes. Engaging with Austronesian themes of incorporating foreign others into existing configurations traces the interplay between visual qualia and local politics that emerged from the interaction between meeting attendees. However, first I outline in some more detail the developmental challenges Betano residents face.

Infrastructure development in Betano

As I outlined in the introduction to the dissertation, Betano and its residents have been undergoing preparations for the Tasi Mane development project since 2011. This project is an on-shore petroleum infrastructure complex along the south coast of Timor-Leste, while offshore petroleum operations have been in operation since 1998 in the Timor Sea (Guteriano and Scheiner 2005). As part of the Tasi Mane project, a refinery, petrochemical complex, and a new town named Novo Betano are planned to be constructed in Betano, and although at the time of writing, official construction has yet to commence. In June 2011, contractors of the national oil company TimorGAP appropriated 16 hectares of land (approx. 40 acres) for future infrastructure projects in Betano. In 2013, the Betano power station was completed on the site to support the future construction of the Tasi Mane development project and households in the region. The construction released considerably felt sonic and olfactory pollution into the environment and was carried out without a prior environmental impact assessment. Other preparations for the development project include "socialization" visits by TimorGAP to educate the public on the petroleum resources in the region, make announcements for the development project, conduct preliminary impact surveys, and identify more land for future infrastructure construction (La'o Hamutuk 2012).

During the 1960s and 70s, the Australian company Timor Oil searched for onshore oil deposits along the south coast, including in Betano; however, none of the deposits identified were deemed to be economically viable at the time. Hence the presence and potential of oil itself was not news to residents in Betano and during fieldwork elder residents frequently acknowledged the historical presence of oil in their lived environment. What was new, however, were the felt atmospheric impacts and socioeconomic insecurities that accompanied oil

exploration and extraction. During my fieldwork, Betano residents frequently associated malodors intruding on their familiar sensorium with the Betano oil power station and the offshore petroleum facilities. Given these developments, my Mambai research collaborators' greatest concern was that the planned Tasi Mane development project in Betano would intensify malodors and atmospheric pollutants, affect food security, and drive residents to destitution.

"I'm Afraid I Won't Smell Like the Sea"

July 2013. Oil is on the tip of peoples' tongues in the coastal hamlet of Lalica, home to around 600 inhabitants. *Bon dia! Kode ba kode? Mai ba foti mina-rai ka-lae*? – "Hello! How are you? Are you here to take the oil?" When they saw me approach their homes, mixing Mambai and Tetun, children would often shout out this series of greetings and questions only to be shooed away by elders.

I walked up to one of these homes, a rectangular construction of timbers and wooden planks held together with palm fiber rope and capped with a thatched dome roof (See Figure 5). Avo Roza, a sexagenarian caretaker of seven raucous children and my host mother, took my offering of tangerines and welcomed me inside. I was keen to learn about Roza's experiences with the recent changes in Lalica and out in the seascape, which provided families nourishment and residual income. Having shooed away her 8-year-old grandson, Roza treats herself to a breather and recollects our conversation from yesterday's market day: Her husband Jose had returned to shore with his catch for the day: a fraying wicker basket of yellow groupers and mackerel. Half his loot had scars on them, much like ulcers, along the gills and bellies. "They seem to have had a painful life," I had remarked to Roza. She nodded though a glimmer of uneasiness suggested otherwise. "We took away their pain but they're returning to haunt us." Her regular customers have stopped buying the fish even after she discards the damaged parts. "And

why should they?" Roza continued, "We need the whole fish, you know? To touch and see if the skin is supple like the living, and if not, forget it. These fish don't even smell like the sea. They are rotting, from inside out. They smell *hoe*, they smell of death. Here, you smell it," offering me a basket to judge. At the market place, damaged fishes haunt sellers when buyers practice caution. Like Roza, her fellow Betano residents do not want to risk consuming damaged fish that reek of *hoe*. Their decision stems when the *qualisigns* by which fish are known as fish — wholesome, supple to touch, smelling of the sea, and certainly not perforated with ulcers—are replaced with the olfactory qualia of *hoe*.

Figure 6. Lalica, Betano, Timor-Leste. 2015.

Lately her husband Jose's mid-afternoon, post-high tide excursions have focused in locating the extent of the stench of *hoe*. After searching the seas, Jose would move inland to pay discreet visits to the Betano Oil Power Station located just east of Lalica in his attempt to know where and when the stench begins so he can warn the rest of the fisherman not to fish in that direction. While Jose was unsure if the ulcers on the fish were related to the sea or the power

station, Roza was resolute: “The fish have lived here longer than us. They have not had ulcers until the new developments. It’s simple, and sad. To be alive is to smell like your home, where you live, and *what you eat*.” Pointing to the risky mackerel on the floor, Roza continued, “Soon, I’m afraid I won’t smell like the sea. I will smell like *hoe.*”

Roza’s concerns were also repeated in conversations with her fellow residents who frequently commented on the absence of a strong scent of the sea. Residents remarked that the air smelled different depending on the time of day, intensifying in the hours before sunrise when fisherfolk prepared to fish. When asked to elaborate, residents ultimately connected their olfactory experience with the 2011 to 2013 construction of the Betano Oil Power Station. Consider this example of a youth who, after revealing to me that his home smelled “like metal and not the sea,” associated this smell with the unfelt presence of work crews on the power station site. “They’re over there but we never see them!” he offered, referring to him and his friends who never saw the workers in public, like the town market and eateries. Though not quite in the realm of apparitions (there were indeed work crews in Betano), their absent presence hung in the air (cf. Bubandt 2014). Other people commented that although the work crews were rarely seen, their presence was palpable. Trucks transporting workers could be heard winding down the mountain roads to Betano before turning off to the power station site. In their wake, these trucks left a noxious cloud of diesel fumes raining down sand, grit, and stones at anyone unfortunate to be in the way. While encounters with the absent presence of the Tasi Mane project raised doubts over its existence, other effects were more palpable to residents.

Roza’s fear of ceasing to smell like the sea resonates with the cultural convention introduced in the opening vignette of this chapter, in which persons associate themselves with the olfactory qualia of the sea and their place of dwelling. To Roza and her fellow residents, the

category of "life" is marked by smelling like one's home, which in turn should smell like the sea. Insofar as the olfactory qualia of *hoe* and death emanating from damaged fish and from infrastructure development threaten to displace the smell of the sea, they also displace the smell of one's home, and of life itself. Phenomena including the displacement of the scent of the sea, damaged fish, and a fear of not smelling like the one's place of dwelling motivate Roza, Jose, and their fellow Mambai to perceive both the olfactory qualia of *hoe* and future petroleum infrastructure construction as conventional qualisigns, which threaten their sensorium and familiar ways of living. Importantly, Roza also invokes visual, gustatory, and haptic qualia to make sense of the fishy situation. When Roza remarks that 'we need the whole fish…to touch and see if it's supple like the living…' she finds salience in linking the haptic qualia of fish and how damaged fish respond unsatisfactorily when touched. When fellow Mambai refuse to buy and consume damaged fish, they are questioning whether eating damaged fish that reek of *hoe* might in turn contaminate their own bodies. Thus, they link their haptic, visual, and gustatory sensibilities with the olfactory qualia of *hoe* and death.

Since damaged fish iconically index undesired qualia of haptics, vision, and smells, they are not sold or consumed and are instead taken up as conventional qualisigns of the changes introduced by infrastructure development. Through the process of conventionalization, qualisigns are made into public entities by residents in Betano. That is, they are available as objects for the senses and not confined to inner or subjective experience. In their publicity, qualia and qualisigns can enter into political projects that people work on. In the second event, I describe how uncertainty over marine-based foods spills into onshore food security.

Little "Reward for Their Sweat" – Protest and Food Insecurity

Seven A.M.: the end of another day of fishing. I jump out of the boat and squat on the shore with my friend Ricardo and his father. We tend to the fishing nets with the sun beating down on our backs. I have been learning to mend nets for a few months now. My fingers are blistered while nets remain frayed. I listen in on my companions who have been arguing all morning over the plans to build a refinery in Betano.

Ricardo: I've decided. I will get a job when they build the refinery.

Father: You're stupid. You won't get a job. There will be no jobs for us!

R: They said there will be jobs and money. We won't have to fish.

F: Look. Look, at the power station they are building. They said they will pay us for the land. They said they will give us work. But they took the land without asking us. And only Chinese are working! And they don't buy the food we cook!

R: Yes, but you don't understand. There was misunderstanding between us and the government. You are old. You don't understand politics. They will need many workers for the power station. There will be work and money!

F: Listen, son. I fought for this land. But the people who are in power now, no I don't trust them. I won't give my life for them. What if these people don't deliver on their promises again like when we gave them land? What will happen then…What can we do? We can always fish. I am old, but I can still fish. There, I've said my piece.

Since restoring independence in 2002, Timor-Leste's politicians have passed a steady stream of legislation aimed at building governmental institutions and administration. One such legislation is the Petroleum Act of 2005, which paved the way for the formation of TimorGAP, a state-owned National Oil Company, established in 2011 (Government of Timor-Leste 2005). In the summer of 2011, residents of Betano offered 4 hectares (approx. 10 acres) of land to the Timor-Leste government in order to construct the Betano oil power station. However, it later transpired that the power station required an additional 12 hectares, for a total of 16 hectares (approx. 40 acres). (La'o Hamutuk 2012). As da Silva and Furusawa document (2014), the landowners and community demanded compensation as they were not prepared to give up such a large area of land. In turn, the village chief contacted a sub-contractor and arranged for each claimant to be given a small amount of money as recompense. This claim was called *kosar be'en*— "reward for their sweat" (da Silva and Furusawa 2014: 227). The sub-contractor emphasized that it was not official compensation. The claimants signed a document that they thought was a receipt for *kosar be'en,* which, unbeknownst to the claimants, was used as proof of their agreement. Residents I worked with recounted that the sub-contractor went ahead and cleared the land using heavy machinery, destroying all the crops, without first informing the claimants of this action. The claimants felt aggrieved knowing that there was very little reward for their labor.

Families in Betano, like a majority of East Timorese, cultivate household gardens and participate in swidden cultivation of rain-fed crops, like maize, cassava, semi-aquatic vegetables, rice and beans and tend to small livestock such as chickens, goats, and pigs (da Costa 2003). As is the situation in other regions of Timor-Leste, local agricultural output does not meet the nutritional demands of the residents of Betano. According to the most recent 2014 data in the

United Nations International Trade Statistics Database, 37% of imported items into Timor-Leste were foodstuffs, which include rice, raw sugar, animal and vegetable products followed by 15.7% of Refined Petroleum (UN Comtrade 2015). During a five-year period, Timor-Leste's imports have also increased from US$357M in 2009 to US$627M in 2014 (UN Comtrade 2015). From my experience, imported foods tend to be cheaper in Dili and Baucau, the capital and second largest habitations respectively. Prices rise as buses and trucks snake up and through the highlands before winding down to the coast. A kilogram of rice that would have cost between USD 1.50 and USD 2 would cost anywhere between USD 2.50 to USD 4 beyond Dili and Baucau. Higher food prices are accompanied by the uncertainty around the availability of foods. Having travelled on board vehicles carrying food imports since 2007, I observed that it was a common strategy among transport cartels to barter for petrol with comestibles designated for village markets. Higher food prices and uncertainty over the consistent availability of foods lead to food scarcity and undernourishment. In my time conducting research in Lalica and the surrounding hamlets of Betano, families made on average USD 3.00 a day. Most of this money was made on weekly market days and spent promptly on food and household goods. With increased food prices and risk around the consumption and condition of wild marine foods, food scarcity is a constant topic of conversation among families.

Communal sentiments of risk and fear were intensified through Betano residents' protests against agricultural land appropriation (La'o Hamutuk 2012). On August 31, 2011 approximately 100 people from the community, including claimants, and the Betano youth movement organized and began a peaceful protest at the site of the power station. They carried banners and discussed the advantages and disadvantages of the case. Although the protest organizers and participants abided by regulations and informed the relevant authorities about the action, the police

intervened violently, shouting obscenities at female landowners, shooting into the air, beating five community members and student representatives. Nine youth were arrested. The state's threats against future political action and the increase in local police presence have since contributed to a pervasive sense of disquiet within Betano. Looking ahead, TimorGAP's 2015 Annual Report suggests that the Tasi Mane project would "require a total area of 253 hectares, which shelters houses, plantations, livestock and areas with cultural and archaeological value" (TimorGAP 2015). An additional eight hectares has been identified for "construction of a weir facility…to channel the water for the refinery operations" (Ibid. 44-45). This information was shared in 2016 with Betano residents who continue to discover that not only is there little reward for their sweat but that they may be forced into further toil should TimorGAP acquire more land for infrastructure development. However, Betano residents remain undeterred by this situation and continue to find new ways to respond to changes in their lived environment.

To summarize the first and second events, we have learned how the olfactory qualia of *hoe* and death and fears over 'not smelling like the sea' in the first event are not confined to subjective or mental experience. Instead, shared sensory experiences are circulated among Betano residents and become public entities, thereby taking shape as qualisigns of the changes introduced by the petroleum infrastructure project. In this second event, I have described how such qualia and qualisigns can motivate political engagement where people protested over land appropriation and uncertainty over food production. In the third event below, I turn to the importance of visual qualia in peoples' reflection and interpretation of future infrastructure projects.

Dreaming about pipes…

In 2015, I returned to Betano and accepted town chief Taur's invitation to attend a town hall meeting to discuss the oil power station and the Tasi Mane project. I counted a crowd of forty people, most in their mid-40s and familiar to me, and several youth activists who were among those arrested the previous year. Taur's older brother Sico addressed the meeting: "We Mambai have always understood the oil and gas in our land and sea in the same way we [have come to] know our sago, maize, and horses." Sico paused to let the crowd nod in agreement before continuing, "They are all part of the *fu* (trunk) of life. They belong to the past and to the living present. They belong to the origins, to the centre of the cosmos...and this is the source of all life." Mambai persons are socialized into this taxonomy from an early age. During fieldwork, I learned how elders paid careful attention when describing the flora and fauna to children being taught Mambai ways of life. Elders would point up to parts of trees, linking visual qualia and qualisign, and explain to children that the trunk is the source of all life while the branches are people who spread out from the trunk.

The importance of botanic cosmological metaphors to socialization has long been documented in anthropological records of island Southeast Asia (Fox 1971; McWilliam 2002; Therik 2004; Forth 2009). Elizabeth Traube's (1986) pioneering work among highland Mambai communities reveals the significance of botanic cosmological metaphors such as *fu* (*trunk*) and *lau (branch)* to precedence and origin narratives in Mambai cosmology. Traube suggests that botanic cosmological metaphors can, on a fundamental level, be conceived as a relationship between wife-givers and wife-takers that embodies a relation of precedence and succession.[20]

[20] Botanical metaphors mobilized to emphasize precedence also invite dialogue among participants around the legitimacy of narratives (see for example Traube 1989; Bovensiepen 2014a, 2014b, 2015); they are also linked to ritual practices aimed at producing prosperity for future generations (e.g., Kehi and Palmer 2012; and Trindade and Barnes 2018).

This relation can be read as a taxonomic division of life and is exemplified in Sico's address to those gathered; key excerpts from this address is provided below with the corresponding line number:

Line 10 TimorGAP, Eni, and Conoco[Phillips],
11 just like others who came before,

12 the Indonesians and Portuguese,
13 all of them belong to the *lau* [branches].

14 We Mambai,
15 we are like them,

16 we also belong to the division of all life here,
17 we also belong to the *lau.*

Through these couplets Sico delivers a proposal to group the new arrivals to Betano – petroleum companies TimorGAP, Eni, and ConocoPhilips – into the same taxonomic division of life as Mambai persons. The grouping of new arrivals is justified by the familiar grouping of "others who came before, the Indonesians and Portuguese." This regrouping recasts the existential problem of new arrivals by grouping new/foreign and existing entities into the same division of life. Such regroupings echo a recurring theme of incorporating foreign others and otherness as both an accommodation to foreign powers and as a valued form of sociality

(Bovensiepen 2014a, 2014b, 2015; Fox 2008; Hoskins 1993; Rutherford 2003; Sahlins 2008; Traube 1986, 2007).

On the one hand, the narrative focus on the relationship between foreign and autochthonous social actors is central to contestations over political authority and responsibility (Fox 2008: 202; Hoskins 1993: 118). This has allowed highland Mambai, for example, to integrate Portuguese colonial powers into narratives about common origins and age-grade precedence by presenting them as a returned younger brother (Traube 2007). On the other hand, such accounts might be mobilized in a way that allows people to revise their understandings of relatedness, creating "a situation in which people […] reinvent themselves and from which new modes of identification emerge" (Bovensiepen 2014b: 293). This is relevant to the dynamics I observed in Betano where elders not only integrated petroleum companies as returnees in the cosmological taxa of life but also found a mode of engaging with the onslaught to their sensorium, land appropriation, and political unrest introduced by the new arrival/returnees.

At the town hall meeting, Sico proceeded to unroll a large map with plans for the Tasi Mane Project and gestured with his hands toward the grand plans to shape the landscape into a hydrocarbon corridor. A delegation from TimorGAP had distributed these plans to Taur and his town council when they visited in 2015. They had requested that he share them with his constituents in Betano. A hush fell over those gathered as Taur and Sico unrolled other maps of the project. Marcelino, an elderly and prominent ritual speaker sitting at the front, broke the silence, "*Nipati,* all of this is just *nipati*." The closest Mambai term which corresponds to the English word for "plans" is *nipati* which comes from the root term, *nipat*, or "to dream." While Marcelino's observation also resonates with common Timorese and Mambai ideas about fortune telling and divination as requiring "far/distant sight," the TimorGAP maps were indeed new

arrivals' dreams and acts of dreaming an "image of the future" without consideration of the everyday realities of people. Figure 1 is a reproduction of one of the maps that Sico unrolled and features three new towns—Nova Suai, Nova Betano, and Nova Viqueque—drafted by TimorGAP as part of a plan to replace existing village communities in Suai and Viqueque further west and east respectively from Betano (TimorGAP 2015). On the original map Nova Suai is designated to be logistical hub, Nova Viqueque to house a Liquefied Natural Gas plant, while Nova Betano will house a refinery and petrochemical complex.

"See here," said Sico, as he traced the highway on the map connecting coastal towns of Suai and Viqueque with Betano "roads and pipes… branches taking what is from here to somewhere else." Taur laid out more maps and plans on the table. While the crowd examined the documents, I followed Sico, Taur, and two other elders including Marcelino, to an adjoining storage room. More than a dozen bundles of development plans and flyers lined the floor. Among the mix of documents were Corporate Social Responsibility (CSR) triple bottom line plans for capacity-building projects, including schools and clinics, and mock-ups of roads and multi-lane highways.[21] Taur revealed that the state and corporate delegation travelled regularly to Betano and the region and distributed these documents to his town council. Initially Taur and his fellow council members were puzzled by these documents and the dreams inscribed in them, but land appropriation and risk of food scarcity had tipped residents and compensation claimants to organize a peaceful protest. Following Matthew Hull (2012), we can read the materialization and persistence of infrastructure development dreams/plans as "graphic artifacts" with the potential

[21] The triple bottom line plans claim to expand the accounting framework of monetary profits to include the social and environmental impacts of a company.

to create and mediate social relations – including unequal relations between government and Betano residents.

We returned to the town hall meeting where Taur gestured with one hand to the toward the outdoors, "Look around us, how are they going to change the coast and forests to resemble their dreams?" Marcelino pointed to the document stacks, "First they bring the *dreams (plans)* and the roads, then they destroy the fish…and the sea smells bad!" He paused, scanned the room, and continued, "…they bring all these branches and soon we will dream about pipes." I observed that the nods and chatters around the room confirmed the inevitability of Marcelino's pipe dreams.

…or just pipe dreams?

As I prepare to conclude the first section of this chapter, I wish to reiterate that botanic cosmological metaphors are more than just part of a series of dualistic oppositions used to conceptualize social change; they also offer insight into how aspects of Mambai cosmology harmonize with sensory practices of vision. For example, in the child socialization practice described earlier, elders point out trees to children encouraging them to associate trunks and branches with origins and dwellers like humans, flora, and fauna turning visual qualia into qualisigns of Mambai cosmology. Visual qualia, together with the olfactory and haptic qualia discussed in the previous sections, allow people to make sense of changes in their environment including the infrastructure development plans, power station, the absent presence of work crews, land appropriation, damaged fish, nauseous smells, and challenges to identity. Thus, botanic cosmological metaphors transcend neat dualisms and could be read as practices in which Mambai persons associate qualia with objects, events, and persons both foreign and autochthonous.

In the Betano case, the TimorGAP plans and maps have moved across multiple bureaucratic domains, including the Timor-Leste government and multi-national petroleum companies. But these domains are also saturated with narratives of the past, realities of the present, and visions of the future, kinship obligations, cosmology, and moral codes, thus alerting us to the agencies of entities other than human social actors. Recalling the discussion of conventional qualisigns, Marcelino and Sico turn their visual qualia of TimorGAP plans and maps into meaningful signs through botanic cosmological metaphors and interpret them as dreams. Through the interplay between visual qualia and botanic cosmological metaphors Mambai persons transform 'graphic artifacts' into productive new sites in which to participate in the workings of the Timor-Leste government and offer a diverse mode of engagement with the political.

Marcelino and Sico's observations further suggest to us that graphic artifacts like the infrastructure development plans can be read as pipe dreams of new arrivals being inscribed onto the Mambai sensorium of their lived environment. New arrivals' dreams, however, are not evanescent; they are materialized visually through graphic and print media and contain two important features: First, new arrivals' dreams offer a top-down view of the land- and seascapes, popularly known as a bird's eye view, to TimorGAP and the hydrocarbon companies. Bird's eye views are generated by satellite, Global Information Systems (GIS), and aircraft technologies. Second, new arrivals' dreams are visually materialized and digitally rendered by computer-aided designs of the Tasi Mane project, which result in digital images like the reproduction in Figure 1. These digital images are printed on paper, bound into a book of planning documents consisting of maps and reports and distributed to the public.[22] In a similar manner to the olfactory qualia of

[22] They are also made available on La'o Hamutuk's website for interested parties. Accessible at https://www.laohamutuk.org/Oil/TasiMane/11TasiMane.htm

hoe encountered in the first event, planning documents function as conventional qualisigns in their uptake among the Mambai. As conventional qualisigns, planning documents become available for people to interpret and reflect on new arrivals' designs of and upon their lived environment.

In the case presented here, Mambai elders including Sico, Taur, and Marcelino suggest that the sensory practices of TimorGAP, and the hydrocarbon industry more broadly, rely on a different set of optics to visualize their infrastructure development project. The bird's eye views of new arrivals' dreams, however, remain incongruent with Mambai lived experience and sensory practices involving botanic cosmological metaphors. To the Mambai elders, the new arrivals have produced a grotesque rendering of their lived environment and intensified the on-going distress to their sensorium and social position in relation to the State and the petroleum infrastructure development. The first section of this chapter has shown how people conceptualize relations between sensing and sociality, and how cosmology is vital in people's understanding of land appropriation, atmospheric pollution, and political action. In the next section, I discuss the potential of citizen-sensing methods for people's engagement in sensory politics.

Sensory Diaries & Participatory Mapping

In the first section of this chapter, I discussed how graphic artifacts, like GIS maps, were novel visual technologies to people in Betano. Aside from a handful of residents who used smartphones very few others had encountered their lived environment through the visuals presented to them by the Timor-Leste State.[23] Moreover, people were suspicious about such visual documents since they were introduced soon after the olfactory, sonic, and other kinds of pollution had affected their sensory practices and livelihoods. The Mambai elders, town council,

[23] Though many people did not have *pulsa* (credit) on their phones or did not have enough *pulsa* to surf the Internet.

and several youths who had returned home after completing a degree program in petroleum services were more hopeful. They decided to form a working group to address the effects of pollution on their sensory practices.

Sico was aware that I had been trained in GIS-GPS technologies and asked if I might be able to assist the group in their efforts to document the effects of pollution. I had also previously consulted about sensory field methods with Asifa Majid (then at the Max Planck Institute for Psycholinguistics). At that time, Majid was conducting research with the Maniq peoples in Southern Thailand and had developed experimental methods to investigate olfactory lexicon. Drawing from her work, I had been developing sensory field methods involving diary-keeping and GIS-GPS mapping of locations where people experienced pollution. Though I wasn't certain if Majid's methods could be tweaked to study sensory pollution, our Betano working group decided it was worth a try.

The working group decided on three goals: first, to document residents' experience with pollution; second, to create a map showing the location of the pollution, and third, to give this map to the Timor-Leste state and to the oil companies. The Mambai elders, in particular, said that making a map of Mambai experience with pollution can make the Timorese government "see the damage they are causing." I confided to Sico that it would be challenging to accomplish these goals in a short amount of time, especially given the increased surveillance by the State and oil companies around the power station. Sico acknowledged the circumstances. For him "anything else was better than smelling *hoe* all the time."

Eight Mambai youth (six men, two women) consented to participate in our pilot *Diariu Senti* "Sensory Diary" study. We provided notebooks and pens requesting that the participants carry the notebook with them as much as possible and to note down whenever they encountered

"something not quite right" with the air they breathed in. Each notebook included a template indicating the date, approximate time of day, and where the participants should write down familiar and unfamiliar smells, including good and bad smells and *hoe*. The idea was that people would record these smells and the general location into a notebook for an initial period of two weeks. At the end of each week, the working group met with the study participants to go over their notebooks. Using push-pins and a topographic map, we also recorded the location where the participants experienced pollution.

From the pilot study, we learned about several limits to our methods—one unforeseen factor was the rain threatening to damage the notebooks, while other limitations were language use, translation, and the immense challenge to write about what one smells. While the participants remained enthusiastic about continuing their work, they had also attracted the interest and curiosity of their friends and family. This encouraged the working group to continue the study. I proposed to expand the study to a period of seven months, from September 2015 to March 2016, in order to document sensory perception under seasonal weather change. With the help of the Betano town council, we recruited thirty-five consenting residents from all five villages (*sukos*) in Betano. This study group comprised of twenty women and fifteen men. By the end of study, twenty-three participants kept a consistent log every two to three days of their olfactory encounters, while twelve kept weekly entries. Participants used a mix of Mambai, Tetun, Bahasa Indonesia, and Portuguese in their diary entries, posing a further challenge when translating between languages and categories of sensory perception. For example, was there a difference between the experience of bad smells across the languages? When a participant wrote *"Cheirava mal"* ("It smelled bad") in Portuguese, would it be a similar kind of bad smell in Tetun or Mambai? While these questions kept me awake at night, the other members of the

working group felt that any negative olfactory response meant they had more data. Figure 6 is a reproduction of a series of entries from the Sensory Diary of 20-yr old Maria Avelino (pseudonyms were used), a Mambai youth from Betano during the period between November and December 2015. The first two columns indicate the date and time. Maria had a cellphone which gave her the time. In the third column, Maria recorded her olfactory experiences with place-names ("Two-stream river," "school," "home"), smell descriptors ("Smell bitter," "Smell death at night now," "Life-taking"), somatic and psychosomatic experiences ("coughing," "life-taking," "vomit," "*cuidado*" - be careful, "*triste* - sad"). The Tetun-language words "*horo-raan*" means the smell of blood or smell related to blood and "mat-ho-sul" is a compound word that means smell of death.

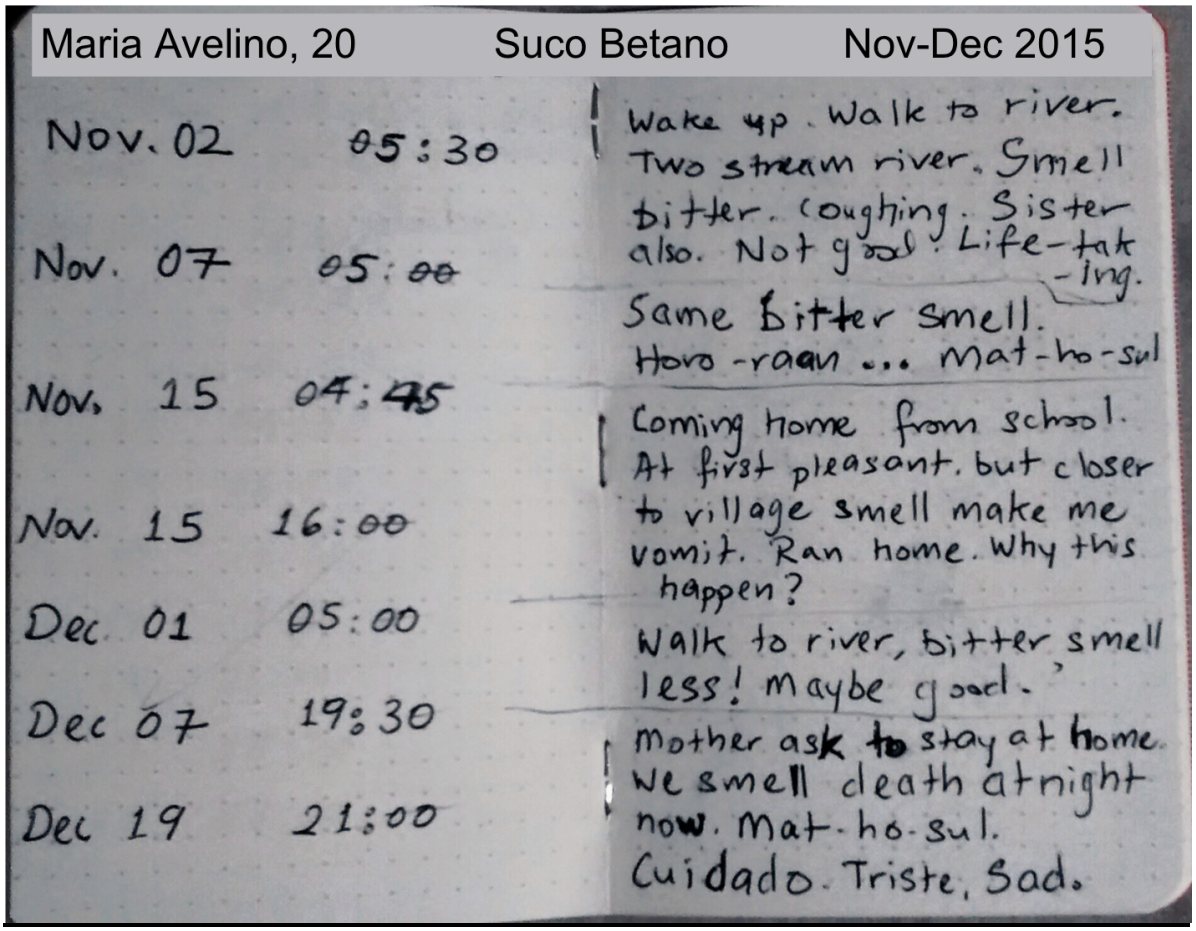

Figure 7. Entries from the sensory diary of Maria Avelino, Nov-Dec 2015

The research participants met with the working group weekly or bi-weekly at Sico's home where their entries were recorded onto a ledger allowing us to compare entries against the locations. In total, we collected I had also acquired several large topographic maps of the region from a friend upon which participants and the working group stuck pins to note the locations listed on the diaries. Place-names and locations commonly indicated that people were on the move or on their way to a place when they encountered olfactory pollution.

These meetings also provided a place for participants to elaborate on their diary entries and experiences; soon Sico's home became a place where people shared their encounters with pollution, warning each other to avoid a certain place, or to offer support to one another.

Noticing this development, one of the elders remarked, “It’s like the time when we stopped fighting [the Indonesian military]. We shared stories until our throats were dry. Now, it’s a different kind of war with an enemy you can’t see but you know something is not quite right.”

As part of our participatory mapping, the working group, some elders, and participants from the sensory diary study went on transect walks and transect boat rides to explore in more detail some of the information that emerged during the sensory diaries and topographic mapping process. Transect walks helped us understand the daily movement patterns of Mambai residents and their fishing routes; importantly it helped the group to gain an understanding of how smell related to place.[24] The working group also visited the locations on participants’ diaries and took GPS coordinate readings using two Garmin eTrex10 GPS trackers and mobile apps on cellphones. GPS coordinates were also tracked to map the paths taken by fishers, fishing routes, and oceanic locations where pollution was experienced.

Mambai participants’ Sensory Diaries, transect walks of the lived environment, and participatory mapping using GPS generated all together 2,016 sensory diary entries, over 135 unique GPS coordinates indicating encounters with olfactory pollution on land and at sea. This resulted in a lot of rich data to work on when I returned to Ann Arbor in 2017 and started entering data from the Smell Diaries and matching it up with the GPS coordinates. Below, the series of four GIS-GPS-based maps offer the following takeaways:

[24] Transect walks have been used in a variety of places and purposes, for example, to understand the barriers to health care access in a refugee camp in Ngara, Tanzania (Rutta et al., 2005), water use habits in Cape Province, South Africa (Motteux, Binns, Nel & Rowntree, 1999), and community knowledge of the use of tree species in Cameroon and the Central African Republic (Vabi, 1996).

1. Through transect walks, Figure 8 shows the Mambai lived environment on land.

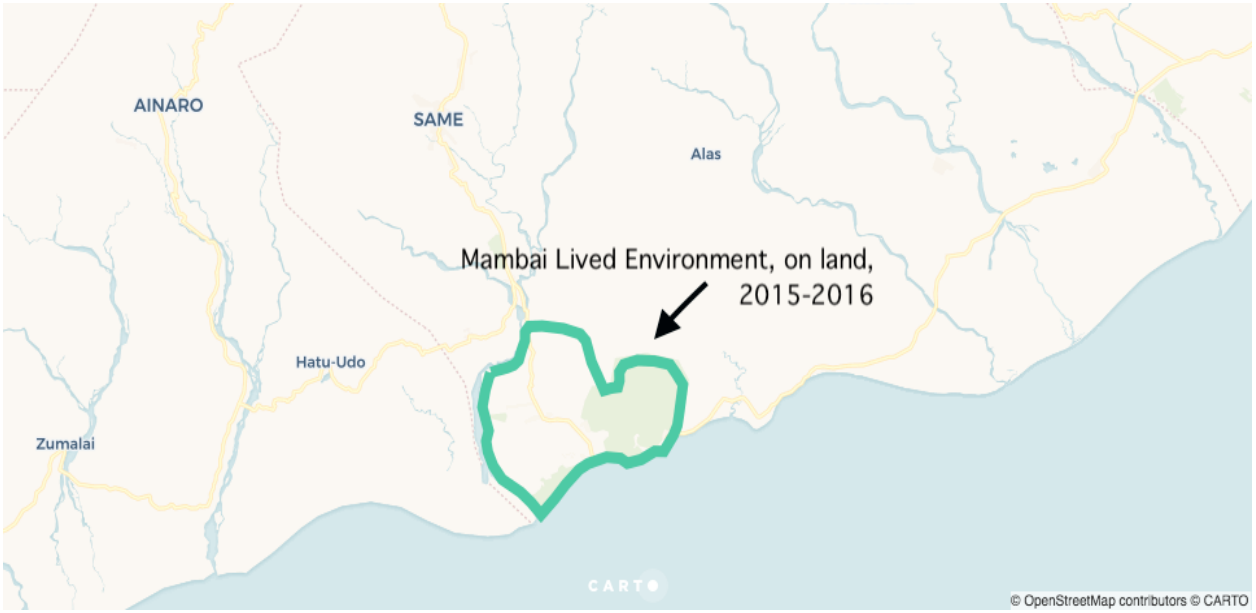

Figure 8. GIS-GPS Map of Mambai lived environment

2. Through transects at sea, Figure 9 is an animation that shows Mambai fishing routes (red circles) that are in the path of olfactory pollution (orange polygon). If you click on the image, it will (most likely) load in your Internet browser and play an animation of the fishers' paths based on real-time GPS-coordinate.

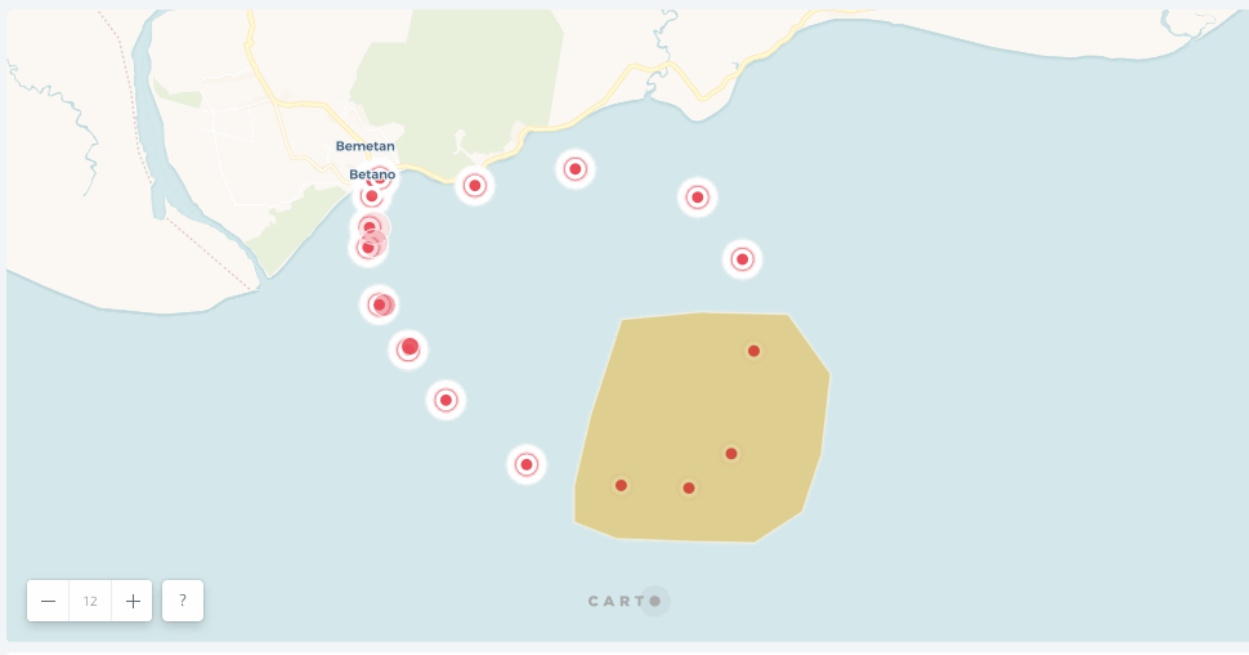

Figure 9. Clickable animation showing transects at sea, red dots indicate GPS-based fishing patterns, in the path of olfactory pollution (orange polygon).

3. Triangulating sensory diaries, transect walks on land, and GPS data, Figure 10 shows olfactory pollution indicated by heatmaps. The Betano Power Station is northeast to the town (purple polygon).

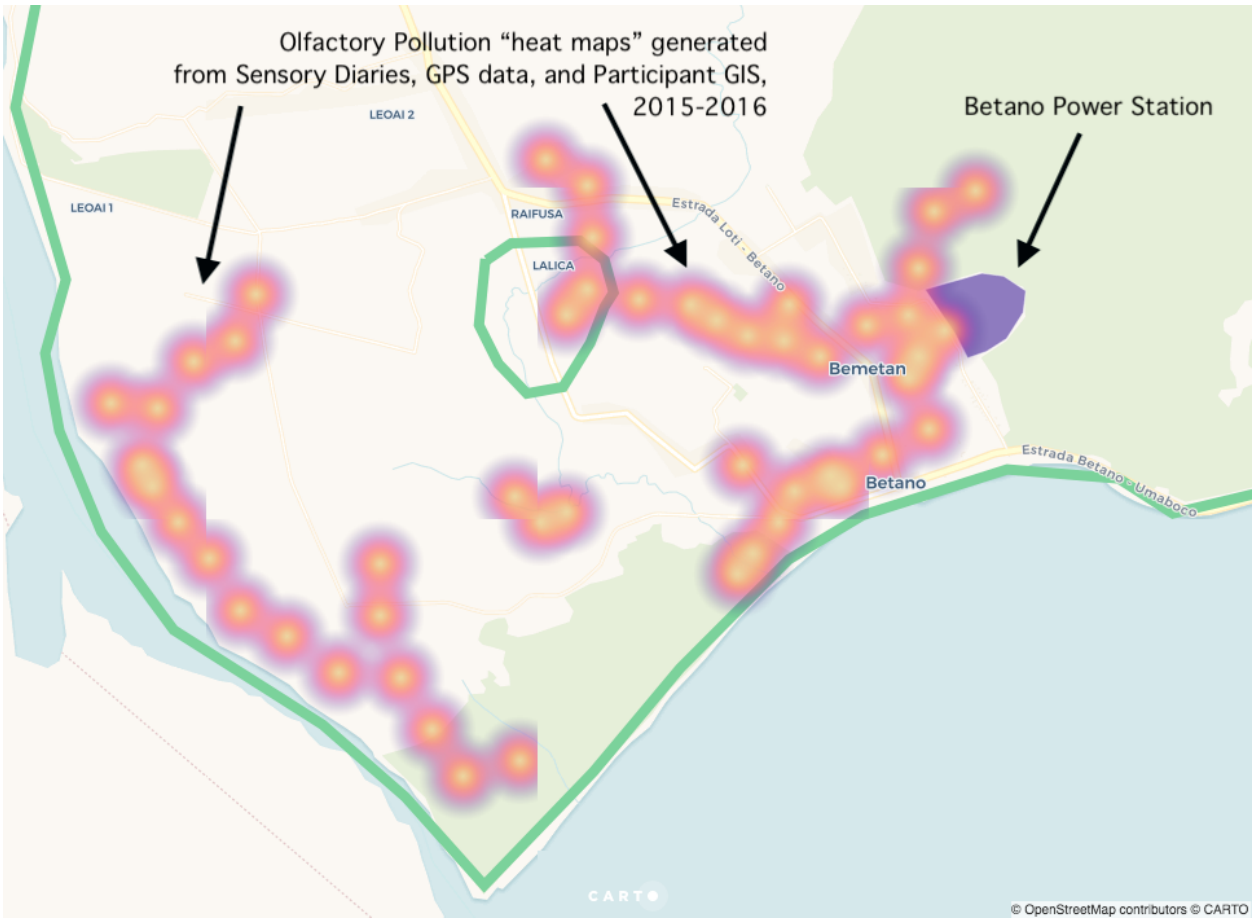

Figure 10. GIS-GPS-based heatmaps indicating olfactory pollution

4. Using transects at sea and GPS data, Figure 11 shows heatmaps of olfactory pollution along fishing routes. Purple dots indicate fishers' paths. Since encountering olfactory pollution, fishers abandoned their favored fishing spot, known for large mackerel, and have started fishing west. Oil fields in the Bayu Undan fields are currently extracting gas and crude (purple polygon).

Figure 11. GIS-GPS-based heatmaps indicating olfactory pollution at sea causing a shift in fishing activity.

Through this series of maps, we see that olfactory pollution dissipated from the inland source (the power station on appropriated land discussed in the first section) and the source at sea (oil rigs) and affected Mambai residents across their lived environments, both on land and their fishing routes at sea. In the first section, we learned about the ways that people associated certain qualia with identity and sociality and about the analytical power of cosmology in people's understanding of land appropriation, atmospheric pollution, and political action. The second section of this chapter has shown that methods such as sensory diaries, participatory mapping, and geo-spatial technologies, sensory phenomena can be mobilized for people's environmental justice efforts.

The olfactory pollution data we have collected, and subsequently transformed into maps—visual documents—that a court of law might begin to accept as permissible evidence, is just one step in thinking about how sensory testing technologies might be tweaked to consider how sensory pollution challenges facile notions of property and land appropriation (Kirsch 2018; Richland 2016). In pursuing environmental justice, the Betano working group plans to request a formal meeting with Timor-Leste's Minister of Petroleum and Mineral Resources, Alfredo Pires where they intend to discuss the extent of olfactory pollution in Mambai homes and fishing areas. The Timor-Leste state has repeatedly failed in land compensation negotiations with Mambai residents in Betano. The Betano town council and Mambai elders strongly prefer that the state and the hydrocarbon industry offer either a landmark compensation package with housing and skills training to replace income lost from fishing and agriculture related commerce. This is motivated by new plans by the state to relocate the Betano residents further inland. In the next chapter, I discuss efforts by families who are trying to boost their chances of surviving

inland by hoping to establish a marriage relationship with once-kin and currently- estranged Mambai families in the highlands. Their efforts come to be thwarted by a pig.

Chapter 3: *No* Pigs for the Ancestors

Introduction

This chapter discusses the dynamic relationship between Mambai sensory practices and kinship, and features a pig, progeny of a lineage of pigs with prophetic capacities, and his role in verifying prior relations with presently estranged Mambai persons and families in coastal Betano and highland Timor-Leste. Verification is performed through *barlake*—exchange practices that surround marriage and relations between the families or clans of bride, known as wife-givers and groom as wife-takers. I provide an account where a family of wife-givers from the coastal town of Betano has to prove prior relations with a family of highland-dwelling wife-takers by material means, which include presenting ritual items that were once circulated between both families in events concerning the beginnings and ends of life. Wife-givers travel to the wife-takers' home to commence the barlake ritual event where wife-givers present to the wife-takers and their ancestors items the wife-givers received from the wife-takers during the last barlake event some seventy years ago, where a daughter from the wife-givers was negotiated in marriage to the wife-takers. A ritual speaker mediates the negotiation. The purpose of the presentation of these items is to re-open channels of communication with the dead ancestors and their world and importantly, as the ritual speaker Matan Ruak (Two Eyes) explained to me, "build a bridge between the ancestral families with words and blood."

One well-guarded and much adored item that makes this journey is Rasik, a pig whose lineage, the wife-givers claim, can be traced to a sow with prophetic capacity to foretell danger that was provided by the wife-takers' clan during the inaugural *barlake*. If Rasik can be verified

as its progeny, he will undergo a second test: he must mate with a sow from the wife-takers. If the sow becomes pregnant, Rasik will be killed, his blood and meat offered to the ancestors and humans. Insemination thus results in sacrifice, which will have the effect of a bridge being built between the wife-givers' and wife-takers' *avo sira lalehan* (the ancestral worlds). The conjoining of the wife-givers' and wife-takers' ancestral worlds indicate that the families may then proceed with the next stage of rekindling relations where the wife-takers from the coast will offer their daughter in marriage to the wife-givers in the highlands.

The Sow which Foretold a Flood

The original sow was held to be responsible in predicting a flood that led inhabitants to abandon the hamlet and seek shelter at higher altitudes. This was a story I had heard many times: It was a day deep into the wet rainy season. Children were playing in the rain not far from their parents who were working in the fields. Rain or shine, work continues. Without provocation, the sow broke free from her pen and charged at the children. An odd but ominous act? The people were not sure. The sow was remembered as being calm. Her patient and docile nature appealed to the children. It was odd, then, that she would break out of her pen to charge at the children. With loud growls and roars she chased the children down to the village. The worried parents ran after the sow hoping to calm the sow and return her to the pen. Soon they arrived back at the village. News broke out through a messenger that a flash flood had just torn through the village to the east. People and animals were swept away, and some were seen crashing against the rocks. The people looked at the sow lying on the ground, which had by now regained her composure. A decision was made to abandon the village. Taking only what they could and the sow, they fled to higher altitudes. From up above they watched the waters tear through their village. They had been saved by the sow. Since that day, the family who raised the sow, those who would later be

wife-takers in relation to the wife-givers, were given special honor in the village, and the sow was to be revered and spared the knife.

A few years later, after bearing offspring, the sow was given by the wife-takers to the wife-givers during the inaugural barlake, an exchange that culminated in marriage and a successful conjoining of the two families. This was an event that happened in the 1930s. The separation that resulted in highland and coastal Mambai groups is discussed in the introduction, but to remind the reader: under threat from the Indonesian military in 1976 and distressed by the *hoe* (stench of rot) from corpses, the Mambai community left Lekitehi and settled in the south coast town of Betano, forming the first coastal Mambai community. The dead and rotting bodies of Mambai family members, however, were left unburied. The wife-takers decided to seek new pastures to the south coast, settling in the coastal hamlet of Lalica where they developed skills in fishing and established new kin relations with Mambai and non-Mambai groups along the south coast. The progeny of the prophetic sow is now in the care of Roza's family (who was introduced in chapter 2), coastal Mambai who assume the position of wife-givers in relation to the wife-takers in the highlands.

The toxic situation along the coast poses existential challenges to coastal Mambai families in sustaining their marine livelihoods and maintaining land and homes. While the national oil company TimorGAP has plans to move coastal Mambai to a new town further inland, the relocation is met with much distrust and uncertainty. Out of the 563 residents in the Lalica hamlet (pop. count 2015), only a handful have accepted the monetary compensation offered by TimorGAP for transfer of their land titles to the government. Anticipating destitution and forced eviction by the expanding Tasi Mane project and its extractive operations, some coastal Mambai families journey to the highlands seeking employment and hoping to renew

relations. Families often have two goals during these trips: one, find seasonal and permanent wage labor in coffee plantations and two, rekindle social relations with people living in mountain towns who were once kin but presently are estranged. In this chapter, I follow barlake efforts by Roza's family and their prophetic pig, who engage as wife-givers to the wife-takers in the highlands, and pursue relations between families and ancestors, and the prospect of existential security.

This chapter has three sections: in the first section I discuss the sensory practices of *hot* and *cold* and their significance to barlake participants—wife-givers', wife-takers', and the onlookers'—in the barlake ritual. After introducing the pressures driving highland Mambai groups to entertain barlake with their lowland neighbors, I draw from the ethnographic records of Timor-Leste and Indonesia to describe barlake and exchange practices more generally. In the third and fourth sections, I introduce Rasik and his lineage of prophetic pigs and explicate the barlake practice, starting with the presentation of other items and ending with Rasik. I discuss Rasik's capacity to copulate, people's responses to the outcome, and the consequences to relations between the wife-takers, wife-givers, and their ancestors. In this final section, I discuss how atmospheric pollution may have played a role in the outcomes.

Previous research has centered on the structural and symbolic aspects of barlake (Hicks 1978; Traube 1986, 1989) and, more recently, barlake's role in gender relations (Niner 2012). This scholarship has generated insights on the multiple ways that barlake is perceived by its participants, with experiences and opinions split between barlake being seen as a repressive custom or barlake promoting women's empowerment through ownership of property. These are important insights that not only inform us about the ritual event of barlake but also the effects of barlake and how it is perceived by participants. Barlake, certainly, evokes much debate and

opinion in Timor-Leste. I rarely had to bring up the topic of barlake when conversing about family and relationships with my Mambai interlocutors and with Timorese living in the capital. Elder Mambai interlocutors, with whom I spend considerable amounts of time in fieldwork, often commented that barlake "is about making heat (*pun brusi*) and cold (*pun bisa*). Heat between families…between those distant and those who are negotiating a union." This often came with a warning that "too much heat during barlake negotiation leads to war…cold is needed…barlake is about the balance between hot (*brus*) and cold (*bisa*)."[25]

Participants, onlookers, and the occasional anthropologist at barlake ritual events would not fail to notice the outbursts of heat—highly charged emotional activity from participants and onlookers, a result of anticipation and excitement accruing, when chatter between two persons morphs like a hurricane moving through the air and rises to a crescendo of voices, cries, shouts, yells, rejoinders, laughter, bawls and bellows all offering their satisfaction and disapproval of the proceedings. All the while, curls of dried tobacco are packed loosely in dried clove leaves, men drawing deep and long into their cigarettes, their eyes lighting up with each rise and fall of their chest, inhale and release, the heat radiating out of their bodies. The puffs of the clove rise up in barlake, forming a thick, sweet but noxious fog that hangs just above the heads of people in attendance.[26]

Bodies of participants and onlookers are packed close, those near and dear and those more distant. Their hands on one another's shoulders, cigarettes in between fingers, toes

[25] I have also documented Mambai interlocutors comparing barlake to "haltering (tying a rope around) a cow's neck. It can bring the cow (people) in together with you but it can also separate that cow from others."
[26] A fantastic ethnography on the links between tobacco, sexuality, and men's sexual prowess is Colin Murray's (1975) "Sex, Smoking and the Shades: A Sotho Symbolic Idiom." In *Religion and Social Change in southern Africa*, eds. M. G. Whisson and M. West, pp. 58-77. He focuses on the rite in which an "old woman matures a child by "smoking' him" (p. 61) with tobacco, enabling the boy to use his penis "in the matter of life" (p. 58), and the involvement of ancestral spirits in the process.

fidgeting, feet touching another's back, sometimes kicking playfully and sometimes not so. Bodies pushing and pulling in anticipation of an upward turn in events. Women reaching between the folds of their sarongs, and into their intricately carved wooden or silver boxes, which shield the ingredients for *bua malus:* areca nut, betel pepper leaves, and lime powder. *Bua malus* is a mildly narcotic stimulant comprised of two vital components: *bua*—the hulled, sliced, and often sun-dried fruit of the areca palm, and *malus*—the leaves and/or yellow-green catkins of the betel pepper vine. When you add a third ingredient *ahu* (caustic slaked lime powder, or calcium hydroxide), wrap them into bite-sized packets and chew (*mama malus),* they produce copious amounts of blood-red saliva and a slight euphoric feeling brought on by the compound's mild stimulant properties. These ingredients come together in women's hands and mouths to produce *solok* (happiness). Indeed, *bua malus* is the alchemy of happiness. Women's fingers are also reddened like blood, the result of the interaction between nut, leaf, and powder. Women chew eagerly and absent-mindedly, and "chewing," as told to me by women, "is breathing air." In between chews a hurl of spit whizzes out of their mouths. Their nonchalance is deceiving because women aim with such precision that the spits form a neat red puddle by their left side.

Impasse in barlake negotiations also brings about long periods of silence and weigh heavily on all in attendance. Younger Mambai inquire of their elders as if waiting for the advertisements to end and the movie to resume, "When will they resume barlake?" Elders' typically respond with a dismissing "huff" vocalization. One elder who was a well-regarded ritual speaker often remarked that "it (barlake) is not all about talking. You need to wait for the right words to appear. You need the cold."

And, as my host family would remind me over the years, without "happiness and tears, and shouts, smoking and bua malus," barlake would not be barlake for participants. Without

participants' and onlookers' emotional outbursts, bodily activity, silence, discipline, and emotional containment barlake is not barlake. Given this situation, why is there such scant attention paid to sensory experience the anthropological literature on ritual events like barlake? In this chapter, I propose that greater attention to the materiality of language — which I take to mean the relationship between language, things, and the senses — can generate insights to how people perceive sounds and other sensory experiences evoked in the use of language. Attention to the materiality of language also bring to relief the active participatory role of people in producing sensory experience of *brus* (hot) and *bisa* (cold) in the context of ritual language.

Like many groups in Southeast Asia, the Mambai tradition of using poetic speech is particularly salient in ritual contexts, where poetic speech is vital when the Mambai talk about anything of significance or power. Webb Keane, in his work among the Anakalangese, has written extensively about poetic speech and the relationship between words and things. For example, Keane (1997: 108–13, 119, 127, 136) asserts in his analysis of parallel forms in Anakalang formal language registers, one may refer to *laupa lai yera* "going to visit one's wife's family" through the semantically salient couplet *tàka ta haga jara, toma ta ora ahu* meaning "arrive at the horse's face, come to the dog's snout," two elements which symmetrically figure one another, while asymmetrically constituting a colloquial phrase.

The Mambai, like the Anakalangese, note that words aren't endowed with power in and of themselves. Words must be accompanied by the transaction of material goods. For example, if people are speaking to spirits, they have to make an offering. If they're negotiating with another person, they must present a gift. As I observed in my fieldwork, gifts can be as simple as fruits from one's garden or as elaborate as woven cloth and cattle. This is especially true in barlake events where ritual speech accompanies the exchange of simpler and elaborate material goods

between wife-givers and wife-takers. What my chapter focuses on is the relationship between words and sensory experience.

The importance of sensory experience such as hot and cold to ritual efficacy is also observed among Tetun- and Naueti-speaking communities in Timor-Leste. Tetun speakers invoke *matak-malirin*, where *matak* meaning "newly green" or "sprouting," and *malirin* meaning "cool" or "cold." The concept of *matak-malirin* refers to "a state of good health and productive life energy" (see Kehi and Palmer 2012: 447; Trindade and Barnes 2018; Vroklage 1952). Naueti-speaking communities living further east along the south coast from my fieldsite often express the importance of categories such as "hot" and "cold" through the term *bua-malu* (betel leaves and areca nuts). According to Timor-Leste based ethnographer and researcher Joshua Trindade, *bua malu* invokes a sense of "coolness," associated with calm and peace, and "newly green" or "sprouting," which represents the idea of fertility and bounty (Trindade and Barnes 2018). The categorical opposite of "coolness" is "heat," which symbolizes danger and potential violence – a state of disorder in which categorical distinctions run the risk of mixing or being blurred (see also Bovensiepen 2015; Kammen 2016). Among the Mambai communities I lived with, people often commented to me on the need to find a balance between *brus* (hot) and *bisa* (cold) in everyday speech and in ritual events.

Two observations can be made from the emergence of *brus* and *bisa* in ritual events like barlake: First, Mambai barlake practices are not static models that foreclose future opportunities for alliance making; people find ways to shape practices in recognition and in response to changing socioeconomic and political conditions. Barlake practices have social and political-economic conditions that have hot-cold dimensions that scholars heretofore have not considered, cueing a second observation for the endurance for exchange practices in Mambai communities:

Mambai sensory practices and human participation in rituals sustain and produce barlake. Studies of the dynamic relationship between sensory experience and ritual that do not merely take sensory experience as an emergent property of ritual, that is to say, the analyst goes deeper than writing about people crying (or getting angry, etc.) during a ritual to an aspect of the ritual is rare.[27]

Risky Business in the Highlands

In chapter 2, I described how Roza and her family of fishers associated the consumption of contaminated marine food and the absorption of deathly smells with pollution from the hydrocarbon industry. Coastal Mambai families, like Roza's, are navigating environmental risks and existential doubt by trying to reconnect with highland kin whom their forebears left—a venture fraught with ancestral complexities. Coastal Mambai are not the only ones negotiating the presence of new actors and entities in their lived environment. In the highlands, where my host family Tiu Joze's and his wife Roza's once-kin and presently-estranged family of wife-takers reside, Mambai persons interact with two actors that they (and neighboring East Timorese cultural groups) recognize as newly-packaged in post-independence Timor-Leste but historically salient and significant: Chinese investors and infrastructure construction contractors (and laborers), and Portuguese investors and former land-owning families that fled upon decolonization between 1971-1977. The Portuguese presence in Timor-Leste through the 17th and 18th centuries, amidst the rise of the Dutch, has been attributed in part to their firm localization through intermarriage and use of religious symbols that came to play important roles in shaping a deep-rooted Catholic identity and affiliation (Hägerdal 2006; Lieberman 2003; Newitt 2005).

[27] There are notable examples. For example, Steven Feld's (2012[1982]) work among the Kaluli, in particular of *gisaro*. Also see Houseman and Severi 1998; Berthome and Houseman 2010; Kapferer 1983; Rasmussen 2000.

The second set of actors, Chinese investors, are remembered by the Timorese as raiders of sandalwood in the 18th century and cautiously regarded after independence in 2001 as partners with the Timor-Leste state. There are accounts of early Chinese visitors proclaiming that Timor's mountains were covered in sandalwood, and that the wood was so plentiful that the Timorese used it as firewood, a practice which made visitors ill from the smoke—a comment echoed by Europeans in the sixteenth and seventeenth centuries (Groeneveldt 1960: 116; Ptak 1983: 37-40; Reid 1995: 100). Portuguese travelers noted the presence of Asian traders and local rulers who were already connected to the sandalwood trade, and who followed ritual protocols surrounding wood harvest (Pigafetta 1969 [1522]: 139). For centuries, Chinese traders were the only non-Timorese who travelled throughout Timor's interior (Fox 2000: 18-19), even at significant personal risk (Ormeling 1956: 132-135), and Portuguese travelers frequently mentioned the presence of Chinese residents in the highlands of Timor-Leste (Teixeira 1974; Vaquinhas 1883).

Since 2008, Portuguese expatriates have been returning to Timor-Leste and have convinced Timorese landholders to turn their agricultural lands in the highlands for coffee cultivation, arguing that this agricultural transition will net them greater wealth in the long run.[28] While touting the benefits, the Portuguese investors fail to mention that participation in the world commodity market has severe limitations: highland Timorese farmers' incomes are dependent on others' purchasing their coffee for a price that generates steady profits, and even when that happens, farmers will end up returning those profits to pay debts accrued from the purchase of specialized equipment, training, and other agricultural inputs—especially water through elaborate and expensive rain-catchment systems or by purchasing water. Then, there is disease

[28] Portuguese expatriates I spoke to also regarded themselves as "repatriates" and often reminded me on my that they were travelers and adventurers who once brought Catholicism (in the 19th and 20th centuries) and now coffee crop cultivation.

and plant rot that damages coffee plants. Coffee extracts labor from the highland Mambai cultivator and damaged plants cannot be sold, they are not edible and are not suitable feed for cattle and other animals; in the event of plant disease and rot, composting is the only viable outcome. Of course, this is not an unknown situation for the Portuguese investor who has already tried this strategy in Brazil. He knows this situation can occur and thus steps in as savior to "buy" the farmer's land and debts. Now, in addition to the shifts from agricultural land to replacement with commodity coffee cultivation that has a high environmental impact (nitrogen leeching, unsustainable water sourcing in a drought-stricken country), this situation also reduces the once land-owning Mambai farmer into a day laborer on her own land.

Barlake and the Ancestors

Barlake are exchange practices that surround marriage between families of the bride and groom, the wife-givers and wife-takers. The term barlake is also known by the Mambai as the *fetosa-umane*—the wife-giving and wife-taking relationship.[29] In barlake, descent groups are involved in a system of marriage alliances and exchange of prestations that may cover generations. In mainland, as well as maritime Southeast Asia, local variations of the Timorese *fetosa-umane* are defining features of the societies found there.[30] In West Timor, the existence of asymmetric alliance in Timor has, also, long been described and analyzed (Schulte-Nordholt 1971).

Mambai families along the coast and in the highlands, are categorized as wife-givers (or life-givers, *manesan/umane*) or wife-takers (or life-takers, *fetosan*) in relationship with other

[29] Hicks suggests that barlake may derive from the Malay berlaki, "to take a husband." Barlake is of general use in Timor-Leste and the different ethno-linguistic groups have their own vernacular terms by which to denote it. In the Mambai language the term used is fetosa-umane or *fetosawa-umomane* and the Mambai use barlake and *fetosa-umane* interchangeably, but speakers practice consistency in their use of either vernacular*; in* Atoni language *feto-mone*; in Makassai umaraha-tupumate, in Fataluku *arahopota-tupurmokuru.*

[30] Hicks (1978; 1983; 1990; 2004) has written extensively about the *fetosa-umane* relationship among Tetun-speaking communities in Timor-Leste. The fetosa-umane relationships features in asymmetric alliance making among the Kachin of northern Burma (Leach 1951; Levi-Strauss 1969[1949]), the Lamet of Cambodia (Needham 1960), and the Anakalang of West Sumba (Keane 1991).

families. There are always three lines of relationality: ego, the wife-taking line, and the wife-giving line. Since independence in 2001/2, marriages between non-Mambai ethnic groups have become more common, but these unions require additional negotiation because of the differences in ritual practice between the groups, and for pragmatic reasons around the uncertainty for either group to engage in long-term reciprocal relations and obligations. Despite the increase in exogamous practices, protracted negotiations between families remains a consistent feature of alliance making. Even after a marriage, ritual exchange obligations continue between wife-givers and wife-takers. My fieldwork experience is similar to what Traube (1986) observed in her ethnography. Traube emphasized the importance of protracted negotiations to the well-being of both families and observed that "[W]ife-givers may call upon their wife-takers for material assistance in meeting demands imposed by their own wife-givers; and wife-takers depend upon their wife-givers for ritual services necessary to their well-being. The temporal patterning of ritual exchange obligations prolongs and institutionalizes the mutual but asymmetric dependency of maritally allied groups" (Traube 1986: 91).

Traube's observation also resonates in the ethnographies of other ethnolinguistic groups in Timor-Leste. For example, exchange obligations have also been characterized as "the flow of life" from one family to another (Fox 1980; see also Hicks 2004). During my fieldwork, barlake was described by one ritual speaker (known as the *lia na'in*) as a spiritual process which terminates a new wife's relationship with her natal *uma lulik* (sacred house) and binds her to her new husband's *uma lulik*. The full commitment of goods is rarely given all at once, but instead are spaced out over the life of the marriage at significant ceremonies of life and death in both

families. The spacing out of payments, and the ongoing relationship it creates, provides the wife-giving family with some leverage over the treatment of their daughter and grandchildren.

Barlake is designated in the anthropological literature as "asymmetric alliance" and it can also be referred to as "matrilateral cross-cousin marriage." Among the coastal and highland Mambai, a descent group can gain wives from a number of specified wife-giving descent groups. The wife-taking in the above relation gives its own sisters and daughters as wives to a number of other specified wife-taking descent groups. I was initially under the impression that wife-givers cannot take women from their wife-takers, and wife-takers cannot give women to their wife-givers. The direct exchange of women between descent groups or alliance groups was prohibited in order to promote symmetry in the exchange. However, subsequently, I learned that both the coastal and the highland Mambai families have started to seek each other out, even after two generations of separation estrangement, as a kind of cultural strategy to negotiate the socioeconomic and political pressures from new actors in their respective lived environments. In their search to rekindle relations, the prohibition around wife-givers taking women from wife-takers has been lifted. The barlake that I will discuss in this chapter is an account of one such event of reversal.

Although rules can be relaxed, wife-givers continue to be considered superior to wife-takers. The reason lies in the value of women's wombs. The wife-takers are characterized as *feto-sa* "feminine" and the gifts given by the wife-givers to the wife-takers are classed as the "feminine" prestations. These gifts include cloth, pigs, rice, women's coral necklaces (mostly from the coastal Mambai), and the defining and pre-eminent gift, the bride herself. The counter-gift, a kind of marriage exchange in the anthropological literature, is classed as the "masculine" prestations and consists of horses, buffaloes, goats, chickens, war swords, money (USD if family

resides in Timor-Leste, and a combination of USD and Euros if family has residence ties to Portugal and the European Union), and gold, in the form of earrings, rings, anklets, and other ornaments.

Anthropologists have focused on the role of barlake as a practice with the potential to empower women and as a repressive custom in which women are exchanged like commodity and instances where women who failed to conform to expectations from the family of wife-takers, suffered from domestic abuse and partner-violence. (Traube 1986; Niner 2012; Palmer 2007). Barlake courts debate and controversy, and its ongoing practice has introduced challenging but fundamental discussions on marriage relations, domestic violence, and gender inequality among those who practice it.

Scholars of Timorese languages sustain the assumption that barlake is purely about marriage. In Luis Costa's *Dicionário de Tétum-Português* (Tetum-Portuguese Dictionary), barlake is "marriage: a matrimonial contract (according to traditional usages and customs) which involves an exchange of goods of equivalent value between the families of the affinal couple" (Costa 2000:50).[31] The Australian linguist Geoffrey Hull's (2002:34) dictionary on *Southern Mambai* (and see his dictionary on the Tetum language as well) defines barlake as a "traditional marriage contract involving the payment of bride price." Barlake has a lot to do with the negotiation of marriage and relations between families and Costa's and Hull's understandings of barlake are fairly consistent with the nature of barlake in marriage negotiations that I encountered during fieldwork. These linguists, however, fail to consider that barlake encompasses considerably more of Timorese society than merely marriage. My Mambai interlocutors might agree more with Hocart's (1933: 258) writing about cultural systems that

[31] My translation from the Portuguese.

regulate marriage and alliance: “The system (barlake) then is not based on marriage, but marriage is regulated by the system.” In the next section, I discuss the barlake event and the role of Rasik the prophetic pig.

Rasik Meets the Highland Family

The pigs of the South coast are dark grey and thin, with an unusually high-pitched squeal. They roam the beaches, nosing through the rubbish with an air of disdain as if the rubbish wasn't good enough, which is probably true. Rasik was an exception. Over-fed lover of all tubers and maize, Rasik was supercilious and much adored. He was also feared and respected because Rasik could foretell danger and warn of sudden changes in the weather. Just like his mother, and her father, and his mother before that…Rasik, as my hosts revealed to me, was progeny to a lineage of sows with prophetic capacities.

Mario hogtied Rasik like a seasoned wrangler and swung him over his shoulder and secured him under a row of wooden seats of the *bemo* (pick-up truck). His squeals were muffled by the bemo’s engine. The six of us, Mario, his wife, and Mario’s parents Tiu Joze and Roza, clamored into the bemo. Mario’s wife handed us the barlake exchange objects, wrapped in large banana leaves, that the wife-takers had given previously. Packed like sardines, beads of sweat rolled off our faces as we journeyed to the highlands. Mountains are rough this time of year. The rains deceive your eyes. Roads twist and turn, five minutes up the next twenty down. You don’t quite know; you just keep going. Fog blankets your vision and we prefer to avoid an accident. On Saturday afternoons like today, sleepy highland towns dance to the vibration of cocks clamoring for blood. We stop, stretch, light cigarettes, and give praise to the ancestors for another trip spared by death. We have been fortunate that in the six months we have made three of these trips, from our coastal town up to the mountains to meet with estranged kinfolk. This

trip will be different. Unlike the earlier trips, which involved Mario making initial contact with previous kinfolk, a few weeks ago Mario received word from the wife-takers to start the barlake negotiations.

A hive of activity greets us as we arrive at the prior wife-takers' residence. Many people are gathered. We are not sure if they are all part of the family or onlookers from the village. Mario recognizes some of them and nods politely. The weather is cooler. We are in shirts and shorts, the women in neatly wrapped *tais* (woven cloth) around their waist and a t-shirt. Our typical coastal wear is out of place relationally and aesthetically. The matriarch emerges from the house. She is dressed in ceremonial *tais* with threads of, gold, green, and black imparting a sense of regality. She flashes a stern nod. "You don't have jackets?" We shake our heads and smile. We are ushered in.

Rasik, whose squeals are less frequent now, is carried off into the back of the house. A few roosters and dogs stare for a second at the newcomer and return to picking at the grass or the ground, an insect or a leaf. We are asked to identify ourselves. Tiu Joze and Mario, heads of the household, introduces each of us by name and relation. People are puzzled by my presence. Joze and Mario insist I mean no harm. They tell them that I am a student and that I am interested in Mambai culture. I am told to stay. We sit on the ground and wait. A youth was dispatched to inform the men of the household who were tending to their goats and to their agricultural plots up in the mountains. Children stare blankly at us. Some smile at me and run off. Babies cry. No one offers us a drink. We have made an arduous journey after all. Very uncommon, I would write in my journal later that day. This was a new experience, arriving at someone's home and not made to feel much welcome at all. But, as one of the onlookers from the highland village would share with me later, "Brother, please understand. We cannot offer you hospitality. This

will only work if we treat you as strangers." The lack of hospitality, or deferred hospitality pending successful barlake negotiations, was a new phenomenon. I recalled the warmth and generosity that was shown toward the arriving party from my previous experiences at barlake events with both wife-giver or wife-taker families along the coast. And what did it mean that barlake 'will only work if we" were treated as strangers? I wondered if the long-term estrangement might have something to do with this.

We wait for half an hour or longer. Men started arriving, machetes swung over their shoulders, signing a song about the good old days when they had slain the foreigners who dared to appropriate their land. Were they trying to intimidate us? Or telling us what they would have done about the oil companies down the coast? Either way, these men had been tending to their goats and hacking away at the brush with their machetes or, so it seems. Some nod, some smile at me. So, I smile back. Au Lelo, the head of the wife-takers' household introduces himself to us. He looked like a patriarch—stout and mustached, skin hardened by days in the fields, bearing a demeanor befitting a prince. Au Lelo was, after all, from a lineage of provincial rulers.

Words and Blood: Building the Bridge Between the Ancestors

Setting: Open air courtyard in the center of the wife-takers' home

Cast: Wife-givers, Wife-takers, ritual speaker (Matan Ruak, *Two Eyes*), Onlookers from village.

Au Lelo ushers our congregation inside. We stop outside a low wooden door separating the innermost southern section of the house, the *umolun*, where the house sacral post would stand. Though Joze is the patriarch of the family, he tells his son Mario, to represent the family. Mario knocks on the door of the *umolun* once pushes it in and enters the sacral space. One by one we follow Mario, knocking once and walking into the space. I am the last to enter. By knocking on

the door, we have performed *tuku odamatan*, and have announced our arrival to the wife-takers' ancestors.

The wife-givers' family is gathered at the end of the room. A nominated representative and ritual speaker ("the one with words") tends to an altar in the center of the room. There are three chickens in a cage. A fourth has already been sacrificed when we, the wife-givers, entered the *umolun* space. The chicken's blood is drizzled over the sacral objects at the alter; the chicken's blood together with knocks of the wife-givers' combine to appease the ancestors. There are objects that were given by the wife-takers to the wife-givers' lineage. The ritual speaker, Matan Ruak motions us to sit on the opposite end, facing the wife-takers' relatives. Members of the public, whom I call onlookers (in Mambai the onlookers' section is referred to as the "rest of the village") most of whom are not kin to the wife-takers, are gathered on another side of the room (See figure 1 below). Females sit on the left side and males on the right. The first of the exchanged goods is put on display by the wife-givers.

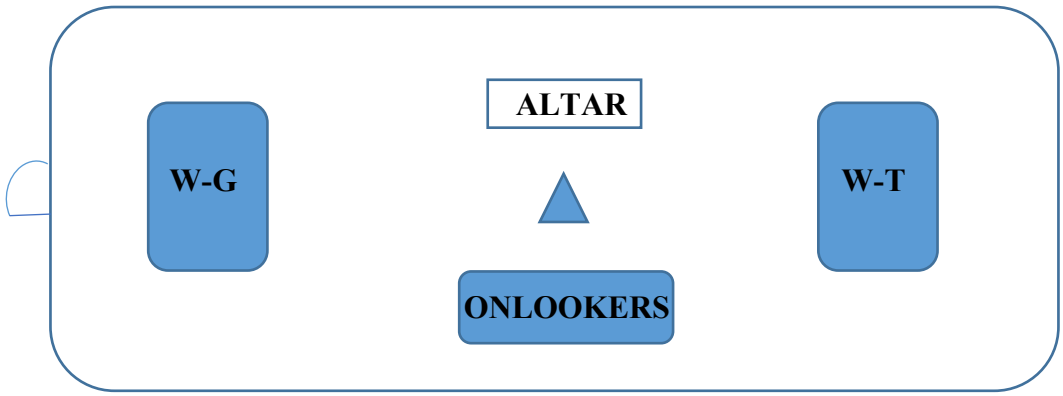

Figure 12. *Barlake* organization in the *umolun* (ritual space). W-G refers to wife-givers, and W-T to wife-takers.

First, I describe the general procedure in barlake and introduce the presentation of one object, and second describe the presentation of Rasik the pig to the wife-takers' family. The wife-givers present one object at a time, always in full view of the public and the wife-takers. Mario, describes the object, providing answers to questions by the ritual speaker: What is the object? Why was it given? When does he believe the wife-givers received it? The first object is a golden *belak*, a large metallic disc worn around the neck like a necklace, which was a symbolic payment made by the wife-takers to the wife-givers for their loss of the last bride's body and spirit. Mario whispers a description of the objection to Matan Ruak, the ritual speaker appointed by the family of the wife-takers to act as the intermediary between both families.

Matan Ruak listened to Mario's description from the wife-givers. He then hoisted the item above his shoulders and declared loudly that he has an object to present. Some people in the onlookers' commented among themselves about the object's value. One onlooker smacked his lips in between drags of his cigarette and declared "Oh! It's a big *belak*, it must be from this side of the family!" Hearing this, a woman spits her *bua malus* (betel nut) in the direction of the onlooker. The man waves his hand in the direction of the woman. He looks straight at the altar instead of the woman and replied, "What do you know about these things?!" Some people in the crowd whistled; They anticipated an ongoing and entertaining tiff developing between the husband and wife. This is an example of how *brus* (heat) is generated by the crowd. Beginning with one human agent, then another, followed by the crowd, this is the role that individuals gathered as a crowd (en masse) play in generating intense sociality of heat in barlake.[32]

Matak Ruak hushed the crowd with a wave of his hand and walked over to Au Lelo and the wife-takers family in a voice audible to everyone gathered, Matan Ruak spoke:

[32] Emile Durkheim (1965 [1915]) in *The Elementary Forms of the Religious Life*, New York: Free Press, was one of the first to make this point about collective effervescence.

Remember, this belak

the gold your ancestors gave to them[33]

They who lost her body

and you who gained hot water[34]

They who lost her spirit

and you who gained firewood[35]

Remind your ancestors

The gold you gave to them.[36]

After listening to Matan Ruak, the wife-takers discussed the veracity of object's origins and the wife-takers' claims. It is accepted without debate, with a mere a nod and the statement by the head of the household, Au Lelo: "Please tell our ancestors that we are content. We want to build

[33] My host family barred me from using my audio recorder moments before Matan Ruak started speaking. The ritual text in this chapter is compiled from my listening and writing the English translation during the barlake negotiation. For accuracy, I later double-checked my translation with Matan Ruak and Au Lelo. I refrained from providing the Mambai original to maintain fidelity to nuances in my fieldwork experience.

[34] "They who lost her body" refers the wife-givers who gave up their daughter and "you who gained hot water" refers to the wife-takers who have gained fertility, where "hot water" denotes the warmth associated with a woman's womb and the amniotic fluid surrounding the baby at full term.

[35] "And you who gained firewood" is ritual language that is repeated during barlake ritual events leading to marriage. During that barlake event, a gift called *be'e manas ai tukun* (*hot water and firewood* denoting the necessary accompaniments also given at birth) is then given directly (i.e. the wife-takers carry a pot of hot water and a bundle of firewood, of at least 12 pieces—the number 12 amounts to the number of the original Mambai settlements in the highlands) to the mother of the bride for her pain and suffering during the birth of her daughter; a further gift to the mother's brother to acknowledge the maternal family.

[36] This couplet refers to prior barlake negotiations where gold was exchanged between ancestral families of the wife-givers and wife-takers.

the stone bridge." Matan Ruak returned to the altar, placed the *belak* next to the other objects, drizzled some blood from the chicken onto a replica of a *uma lulik* (sacred house) built from candlenut tree twigs and straw, and cleared his throat to deliver these words:

Wife-takers and life-takers
we give you blood and bones[37]

we give you the gold
you exchanged for firewood.

Wife-givers and life-givers
we give you blood and bones,

we build you a bridge
to the wife-takers.

After the *belak* presented and accepted, four other objects (a collection of old coins, old photographs, *tais* [woven cloth], and gold earrings) were presented. All were verified by the wife-takers. It was time for the prized item. Rasik was brought in. His high-pitched squeals muted the cries from those gathered. This was the moment everyone gathered had been waiting for. Matan Ruak hushed the crowd with a wave of his hands. Mario leaned into Matan Ruak and

[37] "We give you blood and bones" refers the wife-givers who give their daughter's fertility to the wife-takers in the form of "blood and bones."

described Rasik, as he did with the five objects prior. Matan Ruak nodded and walked over to the wife-takers. Matan Ruak sang in short bursts:

Remember, this pig
the protection you gave to them

his ancestor
who saved you from death

a flood you fled
a hundred lives saved

Remember, this pig
the protection you gave to them

they who lost her body
but gained a prophet

they who lost her spirit
but gained a protector.

The crowd erupted with chatter before the wife-takers could comment.

Person A: "Check his front leg," shouted one, "there should be a cut!"

B: "How can there be a cut, he's not the original pig!"

C: “Check his hooves, I remember one was black!”

D: “How can you remember, you’re not even from here!”

E: “My mother told me about his tail, check the tail!”

F: “How would she know, she died giving life to you!”

This was the moment when I felt the heat. The *brus* affect Mambai experienced at barlake was contagious. Radiating outwards, the smell of our collective sweat, Rasik’s squeals, human bodies closing in on each other cajoling, shoving gently, each trying to get his and her word, cigarettes rolled, lit, inhaled, exhaled, white smoke lingering around my eyes, *bua malus (betel nut)* chewed and spit, chewed and spit, blood-red spit-strewn floor. Cries of certainty by persons A, C, and E over Rasik’s phenotypic features met with quick disapproval from other onlookers. It is difficult to assess or characterize precisely the kinds of affective state the onlookers and families of the wife-givers and wife-takers were experiencing, but the common usage of the term *brus* (heat) suggest that they are saturated with some kind of affect that was more complex than simple excitement.

Pushed and pulled by the momentum of the crowd, the onlookers continued building up the *brus* affect. Matan Ruak, who had regained more sobriety at this point, hushed the crowd. He conferred with Au Lelo and the wife-takers family. Rasik, now almost hot with the commotion around him, tried in vain to run to us but one of his legs was tied to a pole. “What would they decide, what does this mean?” Mario’s wife asked one her uncles. After a few minutes of deliberation, Matan Ruak re-entered into trance.

Words were delivered:

His legs may be scarred,

like lashes from your enemy's sword.

His hooves may be black,

like soot in your hearts.

His tail may be curled,

like your body on wine.

His lineage we question,

the answer we will find in his seed.

Remember, this pig,

the protection you gave to them.

They who gained a protector,

they who gained a prophet,

we who lost your protection.

We ask for signs from you,

give us his protection.

Ancestors, do not forget about us,

we ask for signs from you,

we will find a way build a stone bridge.

If it is his blood you want,

it is his blood we will give.

Matan Ruak returned from his trance with the help from representatives of the wife-takers. It was settled. We had arrived at a verdict. Rasik's lineage to the original prophetic sow was deemed. inconclusive. But all was not lost. While in trance the ancestors had told Matan Ruak that there was another way to build a bridge between the wife-takers and the wife-givers. Rasik would have to mate with a sow from the wife-takers. If he manages to inseminate the sow after three days and three nights, Rasik would be sacrificed and his blood will congeal with words to form the stone bridge between the ancestors of the wife-takers and the wife-givers.

Three days and three nights passed. Rasik, lover of all things tuberous did not manage to find his way into the sow. Rasik ate and slept and paid no attention to the sow. Rasik had failed. More importantly, Rasik had failed Mario and his family. Perhaps the timing was not right, offered Mario to his family. Perhaps the sow was not in fact in estrus, offered the matriarch of the wife-takers' family.

Rasik the Stinky Pig

There was one other explanation offered; it invoked Rasik's provenance and not progeny. Several highland Mambai I spoke to afterwards commented that Rasik stanched like fish from the sea ("ho ika nor tas"). They said that he smelled "*ho sohai*" – stinky like a snake. Both

coastal and highland Mambai associated respect and fear with snakes (*sohai*) because of their reported ability to appear and take a life at will. Opinions, however, are divided about smelling too much like the fish. If we recall in the discussion of coastal Mambai sensory experiences, smelling like the sea and smelling wholesome like fish were vital to the sensorial and bodily constitution of coastal Mambai. To the highland Mambai, water in the form of rain was a fickle beast. As much as the rain provided nourishment for humans, domesticated animals, and crops, it also connoted flash floods and droughts in its absence. To the onlookers, Rasik's—and by proxy the wife-givers'—sensory constitution was called into question and associated with Rasik's failure. When I probed the olfactory associations further, people started whispering.

"Aren't the pig and the wife-givers infected with the poison in the air?" asked one person. Another person chimed in, "We all know about the bad air that you breathe in the coast. Sometimes, we can even smell it up here. Maybe the pig is sick from the air and that's why he couldn't get it up." People started laughing at the mention of Rasik's inability to inseminate the sow. An onlooking elder hushed everyone and added his observations, "You know, I've never seen a male pig refuse a sow. We've received pigs from the coast before and even if they smelled like fish and snake, the mountain air will change them. This time it's different. The pig stinks, we all know this, but really, it's because he is making all of us feel that something is not right. You tell me, if he's not already infected by the deathly air and the infected food he eats on the coast, why else will our sow reject him?"

Moreover, given the uncertainty behind Rasik's failure, Matan Ruak and the Au Lelo decided that his failure should be taken as a sign from the ancestors that they were not ready for a bridge to be built between the once-kin and presently-estranged families. Despite the uncertainty, the sensory phenomena among all persons gatherered for the barlake event was

invoked as a reason for Rasik's failure. Indeed, Matan Ruak later told Tiu Joze and Mario that everyone had generated "too much heat too quickly" *(pun brisa nor tempu rat barlake)* during the barlake. Matan Ruak also asked Tiu Joze if the pig was sick from the bad air on the coast. Joze and Mario confided in me that they were deeply embarrassed by Matan Ruak's question and stood in silence. Mario was also afraid about the consequences of the question. "If the pig is *hoe*, we are *hoe*" So, where do we go? What happens to us now?" They needed to pause, "they needed to make some cold first" ("*pun bisa bisa id mun*") said Tiu Joze looking on at Rasik.

The following day, just as we started to bid our farewell, the wife-taker's family sent for all of us. It turned out that the wife-takers had decided not to foreclose negotiations and wanted to know about other prestations that the wife-givers could provide in barlake. Matan Ruak addressed all of us gathered:

We asked for a sign
the ancestors have spoken,
there will be no blood relations today.

A stone bridge hangs in the sky,
a cock's blood dries in the wind,

we came together as snake and mongoose,
we leave as a bee to a flower.

We asked for a sign,

it was given,

there will be no pigs for the ancestors today.

Conclusion: Sensory Practices and Barlake

Given the existential challenges and resource limitations of the coastal and highland Mambai families, barlake exchange practices may appear to be the last recourse in navigating potential destitution. In this chapter, I have suggested that barlake is more than an exchange practice concerning marriage; it is also a practice that involves the sensory practices of humans in shaping the barlake event. Sensory practices around heat, cold, sounds, and smells have tangible effects on human participants and ritual outcomes. For example, if too much heat was generated, it can be balanced with some coldness, so that the negotiation between wife-givers and wife-takers may continue. That a prophetic pig, progeny to a lineage of prophetic pigs, played a crucial role in the conjoining of two families offered hope to the wife-givers while the stank and *hoe* from the pig posed a further challenge to negotiations between the wife-givers and wife-takers. While the hydrocarbon industry and the Tasi Mane project are not active in the highlands, their effects are still felt and open to interpretations. In this case, atmospheric pollution in the form of bad air was perceived to have affected the pig and his ability to facilitate the rekindling of two families. The wife-takers' decision to continue negotiations also suggests that both coastal and highland Mambai consider barlake as a dynamic practice through which people negotiate socioeconomic, political, and atmospheric changes brought by the hydrocarbon industry into people's homes and their animals. In conclusion, a focus on sensory practices can generate new understandings of the dynamic relationship between multispecies relationships and ritualized exchange.

Chapter 4: Trapping Smells at Time of Death

"The dead fish may not care what happens to them, but we do," I muttered to myself while tossing out the damaged fish from the morning catch, in October 2016.[38] "Do not speak about things you do not know, Bibi-Fuuk."[39] Cardozo, my 60-something years old fishing partner and mentor, stood up, tossed the nets to one side, and glared at me. "You who have only seen pigs and cows die do not know about the dead Mambai. You who have known nothing but stories we tell you about family dying do not know about the lives of those who continue [living]. You who have lived here so long still do not know. Stay longer. You might find out."

I found out the hard way six months later, when Mario, my long-time companion and friend, died by my side. Cardozo was right in some ways; though I had experienced the death of family members in Singapore, I had not experienced Mambai ways of death and dying first-hand during the ten years that I had known them. And he was right that I had seen pigs, cows, chickens, goats, dogs, fish, and turtles die. In fact, together with the Mambai, I had also participated in ending some of their lives for food and ritual purposes. But only after Mario's death would I learn that the Mambai experience human death as an "unbearable weight." It is unbearable because death was *pezadu* (heavy) and it weighed down the living. You are weighed

[38] In the second chapter, I discuss how lesions and ulcers on fish come to be associated with pollution from offshore hydrocarbon extractive operations. Damaged fish found in the daily catch of Mambai fishers provoke discussion and debate about the consequences to Mambai constitution of their bodies from of consuming damaged fish. Because of these risks, people don't consume damaged fish and toss them out to be consumed by the sea.

[39] Because of my facial hair and interest in esoteric matters of Mambai life, I was likened to bearded goats and given the Mambai name Bibi Fuuk-mos or Bibi-Fuuk for short, which means hairy goat. The ability to grow beards indicated that goats—and their human counterparts—either had a capacity to communicate with ancestors or they were just plain loony. The Mambai knew that as a foreigner I could not communicate directly with their ancestors.

down as you might feel trying to stand up after a feast, lumbering around and awaiting slumber. And, importantly, Mambai death is *pezadu* because the living have their own worries that weigh them down. As Cardozo consoled me: "Don't cry. Mario will feel sad because of it. Here, those of us who are alive can *kaer laran* (hold your heart). But who will hold his? Mourn for him when he joins the *rai nain* (land of the ancestors). The ancestors can hold his heart. Until then, don't cry."[40] Among the Mambai I lived with, when a person dies, their *klamar* (spirit of the dead person) must first acknowledge their previous existence among the living and next recognize their passing. Upon recognition, they make the journey to join their ancestors. The time between the recognition of a spirit's life and death is rife with challenges to the spirit's successful entry to the *rai nain.* The activities of the living kin are vital to the spirit's passage and ontological status; if living kin harbor resentment or maintain longing for the dead, the spirit would not feel ready to enter the *rai nain* and may exist neither in the land of the living nor with the ancestors and exist as *mate klamar* (dead spirits). To ease the transition, the living kin must perform a series of rituals that brings living consanguines and affines to the *lalian* (hearth) in the dead person's home in order for them to renegotiate terms of engagement and social relations between the living kin. A successful negotiation between the living ensures a successful passage for the spirit to the ancestors. Death is a time of deep anxiety for both the living and the dead.

This chapter examines Mambai death rituals in the Lalica hamlet of Betano, where people have a range of resources for working on the dying and the dead, including techniques to infuse material objects with liquids and oils—equally pungent and aromatic—collected from the dying and dead person. Building on Robert Hertz's (1907) work on secondary funerals, the first section

[40] As part of embodied language, *kaer laran* or "to hold your heart" refers to caregiving acts between the living. Sorrow, pain, and crying can make one's heart heavy while happiness and laughter can lighten it. When a person's heart becomes too heavy with sorrow, others can offer to "hold their heart" and carry some of the weight. By carrying some of the weight, the person(s) holding the heart helps to lighten some of the burden of suffering.

of this chapter describes three phases of the Mambai death ritual for my friend Mario, which took place over three days, highlighting the relationship between the decay of the corpse and the fate of the soul.[41] In the first phase, I discuss the re-materialization of the dead, in which bodily fluids from a dying person are collected in a wooden vial until the point of death, when the perspiration and oils of the living family members are added to the vial. About half of this pungent and aromatic mixed and shared bodily substance is poured over a carved bone tablet to re-materialize the dead, thus giving substance to relations between the living family and the dead. In the second phase, I describe the renegotiation of exchange relations between the living consanguine and affines upon death of the kin. Prestations and gift exchanges during renegotiation rituals give substance to relations between the living kin. Taken together the re-materialization of the dead and renegotiation of social relations between kin results in the successful separation of the spirit from the body, which is then free to join the land of the ancestors. Grappling with these uncertainties, in the third phase, the affines use the odiferous bone tablet to guide the spirit back to reside in their ancestral mountain home, while the family distributes the rest of their shared bodily substance to the sea. In conclusion, I suggest that social relations among living and the dead involve a mutual negotiation through shared substance between the living and the dead. Bodies, substance, and obligations must come together to ensure viable futures for the dead in spite of the challenges posed by the hydrocarbon industry

Revisiting Hertz

I return to the basic tenet of Hertz's theory that "to make a material object or living being pass from this world to the next, to free or create the soul, it must be destroyed. [...] As the visible

[41] This is in contradistinction to the 2-3 weeks typically needed; see chapter 1 on sensory practices around mortuary practices and hoe.

object vanishes it is reconstructed in the beyond, transformed to a greater or lesser degree" (Hertz 1960: 46). This tenet is observed most recently by Dimitri Tsintjilonis (2007) in his work among the Sa'dan Toraja of South Sulawesi. In the death ritual discussed in this paper, however, the body does not decompose to the point of destruction for future reconstruction "in the beyond." The purpose of this chapter is also to revise theories on burials using a sensory approach. As I observed in the death ritual among the Mambai, the family collected the bodily fluids from the dying person up till the point of death and decomposition so as to make a material object and initiate the passage of the spirit to the mountain home of the ancestors. In this way, the very fluids that escape from a dying body—a body that is on the brink of entering the phrase of destruction – form part of the generative substance that produces a separation of spirit and body, and through its re-materialization in a bone tablet, guides the spirit safely back to the *rain nain* in their ancestral mountain home. As such, the Mambai example suggests that practices do not necessarily rely on bodily decomposition for future reconstruction and safe passage to another world.

Hertz's seminal essay "A Contribution to the Study of the Collective Representation of Death," was published together with another essay in *Death and the Right Hand* in 1960. Also, in 1960, Arnold van Gennep's (1909) *The Rites of Passage* was published in an English translation. Hertz's essay already contained the idea of rites of passage, and Hertz thus preceded Van Gennep in recognizing the structural commonalities of the rituals concerned. Hertz differs from Van Gennep in considering a particular type of ritual, secondary burial, in the various cross-cultural manifestations. Hertz also pays greater attention to the emotional impact of a death in relation to the social position of the dead and to the survivors' work of suffering and mourning. From his research on the secondary burial practices among the Dayak of Borneo,

Hertz postulated that death is not "merely a physical event" but a passage of the living, the soul, and the body from state into another (1960 [1907]). Hertz focused on the interrelated dimensions of death rituals, which organized relationships between the living and the mourners, the corpse and the burial, and the soul and the dead (Hertz 1991: 83). Metcalf and Huntington (1991) organized Hertz's arguments into a tripartite model in which fear and anxiety characterized relationships between the living, the corpse, and the soul.

First, the intensity of fear and anxiety felt by the living and the mourners is relative to the status of the deceased (1991: 79-80). The corpse of a higher status person, then, required a larger and grander funeral than that of a lower status person. Second, Metcalf and Huntington suggested that the magnitude of fear and anxiety of the living and mourning was a result of the soul's own anxiety to depart completely from its decomposing body in order to gain entrance to the world of the dead while, at the same time, remaining among the living (ibid.: 81). According to Metcalf and Huntington (ibid.: 81-82) Hertz sought to explain that the living fears the soul of the deceased because the soul is relatively mobile and independent but still has some of its essence left behind with the living up till the point when the decomposition of the body is complete. Third, because of the soul's own precarious and vulnerable state up till the point when the body is decomposed, the soul is capable of inflicting harm upon the living and mourning.

Fear, vulnerability, and deep anxiety are states of feeling and being which characterize Mambai death rituals. More generally, rituals in the Mambai community are cast as either *buti*, white rituals, or *meta*, black rituals. *Buti* rituals are annual and seasonal rituals of agricultural, maritime, and wedding ceremonies while meta rituals are comprised of funerary and afterlife ceremonies. Both white and black rituals and ceremonies cement the "system of different and special functions united by definite relationships" (Durkheim 1997[1893]: 83) for the Mambai. A

fundamental discussion in this chapter is that *meta* rituals of the death of kin involve gift exchanges between the living consanguine and the affine upon death of the kin, which in turn, give renewed substance to relations between the living kin and between the living and the dead.

First Phase of the Death Ritual

In this section I describe the first phase of the death ritual. The date is July 2, 2016. I visited Tiu Mario for dinner and wanted to hear his thoughts about my experience in the highlands with the wife-taker's family and Rasik's (the pig) unsuccessful attempts to rekindle relations between Tiu Joze's family and the wife-takers. I had known Mario for almost 8 years now. After dinner, we walked along the beach and started talking about changes to the landscape due to the oil industry's activities in the area. "Oil" was a common topic for us on our late-night walks. Mario, whom you met in chapter 1 while he was introducing sensory practices around knocking on doors and listening, was initially supportive of the industry. Mario had worked with several international non-governmental organizations in the last twenty years and he felt that development projects were desirable, if implemented with the support of the people. In the last two years, his stance changed. "It's because of the air," he would often tell me. "It's just *hoe* now. It makes me sick." Moving on from topics related to "oil" and "development," we began talking about his family, his wife Linda and their two recently married daughters, and his son who had moved to Dili. We had been walking for a couple of hours at this point and so we decided to sit by an *ai bubur* (gum tree). We exchanged puffs from each of our cigarettes—my Marlboro *putih* (Marlboro Lights/Gold) for his Gudang Garams (clove cigarettes). We have been exchanging cigarettes and smoking this way since the first day I met Mario as a UN Peacekeeper on the shores of the Tasi Mane in Betano. After our smokes, we started walking home when Mario complained of dizziness (*oin halai*) and we paused by a few sago bushes. He drank some

water from a canteen and tried to support himself against a bush. It was a small bush and it caved in. Mario fell, slumped to the ground, and passed out. Around ten hours later, Mario ceased breathing.

Mario was in and out of consciousness during those ten hours, but never long enough for his family and friends to have a substantive conversation. "What happened? We are waiting for Matan Do'ok to arrive" they told him. He shook his head and closed his eyes. I was the last person he had spoken to. The ten hours following his collapse were a blur. In the first few hours, there was a lot of crying. A lot of hugging. Men smoking. Some more crying. Modo, the local Mambai healer finally arrived and examined Mario. Modo started by palpating Mario's forehead and temples, before moving to his eyes, nostrils and ear canals. From the neck to the ankles, Timor moved two fingers and the palm of his hands in a slow circular clockwise motion, pausing at several points in the body. Modo would later tell me that he was "listening to the movement of blood" and "if his heat and movements [generated by his hands] would be met with Mario's desire to live." Mambai healers use a variety of palpation techniques to arrive at a prognosis. When a patient is conscious but in pain, a healer would palpate the areas beneath the ears, the base of the skull, and the ankles. A patient who complains of constant lethargy and muscle aches will have the area of pain palpated. When examining an unconscious patient, a healer would palpate the head, ears, and use two fingers to palpate the nostrils. With family gathered and the first of the affines arriving, Modo offered his prognosis: prepare for death within the next day.

Modo's prognosis chills me even as I write this and opened up comparisons to "calling time of death" in biomedical settings. In recent years, medical anthropologists have raised ethical questions about the "calling time" and opened up arenas of debate including: Why does it matter

who gets to call time of death? How are differences between physicians, nurses, and medical professionals' pronouncements of death understood by next of kin and relatives?[42]

Biomedical debates on authority, temporality, and bodily techniques in calling time of death resonate in the Mambai case, but there are notable differences. First, Modo's authority as healer was unquestioned. His skills and prowess as a healer are known in the region and Mambai living in the highlands often travel several hours to consult with him. No objections were raised when he announced that Mario is dying, and when he announced a time frame of death within the next day. The events following Modo's announcement were characterized with urgency that I had not witnessed in prior ritual events and practices.[43] Mario was about to die, and a complex set of tasks had to be carried out.

A second difference from the biomedical model is found in the anthropological literature that focuses on the spatio-temporality of death. Hertz (1962) and van Gennep (1976), in particular, postulated that death is a passage for the living, the dead, and spirits because the disposition and memorialization of the dead inform the social identity of the living and the dead. Their observations are compared to the Mambai example that I describe in this chapter, where Modo and the living family members show considerable attention to experiencing death rituals as a passage of time where appropriate rituals had to be performed to affirm the ontological status of the dead and for the dead to join the ancestors. In their attentiveness to the spatio-temporality of death, Mario's family and affines entered a "time of death" following Modo's prognosis of death. Modo's prognosis was based on actively listening for cues of death from

[42] See Lock 1996; Sharp 2007; Mattingly 2010.
[43] The urgency and efficiency shown by his family appeared as if they had been anticipating his or someone else's death. This raised a number of questions about how death and bodies might be handled if they suffered an accident, if they were found in the forest, in the sea, long after respiration ceased? What if it involved a child? An infant? How about an unmarried woman? What about a violent death? An altercation? Murder? Revenge? How about death by firing squad during Indonesian occupation?

Mario's body; his hands "listening" to the flow of blood, the warmth and coolness of skin to touch, and to the passage of air entering the body. Modo's palpitations served as a medium to communicate with Mario's spirit, imploring that the spirit show signs to Modo as to whether Modo should intervene and prevent death or prepare for the death rituals.

For the Mambai, the passage of death is also known as *dan* or "paths." Mambai persons use *dan* to refer to the movement through the lived environment, to signify the ritual exchange of goods and livestock, and in *barlake* events that precede marriage (Traube 1986: 81).[44] Similar to the Mambai example, Allerton (2004) finds that several East Indonesian groups also invoke metaphors of paths and passages. For example, there are Kodinese "paths" (*lam*) of exchange goods (Needham 1980: 37), Anakalangese alliances that are characterized as a "smooth path" (*lara*) and "worn down trail' (Keane 1997: 54) and the characterization of an Atoni mother's brother's daughter as the "woman of the path" (*fe lalan*) (Schulte Nordholt 1980: 235). Other writers also speak of alliance pathways (Forth 2001; McKinnon 1991). Mario's pathway toward the separation of spirit from body and passage to his ancestor's mountain home was about to be cleared and opened.

Traube (1986; 1989) has written that mortuary rituals can be an ideal occasion to see through the interdependence between the mortal human body and the durable, immortal spirit. In Traube's writings and in my own fieldwork, I observed that affinal kin groups are obliged to support and preside over the mortuary ritual of their wife-givers since they recognize the immutability of an agnatic tie. Moreover, assistance from their affinal kin groups signifies mortality to agntic ties.

[44] In my research, I also observed *dan* to be used in childbirth events, where the umbilical cord was a path through which blood and oxygen flowed between the mother and child.

As Traube describes, Mambai ritual cycles are divided into two complementary halves, known as the *buti* (white) and *meta* (black) rituals. "White" rituals are concerned with the fertility of humans and agricultural land while "black" rituals include the mortuary rites of death and ceremonies of the afterlife. Through ceremonies to honor a group of ancestors, "white" and "black" rituals are bridged transforming the ancestors to become a source of fertility. Ancestors then make their home in the sea, "symbolically fixed between the dry land and the upperworld, associated with rising moisture and falling rain" (Traube 1986: 234). This division of rites, and the role of the ancestors in transcending death to become a source of continued fertility for the living, is closely echoed (to give but one example) in the cosmology and practices of the Sa'dan Toraja of Sulawesi, with their rites of the "East" and the "West" (Tsintjilonis (2007). Traube's exposition of the Mambai ritual schema enlarges our understanding of such Indonesian world-views. The centrality of mortuary ritual and its sometimes joyous and celebratory character is also highly distinctive. Interestingly, Traube observed that "white" ritual, which one might expect to be the more elating part of the cycle, takes on a gloomy tone, and the obsession with decomposition emerges as a dominant theme. Words like "sombre," "mournful," "bitter," "sinister," and "grim" recur in Traube's descriptions of these rites. On the other hand, the atmosphere becomes "festive," "gamelike," with "boisterous, exuberant dancing" in "black" rituals. While there was modest feasting at the culmination of the ritual that I describe in this chapter, I observed more themes associated with how Traube has written of "white" rituals.

Meta Ceremony

Because of my close ties with Mario, his family invited me to observe his *meta* (black) ceremony. Modo instructed Mario's family and me to change into simple white clothing reserved for the family. Here one can note the pairing of opposites: changing into white clothes for a black

ceremony, the beginning of a list of binary oppositions. I changed into my white undershirt and a white sarong, stood in an assigned spot, ready to assist in any way possible. Mario, naked except for a black cloth draped over his groins, was laid to rest on a bamboo platform in the family courtyard. This platform, as I later found out, was also his bed with the thin mattress removed, and the joints fortified with rattan. Mario's family kneeled around him. With Modo's guidance, they used two large leaves from the *peduak* (angsana) tree to collect Mario's perspiration and carefully fed it into a wooden vial. Perspiration, oils, and other bodily fluids have the capacity to retain a range of smells, including *iis morin* (good smells) that are life-giving and fragrant. At the same time, there is also *hoe* in the air from the olfactory pollution and hoe that is emanating from the body that is dying. The task was to trap *iis morin* which included perspiration and bodily oils from the surface of the skin while minimizing *hoe*. Mario's wife was by his torso trapping the liquids in between the two leaves before they dripped to the ground. His daughters were tasked with pressing the leaves against the head and neck. Mario's son massaged his father's feet and hands and did not take part in collecting the bodily liquids. From time-to-time, his wife also attended to the nostrils and ear cavities, collecting moisture and cleaning them.

Modo later revealed to me that trapping the liquids and smells before they drained into the earth was important for his spirit to travel to the land of the ancestors. He explained that if all of Mario's *iis morin* drained into the earth, his spirit would long for the good smells and be trapped in this world, inciting much anxiety and fear on the part of Mario's spirit and his family. Modo suggested that *hoe* and the improper handling of bodily fluids at time of death was one of the reasons why there were so many ghosts wandering around the town and haunting their kin; these ghosts were trapped among the living because they continued smelling their own scents in the earth and end up longing to return to their families. Trapping *iis morin* in the form of bodily

liquids, then, was a crucial activity that formed one-half of a generative substance that produces a separation of spirit and body, and through its re-materialization in a bone tablet, guides the spirit safely back to the ancestral mountain home.

The Mambai practice of trapping bodily liquids shares some parallels to Hertz's own observations among the Dayak. In the Dayak situation the body is washed, the eyes closed, and the orifices plugged with coins or beads. In contrast to the Mambai case, the corpse in Dayak society is placed in a sealed coffin, except for a small opening at the base, which allows the drainage of putrid matter into the earth. Hertz observes that mourners then collected the fluids for ritual use. A sealed container was also used to guard against the escape of evil power from the fluids.

Mario's bodily liquids were collected over a period of nine to ten hours. When Mario ceased breathing, prayers to the ancestors were offered. The trapping of smells and liquids continued. By this time, the vial was almost full. The air we breathed in smelled sweet and aromatic—quite the opposite of my imagination of the smell of death. However, when I commented about the fragrant smells (*iis morin*), I was quickly hushed by an elder. He later explained to me that "the air we are breathing in is *hoe* (stanch of death). When Mario was living he was able to surround himself with good smells and life-giving smells. Now that he is dying it's important that we have the good smells and not *hoe*. The longer we do this, the more *hoe* will be around the family."

Fighting against time and *hoe*, the family continued to trap Mario's life-giving and fragrant liquids for over ten hours. It was a highly laborious affair. Labor works across two bodies here. One, Mario's dying body is said to be laboring to expend all its bodily liquids. The continual act of expending bodily fluids lays testament to this effort of laboring to die. His bodily

fluids are taken to mean that Mario is indeed dying and that his spirit wants to separate from his body. There are also two sets of witnesses present to verify its laboring: the immediate family and most of the affines, who have all arrived in the last few hours, and gathered in silence to pay their respects. The family is also said to be laboring, judiciously kneeling by Mario's side, trapping his odiferous liquids and massaging his feet. During these ten hours, the family rested twice to drink some water. The affines – the wife-takers – are onlookers who verify that the family, their respective affines who are wife-givers by virtue of having given away their daughters, have also labored along with Mario's own work to die.

When Mario's skin was dry, his skin slightly cold to the touch, Modo asked that the family contribute their own *iis morin* to the vial. Wife, daughters, and son carefully trapped their perspiration and oils. Modo then attended to the wife's own bodily fluids. More prayers to the ancestors were said. At this point, Modo presented the family with a carved bone tablet. The tablet measured about six inches in length and three inches in width, rectangular in shape, in an off-white color. While there were no visible engravings on the tablet, there were several fissures on its surface. As I learned from Modo, the tablet was carved from the femur bone of an adult male pig. Unlike human and non-human blood and flesh, bones play a somewhat muted role in Mambai death rituals (see for example Traube 1980: 98-99) and I later inquired with Modo about the use of bones in ritual. I learned from Modo that bones were associated with the dual quality of permanence and impermanence; bodily fluids from the dying person can be trapped in the bones fissures and allowed the living to memorialize the dead. On the other hand, because bone is made up mostly of collagen, it was also prone to erosion and breakage. This quality of the bone ensured that the bodily fluids of the dead would eventually dissipate allowing the dead to continue on their path to the land of the ancestors. In these ways, bones were the perfect

receptacle that not only allowed the living to memorialize the dead but also allow for the dead to join the ancestors.

While Mario's family held on to the tablet, Modo said prayers to the ancestors, asking that they now bear witness to this act, and about half of the substance in the vial was poured onto the tablet. This was the first act of re-materializing Mario, whose spirit had only moments begun separating from his body and was eagerly looking to anchor itself back to a body. The bone tablet, then, serves as this vital olfactory anchor of good smells.

It was now three in the morning and a time of great anxiety. Modo declares that Mario's spirit is temporarily anchored to the odiferous bone tablet. But the spirit would only find reason to remain here for another day–realizing it was no longer alive it would want to join the ancestors. The next phase would have to be initiated swiftly so that Mario's spirit would completely separate from the body. Mario's body was washed, draped with *tais* cloth provided by the wife-takers family, and moved from the courtyard and into the center of his home. Two hours of rest were granted so that the last of the wife-taker's family members could arrive from the capital.

Second Phase of the Death Ritual

7 a.m. The last of the wife-taker's family is here. Both are brothers of the mother-in-law. This day marks the second phase, where the renegotiation of social relations between the living consanguine and the affine upon death of the kin takes place through oratory and gift exchanges, and animal sacrifices. The purpose of these negotiations is to give renewed substance to relations between the living kin after Mario's death, and between the living and the dead. As Modo tells me, gifts are given to "pay for the fatigue and prostration of the dead" (*seul me'eta ni kolen nor kelan*). The idea is that the spirit must be compensated for the previous expenditure of bodily

substance. In the courtyard, the affines gather in full view of the corpse. Mario's family gathers at the entrance of the house. They have appointed Kuda Bo'ot (Old Horse), an elderly man and a gifted orator. Kuda Bo'ot will negotiate on behalf of Mario's family.

Kuda Bo'ot brings the family's mortar and pestle at the beginning of the gift and sacrifice negotiations. The mortar and pestle are said to resemble the body and spirit. Kuda Bo'ot then declares the mortar and pestle to be sickening and dying. And that the sooner the wife-takers and wife-givers reaffirm their alliances, the more effective the separation between Mario's body and spirit will be. This is a time when Mario and his family and affines were most vulnerable. Longer negotiations increased the potential for the spirit to continue to reside in the body while being tugged by the ancestors to leave. Having already found an anchor to the bone tablet infused with shared substance of itself and its family, the spirit is likely to stay put in the body, being frustrated and thwarted in its move back to the ancestral home. Longer negotiations then increased the chance of the spirit to inflict harm upon consanguine and affines.

There is another side to this hazardous situation. Given that only a short duration of time had passed since the spirit began separating from the body, the danger remains that the spirit may in fact seek a return to the body. This danger, as Kuda Bo'ot recounts, was made possible in the first place because of the spirit's anchor to the tablet. Since the tablet is infused with shared bodily substances, the spirit can be reminded of its bodily substances and may dislodge itself in search of its source. Because of the shared nature of the substance, the spirit may either try to reenter its body or possess one of its kin.[45] The challenge in attempting to re-enter its body poses further risk to the spirit. As the body decomposes, Mario's spirit may cease to recognize its own memory of the once alive body, warm inside, wet and supple to touch, and a body capable of

[45] The danger of possession is one I am vaguely familiar with in the Mambai community and requires historicizing and further research.

listening, speaking, tasting, and smelling. Death and decomposition render the opposite of these qualities: the body is now both internally and externally dry and brittle, the skin losing its elasticity, and unable to smell, taste, speak, and listen. In other words, the spirit will continue to re-enter a body divested of a familiar olfactory, tactile, and sonic repertoire.

Mario's spirit and the body are both undergoing transition. The essence of the spirit has the potential to escape from its anchoring to the tablet and seek out its now decomposing and unfamiliar body, or possess kin lured by the shared bodily substance via the tablet. It may heed the call of the ancestors and escape indefinitely, but, unable to enter the ancestors' mountain home until the completion of the ritual duties by the living, it remains in a deep state of anxiety. Wandering without a new home and an unrecognizable and decomposing old home, the spirit lives marginally in two worlds. It belongs neither to the ancestral world, nor can it resume its existence on earth peacefully. In this vulnerable condition, it may seek revenge against its kin, especially if they fail to fulfill their ritual obligations in a timely manner, or if at all. But the living are also fully aware of their own vulnerability at this time. Their anxiety gathers speed as Kuda Bo'ot reminds them to show concern for the spirit. With the potential situation that the spirit may treated as an intruder in both worlds, destined to wander indefinitely, the living now needed to ensure a favorable outcome by meeting their responsibilities.

Gifts and sacrifices are central to the renegotiation of social relation and the adjustments of material obligations between the wife-givers and the wife-takers after death. Working with the highland Mambai groups, Elizabeth Traube has documented the elaborate nature by which presentations are made by the wife-takers to the deceased family. She writes, "During a series of intense, often acrimonious confrontations with their wife-givers, [the wife-takers] agree to make specific payments calculated in breast-disks, goats, and money" (Traube 1986: 210). Over the course of the negotiations that I observed, ceremonial cloth (tais), pigs, a water buffalo, and finally, a payment for a plot of burial land were negotiated. In couplets, Kuda Bo'ot addressed the spirit and the ancestors to begin the first round of negotiations:

Nei hine ulu it seri	Your wife is here by your head
Nai gar kama it seri	The wife-givers are by your bedside
Nei Ane-hine lima it seri	Your daughters are by your hands
Man-heu gar gnan o uma	The wife-takers wait in the courtyard
Nei ana-mane oe it seri	Your son is by your feet
Arbau ga gnan deit	The buffalo bides its time

Mario's brother acted as the messenger between his family, the wife-givers, and Kuda Bo'ot the negotiator. A gift of cloth is demanded. Kuda Bo'ot relays this message to the wife-takers:

It-tu net eta ura-ni	You see his body
Lolu ga rae	Naked to the earth
It-tu tada hel ura-ni	You know his worth
Haraikan nor makas	Loyal and strong
Ita-tu tada todan ura-ni	You know his weight
loi-tasid, loba-tasid arbau ga	No more, no less a buffalo

The eldest brother of the each of wife-taker's side submit their reply to Kuda Bo'ot who relays the following offer:

Am net eta ura-ni	We see his body
Nai buis nor hena it seri	Adorned by our wife-givers
Am tada hel ura-ni	We know his worth
Ane-hine bai ura-ni	Fertile are his daughters
Am tada todan ura-ni	We know his weight
Kilu eha sagul	Ten kilos a piece

The offer of twenty kilos was inadequate for Mario's family. Kuda Bo'ot relayed the wife-giver's counter offer:

It-tu pun logo	You have made an offer
Lia ubdat mendai sehel	Only crocodiles will find enticing[46]
It-tu ora gia mlig mat ura-ni	You forget his current state
Lia rae-ubu leb dmil-et	Only ghosts can remember
Am tada todan ura-ni	We know his weight
Mate klamar nor ana-maer	Of lost spirits and possessed children

At this point the negotiation proceeded two more turns until thirty kilos of tais from each wife-taker family was successfully negotiated. Kuda Bo'ot successfully negotiates the second and third items involving twelve pigs and a water buffalo (*arbau*). The wife-givers agreed to give the wife-takers a few weeks to deliver the payments of tais, pigs, and the buffalo. The final item of negotiation was the money to purchase Mario's burial plot, which turned out to be a situation engendered by the Tasi Mane infrastructure development project.

Around 2010, family members stopped tending to the land around Mario's ancestral graves (and of 220 other families) in Betano, allowing grass and weeds to proliferate over grave sites. The reason for their neglect was that these families needed time to deal with problems from

[46] The Mambai use the phrase "…an offer only crocodiles will find enticing" to refer to "people who lack patience in a ritual exchange" and to refer to "inexperienced ritual speakers who aren't patient during negotiations." This phrase is thought to originate from observed behavior among crocodiles in the Betano area that like to capture their prey at the first opportunity (personal communication with Modo).

the past, especially the aftermath of the Indonesian occupation and related conflicts, since they serve to redress imbalances caused by past killings and to resolve outstanding obligations and tensions between different affine and consanguine groups. The dead were continued to be buried in grave sites on the land. To the casual observer, the cemetery appeared abandoned. As the town chief recounted to me, in 2013, without prior consultation with the Mambai residents, TimorGAP and Timor-Leste State encroached upon what they saw as unused land and cordoned it off against public use. This greatly enraged the residents. When they lodged complaints, TimorGAP assured them that the land would not be dug up, but they also barred residents from using it for burials, until at least given further notice.

Aware of these circumstances, a wealthy highland Mambai family had leased land further inland from the Timor-Leste Government for funerary purposes. This was an entrepreneurial move on the part of the family, as Mambai communities in Betano now had to negotiate loan agreements to bury their dead. Though the highland family agreed to the lease terms, the negotiation took up more precious hours, and left little time for Mario's family to ensure a path for Mario's spirit to join the land of the ancestors.

With the sun setting, negotiations came to an end. Kuda Bo'ot declared that if the consanguines are satisfied between themselves and with their affines, then Mario's spirit is equally satisfied and will anxiously await the next phase of passage. The odiferous tablet was passed onto the wife-takers and Mario would be buried next morning.

Third Phase of the Death Ritual

This is third and final phase when the affines use the odiferous bone tablet to guide the spirit back to reside in their ancestral mountain home, while the family buries Mario's body and distributes the rest of their shared bodily substance to the sea. Two journeys are taken in the

morning. One party comprised of the wife-takers journey to the mountains. They carry with them the smell-infused tablet and make a lot of noise with wooden poles and metal sticks as they travel up the mountain. Beatles and Rolling Stones albums are played on a loop on a portable stereo player. Occasionally, the men sing praises of Mario and his family, always in couplets. These activities are said to keep Mario's now completely separated spirit anchored both olfactorally through the odiferous tablet infused with the shared bodily substances of kin and its former body, and sonically in guiding the spirit to the ancestral place in a cave in the mountains. Kuda Bo'ot tells me that this is another phase characterized by deep anxiety. The spirit needs to be constantly engaged during the journey into the mountains. An ancestral cave site is their final destination. The tablet is said to be stored in a crevice with the other ancestors. This is where Mario's spirit will now reside together with the other ancestors in their mountain home.

The second party is comprised of Mario's family, Kuda Bo'ot, and Mario's family. I was invited to be a part of this party. Mario was buried in the plot of land purchased by his affines. After the burial ceremony, we walked to the sea and poured the rest of the shared substance into the seawater. The sea currents and winds mixed with the shared substance, mingling with maritime life and humans, illustrating the mutual entanglement of the living and dead.

In this chapter, I have suggested that the very fluids that escape from a dying body—a body that is on the brink of entering the phrase of destruction—form part of the generative substance that produces a separation of spirit and body, and through its re-materialization in a bone tablet, guides the spirit safely back to "the beyond," to the ancestral mountain home. While Hertz insisted upon the decomposition of the body to the point of destruction for future reconstruction "in the beyond," the Mambai case that I have discussed here expands upon Hertz's suggestion to suggest that death practices do not necessarily rely on bodily

decomposition for future reconstruction and safe passage to another world. I followed this observation with the claim that meta rituals on the death of a kin involve gift exchanges between the living consanguine and the affines, which in turn, give renewed substance to relations between the living kin and between the living and the dead. Taken together, both the re-materialization of the dead and the reaffirmation of social relations between wife-givers and wife-takers effectuate a successful separation between the spirit and the body. By carrying out their responsibilities as living consanguine and affines, the spirit is then guided back to the ancestral homeland, ready to begin a new passage of social relations between itself and other ancestral spirits, and with the living.

Chapter 5
"Loke-toke, loke-toke": Mambai Ethical Pedagogy of Balance

"I say that habit's but long practice, friend,
And this becomes men's nature in the end."
(Aristotle, Nicomachean Ethics)

"Loke-toke, loke-toke.
lelban-lelban, ita loke-toke,
depuis id hasoru ita."

"Push-pull, push-pull.
Day by day, you push-pull,
and then it becomes you."
(Marcelo, Senior Mambai fisher).

In previous chapters, I discussed how the coastal town of Betano and its fishing hamlets, inhabited by over 750 residents of the Mambai cultural group, have been undergoing preparations for the Tasi Mane Petroleum Project. Assisted by the Timor-Leste State's appropriation of Mambai homesteads and agricultural land for its operations, the project has

transformed subterranean material into profitable products for the national and private oil companies. Unfettered profit, however, comes at a cost to the current residents. The project has released olfactory, sonic, and metallic pollutants into the atmosphere and ocean, contaminated the marine life that residents depend on for subsistence and income, and challenged Mambai residents' familiar sensory practices of in their place of dwelling. Of relevance to this present chapter, are off-shore operations that have restricted access to pelagic fishing in waters where senior fishers teach juniors to keep their balance aboard fishing boats. Fishers prefer pelagic fishing in waters close or across the Timor Trough. See Fig. 12 below, which shows the major petroleum sites in Timor Leste. Betano is indicted by a star. The shorter blue arrows indicate directional areas of shallow fishing. The longer red arrows are areas preferred for fishing in deeper waters, a distance of about 80-100km (45-65 miles, 43-54 nautical miles) from put-off points in Betano. However, security patrols for the Bayu-Undan petroleum operation (shaded red in bottom of the figure) often scare off fishers from venturing beyond the trough. I briefly discuss how fishers respond to this situation later in this chapter.

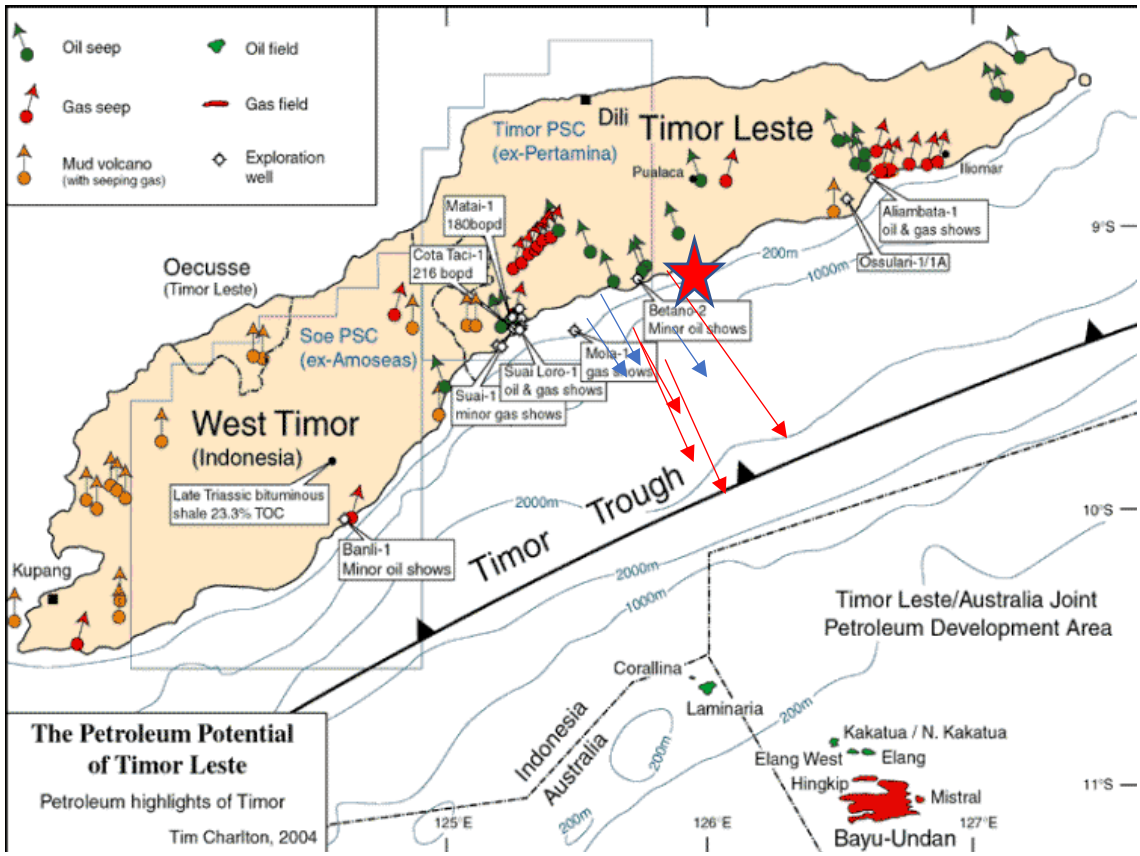

Figure 13. "The Petroleum Potential of Timor-Leste" by Tim Charlton, 2004.

Mambai fishers teach balance in deeper waters for two interrelated reasons: first, as an ecological management practice, the trained ability to alternate fishing between calmer shallow waters and rougher deep waters promotes year-round availability of fish. And second, at the level of embodied knowledge—knowledge that is learned, acquired, and stored in your body and in others who share similar worlds in which such knowledge is valued and practiced. Senior fishers drill juniors in the proprioceptive and kinesthetic (awareness of your body's movements in space) techniques of the body from an early age to train Mambai fishers to use their body to acquire balance on boats and make decisions while fishing in deep waters. The embodied knowledge of balance acquired at sea is thus fundamental to all other matters in the ends and beginnings of life at shore. This chapter develops the second reason—the embodied practices of balance. Below, I briefly discuss the ecological management practice.

Ecological Management Practice

If Mambai fishers did not learn to keep their balance in the rough conditions of deeper waters and thus only caught fish in shallow, reef waters (~650 to 1300 feet) they could, within 2-3 months every year, deplete fish populations (yellow-fin tuna and mackerel) in areas that are closer to the shore. Mambai fishers deploy a combination of outrigger canoes and aluminum boats with outboard motors for fishing. Less experienced junior fishers are cautious about their capacity to keep their balance in deeper and rougher waters. These fishers often stay closer to shallow waters, where they overfish certain fish populations resulting in episodes of plentiful bounty and longer periods of want in the wait for fish populations to be replaced. Such episodes of abundance in consumption and abundance in income generated from the sale of fish to buyers in highland towns and in the capital, also create a short-lived sense of socioeconomic security for fishers. During this short span of abundance, junior fishers gather in the late afternoons to *koalia manu* ("rooster talk" or gathering to shoot the breeze), which start in the late afternoons and end in the late hours of the night. Juniors boast about their large hauls and income, a portion which is spent on imported beer (Tiger is the preferred choice of lager) and cigarettes (Marlboro Reds). If there is cell phone service that evening, they use Facebook and listen to downloaded music by Indonesian pop music artists. During these benders, juniors give long exaggerated accounts of their exploits at sea, sing reggae songs, fist-fight with each other over the last beer, and wake up the next morning with a classic 2-day hangover, much to the chagrin of senior fishers who are left without sober crews to go fishing. Importantly, cycles of overfishing in shallow waters and rejoicing in quick rewards lead younger men to seek intermittent employment that offer benefits to highland towns. These are the junior fishers who did not keep to the rigorous training schedules imposed by seniors who teach about fishing in deeper waters. According to seniors,

former fishers recognized their bodily limits to maintain their balance aboard boats in deeper waters and sought short-lived rewards of fishing in shallow waters. When fish stocks dry up and when all of the dried fish is consumed, fishers and their families supplement their diet with industrially processed foods including instant noodles (Indomie) and sugary snacks. While a regular serving of instant noodles contains desirable amounts of fat and carbohydrates, and packs a delicious umami punch, it lacks the nutritional qualities valued by Mambai residents for good health. Recognizing this situation, more experienced Mambai fishers alternate their fishing between shallow and deeper waters. [47]

Techniques of the Body

While shallow waters present periodically ample but short-lived fishing opportunities, the wave patterns on shallow waters are uniform and the calmer wind and oceanic conditions do not present significant challenges to fishers to acquire bodily techniques of balance (see Figure 13 for animated graphic of waves across shallow waters). Winds gather more speed across deeper than shallow waters and can carry off items (and humans!) not tethered to the boat (see Figure 14 for animated graphic of waves across deeper waters). The waves crash against the wooden sides of the boat, often entering the boat where a small bucket is used to scoop out water. Boats get carried up on the crest of a wave and come crashing back only to be lifted up again by the next wave. These are considered to be the ideal conditions to teach juniors about the embodied knowledge of balance and for them to build the bodily capacity to choose between risk and reward, life, and death. The idea is that as juniors learn and practice techniques of balance, juniors' bodies will, over many years, respond instinctively in deciding between risk and reward

[47] A good ethnographic study on fishing practices and ecology is Fikret Berkes. 1999. Sacred Ecologies: Traditional Ecological Knowledge and Resource Management. Philadelphia, PA: Taylor & Francis.

while fishing at sea. Bigger fish live in deeper waters but catching a big, muscular, and aggressive fish like a barracuda requires fishers to keep their balance or risk falling into the sea and potentially drowning. In deeper waters, fishers are taught by seniors to learn to use and listen to their bodies, to listen to the sea waters, identify patterns in the sea waves, and shift their body weight appropriately through their feet and lower-limb muscles. Importantly, they are taught the importance of using their body to evaluate between risk and reward. For example, if a fish's strength and the weather conditions exceed the fisher's ability to maintain his balance he must sever the fishing line or risk death. If junior fishers risk the lives of their fellow fishers in thinking merely about the future reward of netting a big fish, they are also considered by seniors as having lost their balance, which has severe consequences not just at sea but also back home.

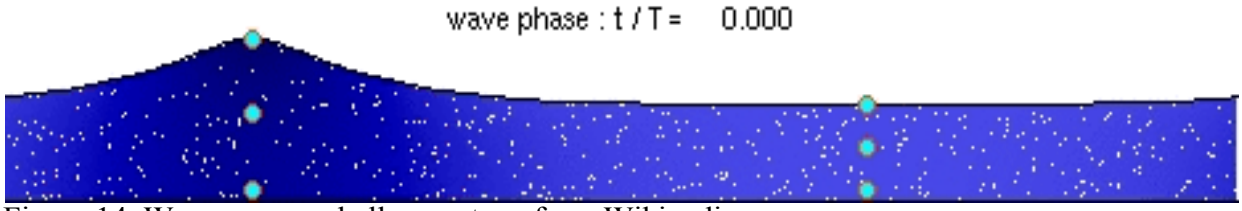

Figure 14. Waves across shallow waters, from Wikipedia: https://en.wikipedia.org/wiki/Wind_wave#/media/File:Shallow_water_wave.png

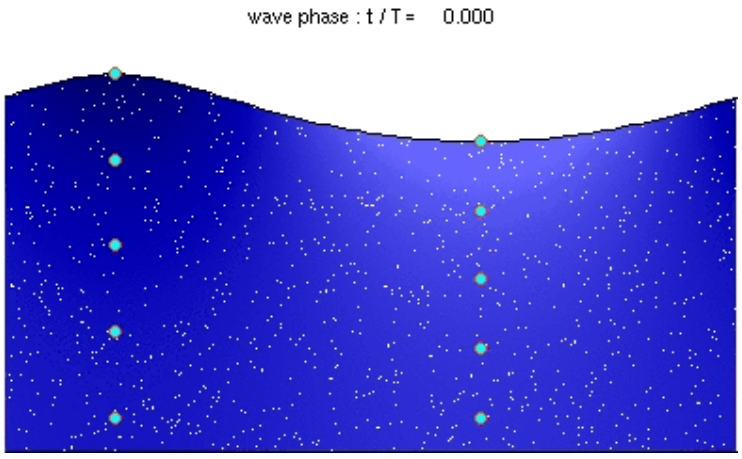

Figure 15. Waves across deeper waters, from Wikipedia: https://en.wikipedia.org/wiki/Wind_wave#/media/File:Deep_water_wave.png

This chapter examines Mambai sensory practices around balance. Balance has several associations for the Mambai, including bodily experience, metaphorical reasoning, and living "the good life." The embodied knowledge of balance is reinforced through proprioceptive practices, which play a substantial role in the formation of cultural and ethical subjects. In considering these practices, this chapter utilizes what I call "corporeal mimicry" to describe bodily techniques of balance. I focus on routinized linguistic and bodily practices in which senior fishers socialized juniors in keeping balance while fishing. During weekly fishing trips, juniors were tasked to mimic seniors' bodily techniques, often with consequences: a loss of balance posed the threat of drowning while juniors who clamored back into the boat were castigated before their peers for not cultivating an awareness of their body in relation to the boat and the waters. Through "corporeal mimicry," this chapter responds to longstanding concerns in the literature of bodies, movement, embodiment, and in the acquiring and sharing of bodily practices through which humans experience their lived environments (Csordas 1994; Desjarlais and Throop 2011; Farquhar and Lock 2007; Mueggler 2001).

In what follows, I first describe a near fateful encounter at sea and contextualize it in the scholarly literature on bodies and ethics. Next, I discuss a training session on a fishing boat at sea, in which Marcelo, a senior fisher, trains a group of three junior fishers aged six to ten to keep their balance at sea. I detail the bodily technique of "push-pull" used by the senior fisher and refer to what I call "corporeal mimicry" to elucidate the process by which juniors learn and perform "push-pull" technique to keep in balance. I proceed to discuss the embodiment of ethical values emergent in the "push-pull" technique. In my discussion, I suggest that Mambai notions of balance link up bodily techniques with ethical values that are prevalent in all aspects of Mambai life. In the last section, I turn to an older set of junior fishers (16 years old and upward)

who have abandoned maritime activities with their fishing cohorts and instead search for intermittent residual income in the highland towns. In doing so, they draw wrath from seniors who are left to fish and fend for themselves. Importantly, by leaving their families and their fishing vocation, seniors regarded the former fishers as not having acquired the Mambai virtue of balance. Since former fishers decided that grander and quicker rewards outweighed the risks, seniors deemed former fishers to be out of balance in their lives, casting them in a category of ethical doubt.

It is important to note here that juniors are trained in fishing cohorts (like Kara, Albert, and Vidal are a cohort whom I discuss in this chapter) that often remain in Betano unless they move away to neighboring towns or to the capital, drawn to the availability of different forms of work, education, friends, lovers, new opportunities, and so on. The cohorts that remain in Betano work alongside their fathers and paternal uncles until they are older (between 16 to18 years old), or when they leave for university education in Dili. Cohorts start with learning how to build wooden outrigger canoes and boats. When they are older the cohort pools money together, taking out loans from family members as necessary, and buys a fishing boat. Besides sharing fishing revenue (from sales in Betano, neighboring coastal and highland towns) these cohorts also engage in marital relations between their extended kin networks. A cohort that fishes together stays together.

Fools at Sea

December 19, 2015, Lalica Hamlet, one of five fishing hamelts on the coast of the Tasi Mane (Male Sea). We nearly drowned in our attempt to net a formidable ika kras (coarse fish), a one-meter-long yellow-tail barracuda (*Sphyraena flavicauda*). We did not intend to pursue the ika kras. We needed to net at least two more baskets of mackerel. But 15-year-old Duarte decided

against Marcelo's better judgment. Our spool was not long enough to pursue a fish the like of ika kras and Duarte opened the throttle on the motor. We were going to catch a fish by pursuing it. Marcelo flailed his hands toward his son and cursed, but his words flapped against the cold air instead. It takes a few hours to sober up after two pints of *nau* (palm brandy) and Marcelo could do little more than stumble and fall back into the boat. Ika kras cut through the water and leapt up and flirted with the air. Suspended in mid-air for no longer than a blink of eye, I swore ika kras gave us a sinister snarl: "Don't mess with me, human," he might have said. And just like that, ika kras descended back into the water, hook in mouth, tearing into the depths of the Tasi Mane (Male Sea). The chase was on. We were dragged three *tuns* (word marking distance at sea, approximately one nautical mile) across the surface of the water. Duarte kept increasing the speed, and I could hear the structure of the boat shrieking. "Khrrrreeeeakk," the wood ached, the boat's wooden innards soaked, and the seawater pooling more quickly than it could be drained away from the plughole on the sideboard of the boat.

At one point, Ika Kras made an unexpectedly sharp, near 360-degree turn. Duarte handed me the rod. The vibrations from the rod made me feel that I was in control of Ika Kras and I felt him struggle through the rod and line. Instead of doing two 60-degree turns or "bankings," that would have slowed down our turn, Duarte responded to Ika Kras's directional change with a near 180 degrees turn that severely strained the boat. The friction that built up because of this sharp turn caused a large crack in the wooden sideboard. Two of four baskets of fish went overboard, back from whence they came, a few given a new lease of life, barely, and most now surely fodder to fellow marine life. Marcelo swore a curse that would have curdled the blood of most Mambai junior fishers. But Duarte waved away his Father's drunken words and accelerated. He had even included Ika Kras into his family, addressing the fish tugging at his line Maun Ika Kras

Bo'ot—big brother coarse fish. The sea threatened to swallow the motor. The sea had already swallowed my cell phone last month, sealed in a double zip lock bag.

A small chunk of the top part of the prow broke off and flew in Duarte's direction. Duarte shifted his feet to dodge the wooden projectile but did not anticipate another wave crashing against our boat. "Loke-toke, sente liuhusi id-nia ain, loke-toke, id moro!" shouted Marcelo. "Push-pull, feel with your feet, you idiot!" Duarte was too slow. Fishing rod in hand, line still being pulled by Maun Ika Kras Bo'ot, Duarte fell into the sea.[48]

Maun Ika Kras Bo'ot had likely slipped into the deep recesses of the sea by the time Duarte's head bobbed at the surface. He gasped for air and I let out a deep sigh of relief. Marcelo arose from his drunken stupor amidst the broken wood. Steadying himself against the sea waves, one foot gripping against the prow and using it to hurl himself across the other side of the boat. Within moments he had hauled Duarte back into the safety of the boat. He smacked Duarte across his forehead, adding to his shame, and left him slumped in a heap. Marcelo stood over his son, gestured ahead, directing our eyes to the choppy sea waters that threatened to take our lives, before scolding him: "What's the point of living if you can't even learn to balance, you fool? You bring shame to our family."

Duarte fumbled at the tangled line, the palms of his hands seared at odd angles where the line had bitten into his skin; a rusty red hue of bloody embarrassment. Maun Ika kras bot had left his mark. I tried to help Duarte up to his feet but he pushed me aside. I looked up and saw Marcelo's stout pose, both feet on the prow. He waited for our boat to hit the crest of a wave that crashed into us. Just as the boat descended on the back of the wave, Marcelo lifted his left foot

[48] There are some similarities of push and pull commands to Wacquant's (2000) work where the "jab and cut" type of commands are given by boxing trainer DeeDee to the pugilists as they spar with one another. Sparring partners form social collectivities of pugilists who train together, eat together, spar together, fight together.

up, gripped the prow with the toes of his right foot, and used it as a pivot to leap across to the stern. He shifted the motor from its neutral state, just as the next wave crest dumped onto us. Marcelo had one hand on the rudder, the other occupied in uncapping his bottle of liquor. "Harghh," the guttural sound of his satisfaction filled the air as he took a long swig. He tossed the empty bottle toward Duarte, narrowly missing his head and guided the boat back to shore.

Marcelo's frustration toward his son Duarte discloses a series of questions, which frame this chapter: If techniques of balance are fundamental to life, how (and from what) do people acquire shared cultural knowledge, and then translate their somatic experience into training cues for junior fishers? What are these techniques, how are they taught, and what are the consequences of not following them? In what ways do habituated practices of perceiving the sea shape ethical sensibilities? And, when off-shore petroleum operations restrict access to deeper waters, how do fishers continue to share embodied knowledge of balance? By drawing attention to corporeal mimicry, this chapter ultimately argues that sensory perception and practices illuminate embodied knowledge of balance.

Embodied Knowledge of Balance

In different disciplinary contexts, "ethics" has been defined in divergent ways: as moral duties or a matter of manners, traditions, and customs; as a practice of self-conduct and self-monitoring or a way of living well with and for humans and non-humans; as a domain of aesthetics, skill, technique, and virtuosity; or emergent in interaction, often as a claim upon or address to another. These distinctions concern themselves with the types of relationships one could cultivate within themselves, focusing especially, on the myriad of everyday practices through which individuals view themselves as subjects of ethical self-conduct and develop a particular embodied stance toward moral orientations and inner dispositions. Individual practices of self-conduct, however,

must be made recognizable in order for other people to take them to be taken to be ethical (Keane 2015). When they are made recognizable they are reproducible. Through linguistic practice or bodily habits, other people come to recognize individual practices of self-conduct and self-monitoring as having collective ethical implications. Importantly, ethics is rendered recognizable to others because it is embodied. In a broad sense, this chapter is about the ways that ethical practice works upon the body, the practical techniques that sustain them, and their claims upon collective life.

Anthropological and historical approaches have long focused attention upon the body as site of ethical engagement. Talal Asad (1973) has insisted upon the interweaving of moral argumentation and embodiment: "it always invokes historical bodies, bodies placed within particular traditions, with their potentialities of feeling, of receptivity, and of suspicion." Scholars have also drawn from the domains of acoustemology, cultural psychology, science studies, medicine, botany, language and culture, and indigenous knowledge and analysis in the studying ethical practices, from the soundscapes of the Bosavi rainforest (Feld 1996), the resonances of the ocean and marine life (Helmreich 2009), the sensory cultivation of an ear for piety in contemporary Cairo (Hirschkind 2006), and ethnographic study of voice in Seoul, South Korea (Harkness 2013).

To reflect on the ethical status of the body is also to investigate how such ethics may be instantiated in habits, tendencies, and other forms of durable—and made durable—practices: the "techniques of the body," as Marcel Mauss (1979 [1934]) called them. Through techniques of the body, bodily capacities for moral action may be cultivated, disciplined, and made recognizable to others. For Mauss, ethical activity consisted in the acquisition and exercise of valued bodily qualities, skills, and dispositions. The education of the body by means of techniques points to the

adaptive and generative nature of ethical pedagogy. Whereas off-shore hydrocarbon operations have restricted access to deeper waters, Mambai fishers do not simply give up sharing their embodied knowledge of balance in rough waters. Instead, they take junior fishers out to train in stormy weather—conditions they otherwise would have avoided. They also monitor staff turnover at off-shore operations. Hydrocarbon companies use a private helipad near Betano to on-load and off-load work staff. Each changeover brings about a new marine security patrol crew that tends to be more casual in the first few weeks of their tasks and do not patrol the Trough area as regularly. Fishers time their trips to deeper waters for fishing and for training juniors by watching for workforce changes. So, while practices of ethical pedagogy—reflective, bodily, and always sensory—draw from resources of the past they are also circulated as lessons for the present. Embodied knowledge is not simply the passing down and cultivation through training of rules or manuals kept in a secret Mambai archive; instead embodied knowledge relies upon ethical pedagogy to become a resource with which the Mambai develop a particular mode of existence at their oceanic location.

Let me turn to the epigraph from Aristotle's *Nicomachean Ethics* [On the first page]: "I say that habit's but long practice, friend, and this becomes men's nature in the end" (NE 1152a33-35, 1941). There are several levels of resonance between this quote from Aristotle and the "push-pull" technique of achieving balance on a fishing boat. In particular, I want to explore the Aristotelian model of ethical pedagogy in the Mambai oceanic technique of the body, in which external performative acts (like "push-pull") are understood to create corresponding inward dispositions of balance, and the learned capacity to choose between risk and reward. This model of ethical pedagogy is essential to the Aristotelian formulation of *habitus*, which is concerned with ethical formation and presupposes a pedagogical process by which a moral

character of balance is attained. While Bourdieu used *habitus* as a theoretical concept to explain how the structural and class positions of individual subjects come to be embodied as dispositions, I draw from work by Saba Mahmood (2005) and Charles Hirschkind's (2006, 2011) work to consider *habitus* as used in the Aristotelian tradition where bodily gestures, movements, and techniques are central to the cultivation of ethical dispositions. According to the epigraph from Aristotle conveys, habit is learned through repeated practice until that practice permanently marks on the character of the person. Mambai virtue of balance is thus acquired through a coordination of outward bodily actions (like "push-pull") with inward dispositions (emotional states, thoughts, intentions) through the repeated performance of acts that enact the virtue of balance.

While Bourdieu acknowledges that *habitus* is learned, he is more concerned with the unconscious power of habitus through which social conditions, including an individual's class or social position, become naturalized and reproduced. He argues that "practical mimesis" (the process by which *habitus* is acquired) "has nothing in common with an imitation that would presuppose a conscious effort to reproduce a gesture, an utterance or an object explicitly constituted as a model ... [instead] the process of reproduction ... tends to take place below the level of consciousness, expression, and the reflexive distance which these presuppose ... What is 'learned by the body' is not something that one has, like knowledge that can be brandished, but something that one is" (Bourdieu 1990: 73). Bourdieu's discussion of *habitus*, however, lacks sufficient attention to the pedagogical process by which a *habitus* is learned. In the ethnographic account of pelagic fishing training that I present, the body was always seen as the site of ethical training. Bourdieu's idea of "practical mimesis" motivates me to consider how the practice of

mimesis takes place in, by, and through bodies of subjects. This led me to refashion the notion of "practical mimesis" as 'corporeal mimicry.'

Corporeal Mimicry and Ethical Pedagogy

I use the concept of "corporeal mimicry" to think through how practices are socialized into bodies. By corporeal mimicry, I do not intend to simply bundle human bodily practices together but to open up what we might consider to be bodily practices that come to be taken into, resisted, transformed, and rejected by bodies. My purpose in using "corporeal mimicry" is to consider how people mimic the bodily actions of others as part of an ethical pedagogy to cultivate inward dispositions of balance in pursuit of the Mambai practices of balance.

Moreover, if the use of our bodies does shape the way we conceptualize and categorize, it is vital to show just how they do so, and do so from the very beginning. How is it possible that Mambai fishers have a concept of push-pull? How (and from what) do people acquire shared cultural knowledge, and then translate their somatic experience into training cues for junior fishers? In what ways do habituated practices of self-monitoring and self-discipline shape ethical pedagogy?

For example, when Marcelo brings junior fishers out for training he abstains from smoking and drinking before and during the session. Marcelo was drinking and smoking when we went out to fish with his son Duarte because it was not a training session. I found this out during my very first training trip when I had my French breakfast of cigarette and coffee. "Aii" he screamed, yanked the cigarette out of my mouth before I could finish drawing my first puff, and did not talk to me for the rest of that first trip. Marcelo drank and smoked his way through fishing when it was just the two of us or when we were joined by other senior fishers. He never once smoked or drank when he was training the juniors. When I inquired about this many

months later, he simply replied “la diak”— It’s not good. I never saw other senior fishers drink or smoke either when they took juniors out to be trained. I take senior fishers’ self-discipline to be a critical element of vigilance and monitoring of one’s practices in the moral pedagogy of balance. It also suggests to me that even though senior fishers have already acquired the embodied knowledge of balance they do not consider it as something that just functions automatically. Instead, constant vigilance and monitoring of oneself and junior fishers suggests to me that it’s not simply a matter that one acts virtuously but how one enacts a virtue with intent, emotion, and commitment toward junior fishers. Self-disciplining therefore draws attention to the role of self-directed action in the teaching of embodied practices of balance (See Figure 15). In what follows, I begin by illustrating how the maritime encounter became a space of teaching and learning Mambai embodied sensibilities of balance.

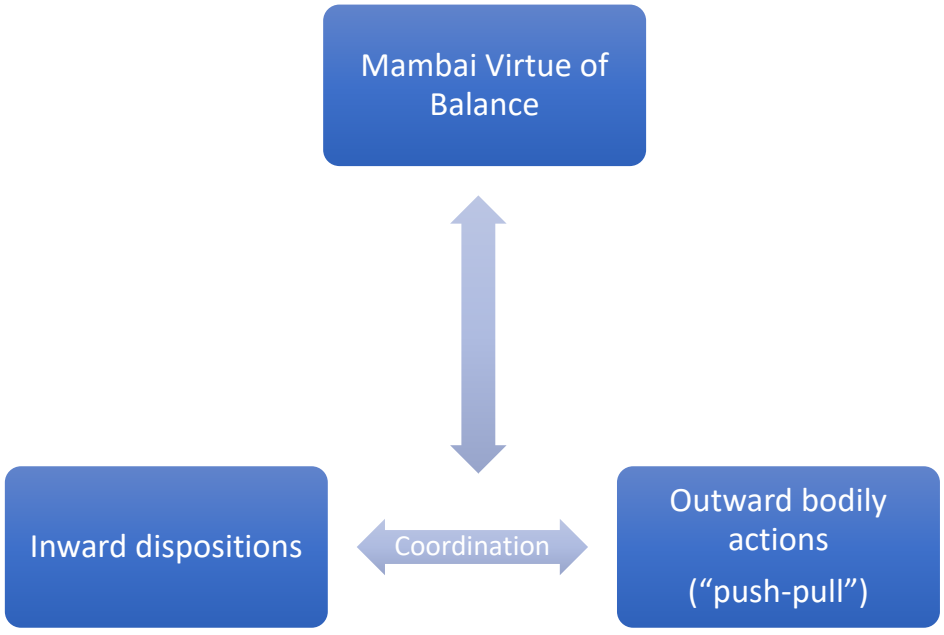

Figure 16. Mambai virtue of balance.

Loke-toke, loke-toke ("push-pull, push pull") Training Cues

Duarte did not show up to fish the next morning. As a 15-yr old, he was expected to go on daily fishing trips that began at around 4:30 AM and ended at 7 am. Returning home from fishing, he would then eat, change his clothes, and, together with his group of friends, ride 25 minutes for 25 cents in a *mikrolet* (repurposed pick-up truck) up to his secondary school in the Same district, town center of the Manufahi district. If he missed the *mikrolet* he would walk an hour and a half to school and arrive right as the Portuguese language lessons ended. Duarte preferred walking to taking the *mikrolet*; Portuguese was a useless subject for him. "Colonizers! Those fuckers!" he once yelled out when I offered to give him a ride on my motorbike.

I went looking for Duarte hoping he might be sulking somewhere by the yam gardens, a favorite spot for rebellious teenagers who liked to climb up the mango trees surrounding the gardens, sit on a branch and suck on unripe mangoes. "Where is he, Avo Sérah?" I asked Duarte's mother. "He's gone with his friends, that boy is nothing but pain." Before I could continue inquiring, Marcelo called out to me. "His back is broken (he's angry), what else. Let's go, the tide is good, we don't have time." As it was just the two of us on the boat in the morning I used the opportunity to ask Marcelo what had been nagging me when I went to sleep.

> Prash: Tiu, so what did you mean that it's better to be dead than to live without balance?
>
> Marcelo: You fall in (to the sea)—Like you all the time. {He laughs}—then you will die, one day.
>
> P: You've always helped me back up. I'm grateful.
>
> M: {Waves his hands} That's nothing. If it's not in your *lae pun* (body) from the time you're small, if it's not necessary for your people, then why should you have it?
>
> P: And why is it better to be dead than to live without balance?

M**:** You're asking many questions today. Can we just smoke, drink, and pull fish?

P*:* {Mhmm, I nod and look into the distance}

M: {Haiii, he smacks his lips in dismay} Now you're just like a woman! {Haiii} Ok, Ok tell me, what is necessary for your people?

P: {I offer him another cigarette} I don't know, so many things. Time? Money?

M: {He scrunches his body in laughter} We want the same too!

P: Maybe we want to have all of it as quickly as possible!

M: We want the same too! But you see, for you time is about fast and slow, yes?

P: Yes, I think.

M: Yes, I know because that's why you're always tense like waiting for something to happen. Everyday I see you, you wake up and come to the sea, and you are asking about tomorrow. Talking about tomorrow with the kids. And when something happens you're rushing for it.

P: Oh. You know everything. Maybe it's the liquor talking.

M: {Smacks his lips together and laughs}I know. Your time makes your body tense. Or because you have no woman you are tense.

P: Hmm. And in Singapore those with money have a lot of time too and they're relaxed.

M: It's the same. Well, for me, for the kids and their parents, we want there to be a balance between risk and reward. Between having and giving food, money, the animals, the crops, and their children.

P: I understand that, I think.

M: Maybe, with time.

M: On the boat, you learn to use your body, you learn to know the difference between risk and reward. What Duarte did yesterday was to see the future. Maybe he was talking

to you too much. He thought "Oh I can be the hero catching the big fish." Because his *uluk* (core) was not strong enough, he nearly killed all of us. If his *uluk* was stronger, he would have known not to have given chase to the fish. He was thinking of what people think of him after he had done something instead of doing something right first.

P: Can you only catch big fish after you have balance?

M: Yes, he would know to balance, he would know how to feel the push-pull of the sea waves and push-pull accordingly with it. He didn't know how to do that, even at his age, it's a shame, and he nearly killed us. It's a shame. That's what it's better to be dead than to lose balance.

P: Because he could cause more death than just his own.

M: Hmm, yes. Because he could have killed us. But, you see, it's because if he doesn't learn to act in balance at sea, he will never act with balance in other matters on land. He will be dead in a few years like his elder brother. It's a shame.

P: What happened there?

M: Haiii. Too much talking today. And still no fish. Give me another cigarette.

I followed Marcelo and the juniors every morning, half as a junior fisher myself, and the other half fearing for my life as an ethnographer; I was a poor swimmer. Some people rejoice in the splendors of the sea, basking in it for hours, reapplying sunblock and heading out again. I enjoy the sea too, but not that much also. I fear the sea and its darkness below. As a 10-year-old in Singapore, I experienced a near death by drowning. Chest compressions from a stranger saved me that day but my near-death experience is not the reason why I fear the sea; it is death itself. Much has been written about humans' travels and travails at sea, spanning the genres of horror, romance, sci-fi, murder-mystery, and so on. The sea captivates and consumes us in many ways. I too find it majestic, though I prefer to experience the sea sitting on the beach, standing atop a mountain, or on a fishing vessel. I like getting into the water, and I prefer getting out of it. Yet,

like the Mambai, I fear the sea of the south coast. Especially the Tasi Mane ("Male Sea" or Timor Sea) bordering Australia and oceanic islands. There is an almost complete reversal of emotions attached to the sea by Timorese in the North Sea (Tasi Feto, "Female Sea") skirting the capital city Dili where adults and children rejoice in the sea's welcoming respite from work. On the south coast, the Male Sea is ruthless, and salt water crocodiles lurk with hunger. The Male Sea punishes frivolity and mistakes at sea and takes life at its will. Every Mambai resident I know fears the potential of the sea to take life. Regardless, I followed fishers closely because I was attracted by the moral pedagogy of the virtue of balance that was being shared and acquired at the same time as humans sought marine life, while the sea tried to take the life of humans. I studied Marcelo's training program and watched my fellow juniors stumble and fall and make progress. I did not always get to put his program into action during the morning fishing trips, but instead received personal lessons while fishing together with Marcelo in the late afternoons and on the weekends. It was impossible to take notes in the wet conditions despite bringing weather-proof pens and notebooks. I wrote up my notes at shore and on boats during calmer waters and weather conditions. In my notes, I included my own bodily impressions of fishing, my emotional states at sea (often frantic inside and calm on my face), and the wobbly conditions I felt for a few hours after returning to land. I continued to feel the sea in my leg muscles, tightening and relaxing, as I walked around on land, while my fingers often retained their curled position from gripping hard onto sideboards of boats for dear life. I continued to feel at sea even when I was on land.

Periodically, I consulted with Marcelo and other fishers during our afternoon fishing trips and cross-checked their responses to my questions against my daily notes. I took pictures when I could but after my phone was swallowed by the sea, I did not risk my primary digital camera at

sea and stored it back on land. I had used my phone as a GPS marking device and for its camera. Over time, after returning to Ann Arbor, I put together my notes and my own embodied knowledge of balance, but the challenge is translating sensory experience across language, time, place, and bodies.

Training Day, Christmas Eve 2015

0515, it was raining hard. Marcelo, three junior fishers (ages 6, 6, 9), and I went out to sea. My balance was at the level of a 5-yr old's, and even though I was not directly training alongside the juniors, I had been watching them and practicing my techniques when I fished with Marcelo. I sat next to Kara, the 9-year-old. We looked around in the darkness in silence, the sound of the outboard motor drowning out the song Marcelo was singing. *Avo uman sira bo'ot ho avo lafahek sira bo'ot, avo ika bo'ot, ami presiza mori, ami ro presiza mori, ami mai atu fo moris, bainhira sira moris* (Ancestors of humans and ancestors of crocodiles, we come to take life, give us life, give our boat life, we come to give life by taking life away.) We shivered in the cold, the juniors huddled together while my hands gripped the side of the boat, wiping away the sprays of sea water that stung my eyes and seeped into my skin.

It took us about 35 minutes to get to deeper waters. Marcelo never kept time, he told me once that all senior fishers knew that they had arrived at the deeper waters from seeing the reflection of the light on the surface of the sea. He cut the motor. I took a GPS reading. The waters in this part were not as rough as the near drowning last week with Duarte but the waves were constantly crashing against the boat, rocking it portside and upward and down starboard. I gripped as tight as I could, my nails biting into my seat. Marcelo instructed Albert to stand up and walk toward him. His knees buckled but he steadied himself. Another wave hit us just as he lifted his left foot to initiate a step forward. Albert crashed head first onto a wooden seat beam.

Nearly. Marcelo shielded the impact with the palm of hands. I let out a sigh of relief. A cigarette would be helpful right now. My hands were frozen, relief must wait. Albert was not injured but rather distressed and sat slumped in a corner while the other two juniors laughed. “Quiet!” shouted Marcelo. “Kara, you laugh now, but you will fall too. Come stand, now!” Thump, thump,” he stood up, took a few steps, strutting like a peacock before collapsing in a “aiii, ahh, haurgff” thud onto the base of the boat. Kara survived a near skull fracture and shuddered in humility as he sat down next to the silent shivering duo. “None of you learnt from yesterday.” You’ve lived 9 years now, Kara. It’s time you started helping out your father on his boat. But you can’t even stand up on the water!” Kara hung his head in shame as the younger and juniors huddled close together. “The sea will swallow you soon if you don’t learn, *alin* (young child).”

The next morning, we returned to sea. Albert and Kara fell again. And the next day. And the next. 52 days of falling, bruising, and bleeding from cuts. There was progress with Vidal, a less rambunctious junior who could stand up and walk about the boat as the waves crashed against us. After this first step of asking the juniors to stand up and walk toward him, Marcelo would repeat the following training cues:

Loke-toke, loke-toke.	“Push-pull, push-pull.
lelban-lelban, ita loke-toke,	Day by day, you push-pull,
depuis id hasoru id.	and then it becomes you.”

The juniors responded with these statements:

Kara: “It’s (the sea) always stronger than us!”

Vidal: “I don’t want to do this, you know!”

Albert: I’m not feeling well.”

Kara: “There’s a lot of fish close to home!”

“Stop. Look around you. Listen to the sea, listen to the waves,” Marcelo responded, in a tone that was more teacherly than from a crusty fisher. “You can tell by the sound of the waves how it’s going to hit us. Listen to the next one, it is calm. The next one is calm too. Three, four, five, calm ones, about 3 seconds apart. Now, now listen, a big one. Another big one, three, four, rough ones, all coming in rather quickly, within 5 seconds, threatening to topple us, unlike the calmer ones which took their time. Now calm again, two, three, four, five, calm. What’s next?” Before any of us could answer a rough wave hit us hard. I took it in the face because I wanted to look at the pattern instead of hearing it. “You don’t need to look, you need to listen. One, two, three, four, five calm waves. One, two, three, four rough. Every part of the sea will be different, but when you can listen to the waves, you will know how to move. Now watch me. I stand up when I hear the second calm one. Watch my feet. I push against the boat with my toes when the wave hits. But see, my foot [ankle] is still touching the boat, but the toes are pushing down. I pull off the boat with my left foot, just as the second wave goes away, and ah, I can hear the third wave is here. But my right foot is still pushing into the boat. As my left foot lands to push the third wave hits. I don’t fall because one foot is pushing and the other is pulling at the right time of the wave coming and going. I don’t need to use my hands [to support myself]. My hands are

on the fishing net and line. See? Now the fourth calm wave hits, I know I am running out of time. One calmer wave left and I'm still not at the motor. Can I make it?"

We nod in agreement: yes, yes, yes you can, it's right in front of you!

"No! No, you cannot you fools!" One calmer wave left {the fifth one hits us} and the next will ALL be rough, here they come. Now you just sit, you don't stand up because the wave will take you away. You know you should sit because you've always been listening and by listening you know when to push and pull. You will know when to move by listening to the waves, by feeling you will not get thrown into the sea when you listen to the sea, when you feel what the sea is telling you."

After this demonstration, each junior was called upon to mimic Marcelo's actions who was also doing this alongside the juniors. Watching Marcelo closely, Albert listened to the pattern of the sea waves. Next, he tried to mimic the pushing and pulling actions in coordination with the sea waves. When he fell, it was time for the next junior fisher, until each had several rounds of practice. Sometimes waves did not arrive in predictable counts of calmness and roughness. Sometimes storms raged on stronger or went away as abruptly as they arrived. During these occasions, Marcelo watched how the juniors adapted their bodily movements to the rapidly changing wave and weather conditions, correcting them on what they should have done. After about an hour of this, the exhausted juniors were taken back to shore to get ready for school. The sun had risen.

The Mambai embodied knowledge of balance is thus transmitted by mimeticism and linguistic cues, by watching how seniors do things, juniors scrutinizing their own bodily moves, spying on their fellow junior's moves, and by imitating more or less consciously under the guidance of the senior fisher. Training teaches the movements, but it also inculcates in juniors a

practical manner to better differentiate, distinguish, evaluate, and eventually reproduce the bodily techniques of balance. An ethical pedagogy of balance sets into motion a dialogic of corporeal mastery and moral mastery: to understand what you have to do you have to watch others "push-pull," you have to listen to the sea waves, you have to feel the sea, and thus acquire balance through daily practice—and concomitantly by using your body in relation to the sea you develop the bodily capacity to differentiate between risk and reward. Moving with your body on a fishing boat in rough seas is only possible when a fisher links up mastery of their bodily technique of balance with mastery of the ethical capacity to evaluate risk and reward. The embodied knowledge of balance distinguishes those who return home alive with fish and those who drown and share the oceanic seabed with other marine life.

Chapter 6: Sensory Practices and Memory

If sensory practices are useful to think about political, ethical, and aesthetic effects of socioecological change, then, they might also be useful in understanding the interactions and relationships that I engaged in with individuals during fieldwork that did not quite fold into the community-level or collective sensory practices that I discussed in chapter 1. In challenging collective sensory experiences, individuals' experiences shape ways of retelling past events, including the lives lived and lost during the Portuguese colonization period, the Indonesian occupation, leading up to the struggle for independence in East Timor, and life in post-independence Timor-Leste. This chapter pivots upon two questions: How, for example, do an individual's recollections of the past challenge that of another individual in Mambai society? How do different recollections contradict the collective practices of remembering the past by citizens in post-independence Timor-Leste? I also reflect on how people's sensory practices contribute to how they live, how they recollect their lives, and how they continue to respond to the sociopolitical and atmospheric changes that were described in the preceding chapters. More broadly, this chapter is also a response to a number of scholars (Asad 1973; Boyer and Howe 2015; Escobar 2005; Harrison 1991; Nader 1972; Scheper-Hughes 1993; Wolf 1969, 1982) who have, in their own ways, made it clear that anthropologists should not limit themselves to the study of social or political formations alone and that culture and history are grounded in the lives of individuals. More specifically, it responds to Faye Harrison (1991: 1-2) and colleagues' question: "How can anthropological knowledge advance the interests of the world's majority

during this period of ongoing crisis and uncertainty?" The brief answer to this question is to write about the way my interlocutors want to be read by others, especially in the way they perceive sea-change. I now turn to the retelling of my interlocutors' memories, what the Mambai call *hakerek memória* — to write memory.

Hakerek Memória

Carlos started telling me about his mother. The first and last things he remembered. The smells and heaviness in the air that clung to his bones and memory, forty years later as he recalled. His mother's dress tattered and soiled at the seams from long days kneeling in the fields and tending to the cassava and corn. He remembers her cheekbones, set high in an ovaline, olive toned face, the smoothness and color he too had inherited. He remembers the morning light streaming down the rafters from the hole his Father had created in the hours before sunrise. He saw his father stumble through the doors, the sickly smell of fermented palm liquor escaping his pores and flooding the stale air. From his hiding place by a corner of the house, he watched his father throw the empty liquor bottle skywards and through the roof where it caught itself onto a beam and there it remained, until the Indonesian military burned down the house three weeks later. The Indonesian made soy sauce bottle would be picked up by an Indonesian soldier and broken against the face of this boy, my storyteller, as everyone around him fled for the safety of death.

"I did not run fast enough. They caught me and others from the village. We were locked up in the chief's house, our jail. The chief tried to run into the forests, but hey caught him, cut off his feet for abandoning his people. A few days later, they dragged him out of the jail, his home. We heard them shoot him behind the room we were kept in. One bullet even went through the wall and hit my uncle in the leg. He didn't say anything in case the soldiers came in to kill us. He never walked again."

"How many of you were there? What about women and children?" I asked.

"Does it matter, brother? Women, gone. My sister, she was only 15. They killed her after that. My mother I never saw her again."

"Do you know what happened to your mother?" I asked nervously. I was never good at asking questions.

"I never saw her again," He said. "We were all trying to get out that room. We scratched the walls, tried using our fingernails to scrape through the walls. We had to be quiet and do it only when we knew the soldiers were out."

"Mhm," I nodded, "did they give you food and water?"

"Sometimes, but they filled the water with dog shit and urine and the food was moldy. Moldy white bread from Indonesia. Bags of *Keropok* (vegetable/seafood flavored crackers/chips) that were wet. When that stopped coming, we ate the insects, and when the insects were all gone, we tried chewing and eating the remains of our clothes."

"Do you remember getting out?"

"No, not really. My uncles said I was unconscious, and they thought I was dead. All I remember was all of us trying to scrap out the wall with our hands. Here, this is a photo that one of your UN people took when she came here. It is a message from our jail-home."

Figure 17. “Message from our jail-home.” Taken between 1999 and 2000. Image owner unknown and possibly deceased.

“I only have stories, what will you do with my stories?” he asked.

“I don't know,” I replied.

He was one of a handful of people who questioned my intentions and motivations behind my questions and questioned my life among the Mambai. “I don't know,” I said again, hoping that I might come up with an answer that might satisfy him. “I’ll write them down, like I always do when everyone goes to sleep at night. Maybe it will be a book and I will bring it back and show it?” I offered in a less than certain tone.

“And after that, what happens to my stories?" he asked, cutting off my train of thoughts of the future. I shrugged and remained silent.

"People read it. People in America. Maybe other places too," I replied.

"How about in Indonesia? Portugal? Brazil?" he asked.

I must have said that I wasn't sure.

"That's ok," He said, "I wish I can see them read my stories. But I can't even see your face well these days."

"What do you mean? Is something wrong? Are you ok?" I asked.

He slapped the air with his hands, looked in my direction and said "Don't be stupid. I'm fine, of course! I'm dying, that's all. My eyes are getting whiter and whiter. I have *clouds in my eyes* (*mata ho-nia dader*)."

Mata ho-nia dader: A cloudy formation blocking one's vision, also known as cataracts.

"I was the ritual speaker, as you know," he said, tears streaming down his eyes. "I was the one with words. I was the one who could see when all others couldn't. I was the one who could tell others what to do because I could see and talk to the ancestors."

"But you don't need your eyes, right, you don't need to be able to see like, like a..." I stumbled.

"No, I don't need *mata ho fek* ("my body's-eyes") to see the ancestors," He said. "But I still need to see the people I work with. I need to describe them, what they look like, if they look healthy, pregnant, alive, dying. You know this, ya, I've told you so many times. Maybe you can't smell well, *maun* Prash. But, *sudah*, I can't simply smell them you know.

"Is it because of the oil industry?"

"Ha! Well of course, but I've been in so much pain in my head that I don't know what to do about the *hoe* from the industry."

"Mhm," I nodded.

"Eh, anyway" he said, "all Mambai smell the same. We smell of life. Except, of course, the dying elders and the stillborn—they smell of death. So how will the ancestors know who I am talking about if everyone smells the same!? The whole point of me is to help the ancestors, not just the people!"

"So, you must be able to see those who seek your help. Maybe you can just tell the ancestors that everyone looks cloudy to you?" I asked, thinking it might cheer him up.

"Don't be stupid. I only have stories for you" he continued, "no endings, no finish," no conclusions he said. "Why finish a story that has no ending? Why finish when you have to be ready to start over again?" he asked. "I have clouds in my eyes. And all I want to do is die."

Carlos' experience of fleeing, abuse, torture, possibly witnessing rape, and hearing news of his sisters and his relatives' sisters experiencing one stillbirth after another — how do I fold in his experiences under the rubric of sensory practices?

And what do I do with the other stories that Carlos shared with me: a malnourished child who's snatched away by the penetrator and perpetrator of the rape, to be raised in West Timor, in Java, in Surabaya, in Kalimantan — "of all places, Kalimantan! can you imagine that? Ka-limanta-an — it means raw sago–the land of raw sago is where my child lives, or does he?" a cataract laden grandmother, and my host mother Roza told me one day. (You've met her in chapters 2 and 3).

Roza's story of meeting her torturer, tormentor, lover, and father (an Indonesian military commander) of a child she had never seen—what do I do with those stories? I could write that "This dissertation is dedicated to Roza and her cataract vision." But what will I do with her stories? Roza knew I was writing a dissertation, or "the big book" as she called it. She requested,

in between her stories, to “hakerek memória” — to write memory into my “big book,” and so I tried. Clifford Geertz (1973) once proposed the culture-as-text metaphor. Though this metaphor is dated, Geertz was, as usual, onto something: ethnographers are forever trying to make sense of how their interlocutors make sense of things, of life, death, and everything between and beyond.

An important part of ethnographers’ efforts to make sense of things involves the documenting of experiences, which take the form as fieldnotes, audio and video recordings, and so on. The *hakerek memória* you read here were all started as letters I wrote to people in my life; I wrote to them with candlelight and later portable solar lights. Almost all my fieldnotes were written as if they were letters to friends, family, and acquaintances. They are letters that I never meant to send to the recipient; I wrote these letters as retelling the events and interactions with the individuals I had gotten to know and know well enough. When I returned from fieldwork, I opened these letters and started reading them. In March 2019, I started writing what you’ve been reading. In one of these letters, I try to make sense of Roza’s cataracts.

Cataracts continued

This is the story of Roza meeting her Indonesian captor, lover, rapist, torturer, tormentor, and the one who currently stood before her, back bent resting his weight on a wooden cane. Alas, she cannot see his figure, the cataracts have taken her over sight. He had come to pay her a visit after many years, but she couldn’t see him well enough with the cataracts over her eyes.

“I wanted to see him, you know, I wanted to see him. Even out of my rage, fear, anger, fright, love and longing for my child he took away from me, I wanted to see him, but I couldn't,” she would later tell me. Roza took my arm, leaning over into me, her breath sweet and spicy from chewing betel nut leaves all day, “What did he look like, was he handsome, was he the

devil? Everyone says it was a mistake, I think it's a mistake, but I wanted to see him so I could see what my son would look like. What did he look like, tell me?" she asked me.

I said he looked like an old man, stricken with an unnamed sickness, coughing deep red into his batik handkerchief which he kept close by in the pocket of his silk shorts. "He was dressed up, he showed respect, he brought rice, noodles, fruits, Indonesian clove cigarettes for the men, and money, he brought some money too," I said.

"Mhmm, that's right," she nodded and let go of my arm and looked away to the sea, adjusting tucking her sarong in, and readjusting it again.

"And what did I look like to him, you think? Old and ugly?" she laughed.

"No, you were ok, you were looking at him but…"

"But I couldn't see him, I knew it was a man, a man who couldn't stand straight anymore, a man close to his death, he smelled of death, did you smell it" she asked.

"Well, he smelled like cigarettes and cheap perfume," I said hoping for a laugh. She did not fall for it.

"Yes, that too, but, what's wrong with that? I remember that smell. I remember that smell very well. I like that smell. I liked his smell. I gave myself to him, you know? His smell will always be with me. I know everything has changed. But at that time, he wanted to have a baby with me."

"He loved you?" I asked.

"Love?!" Prash, you always saying stupid things. Love is for you. For me, it's something else."

"Oh, I know you love too, Avo Roza!" I let it out.

"Yes, but you can't love a man. Especially an Indonesian. You just deal with a man. And then you move on." She laughed.

"He tried to hide his smell of death with something else, you can't smell it even when you made me smell things from America, on the card, do you remember?" she asked. She was referring to my smell experiments using scratch-and-sniff tests which I had used months earlier, when I would hold a scratched-out card, exposing the scent, and asked her what she smelled. "You remember, when you asked me what smell it was, when I said death, you just said 'oh.' But I can smell it. I can smell death on him. So, he is dying and [that's why] he was here. What use is it now? 'Where is my son,' I wanted to ask him. But I didn't. I couldn't. What if my son is dead?"

I wanted to tell Roza about the thousands of children who were taken away, rescued, and abducted to Indonesia. But I didn't know what I'd achieve by saying that. I was going back to Dili (the capital) later that night for an engagement, so I sat with her as she chewed *bua malus* (betel nut and lime sedative chew). She had tried to teach me the merits of chewing betel nut, but I failed to register its subtle, narcotic properties; Roza was good at rolling things with her fingers. I noticed as she reached between the folds of her sarong, into her intricately carved wooden box, which shielded the ingredients for *bua malus*: areca nut, betel pepper leaves, and lime powder. Bua malus, for the uninitiated, is a mildly narcotic stimulant comprised of two vital components: *bua*—the hulled, sliced, and often sun-dried seeds of the areca palm, and *malus*—the leaves and/or yellow-green catkins of the betel pepper vine. When you add a third ingredient —*ahu*— (caustic slaked lime powder, or calcium hydroxide), and wrap them into bite-sized packets and chew (*mama malus*), they produce copious amounts of blood-red saliva and a slight euphoric feeling brought on by the compound's mild stimulant properties. These ingredients come

together in Roza's hands and mouth to produce *solok* (happiness). Indeed, *bua malus* is the alchemy of Roza's happiness. Her fingers are also reddened, like blood, the result of the interaction between nut, leaf, and powder. Roza chews eagerly and absent-mindedly, and "chewing," as told to me by other women who often sat by her as she recollected her stories, "is breathing air." In between chews a hurl of spit whizzes out of Roza's mouth. Her nonchalance is deceiving because she aims with such precision that her spits form a neat, red puddle by her left side.

I returned to Dili later that evening. I was meeting my former UN Chief-of-Staff (CoS) who had invited me for drinks at the New Zealand (NZ) embassy in Dili (for people in Timor-Leste, NZ is like Geneva, i.e. "neutral" grounds). Together with some ex-Indonesian military folks, we were drinking his throat burning Norwegian homebrewed liquor that the former CoS had smuggled into Timor. I had to chase it down with shitty but thirst-quenching Indonesian lager. We were giddily trading stories of our UN missions when a retired Indonesian marine who sported a long scar on down his cheeks to collarbone saddled up to us. He was a former staff member of Brigadier General Dading Kalbuadi—commander of the Regional Security and Defense—the most powerful position in East Timor for the first years after the Indonesian invasion (and massacre). He overheard our stories before sharing that he believed that several thousand children were taken by individual soldiers from East Timor during the period between 1982-1992. I sobered up instantly.

"Many of those Indonesian soldiers who took children were officers and troop commanders. They usually took the young children back to Indonesia by boat at the end of their tours of duty," said the Indonesian ex-Marine. A few months later on my next trip back to Dili, I checked in with an ageing and ailing Mario Carrascalão, the governor of East Timor from 1982

to 1992 (and a personal friend) who confirmed that there were almost always groups of East Timorese children taken away on the boats that transported battalions back to Indonesia. In 1977, Carrascalão saw soldiers from Battalion 712 from Sulawesi removing children from Betano. The ex-Marine continued, in between drags of his clove cigarette: "A soldier who intended to take a child home to Indonesia usually took the child with him to the main military barracks in Taibessi in Dili"—incidentally, my UN barracks some 30 years later—"where the battalions gathered to prepare for departure." Further evidence of the transfer of large numbers of children out of East Timor by Indonesian armed forces personnel comes from witnesses who saw children of East Timorese descent living in the vicinity of military barracks and housing complexes in many places in Indonesia. However, until the middle of 1977, half of East Timor's population was sheltering in the mountains beyond the reach of the Indonesian military. From August 1977 and into early 1979 the military bombarded mountain hideouts to force people to surrender. A chronology of events will guide us through the key moments in East Timor's independence.

08/17/1945	Indonesia declared its independence from The Netherlands.
1965/1966	After an anti-communist pogrom, Suharto seized power from the first president, Sukarno, and established the New Order.
12/07/1975	Indonesia launched large-scale invasion of East Timor in Dili.
07/17/1976	East Timor is declared the 27th province of Indonesia.
03/1979	Fretilin (Timorese resistance) was defeated as a fighting force. Several years later, under the leadership of Xanana Gusmão, the resistance regrouped as an umbrella organization with Falintil as its fighting wing.
11/12/1991	Santa Cruz massacre in Dili left up to 270 dead and 200 missing, mostly young people. Publicity of the incident helped to galvanize international support for East Timor's struggle.
05/21/1998	Suharto *forced* to resign as President of Indonesia.
08/30/1999	The people of East Timor voted against an autonomy option offered by Indonesia.
10/25/1999	UNTAET established to administer the territory. UNTAE: United Nations Transitional Administration in East Timor.

Figure 18. Events leading up to East Timor's independence.

Children were particularly vulnerable during these attacks by Indonesian militia toward the mountain holdouts; along with the elderly, they were unable to keep up with the fleeing crowds and often were separated if no-one could carry them or help them. Older Timorese I've spoken to told me that there were some soldiers who could not bear to see children abandoned to die and so these soldiers took these children to Indonesia and possibly adopted them. The ex-Marine continued: "Some soldiers regularly placed children in institutions in Dili and returned to collect them at the end of their tours of duty to take them back with them to Indonesia. If the children were sick and weak, as was often the case, they admitted them to the Dili hospital. There have been cases where some of these children were reunited with their parents and family members, but most children were too young to provide information and the soldiers who delivered the children gave them few details."

"Have you ever testified at the reconciliation meetings before?" I asked the ex-Marine.

"What? Reconciliation? I think you spend long time in America. You know very well, very well, there is no such thing as reconciliation. If I did something very wrong–like [when you] Americans say, when you fuck up, there's no reconciliation that can save me. I just wait to die," the ex-Marine said.

"Ok," I said feeling that he had misunderstood that reconciliation was a two-way affair, for the perpetrator and the victim, before asking "what did the soldiers do to the children? Who was chosen, was there a system? Where did they send them?"

"Eh, drink first," he refilled my cup with Bintang beer. "Ok, ok, I tell you. Are you going to write all of this down?"

"Not now, maybe later. Now, I just want to listen, I want to know. But I will like to write it. Is that ok, is that ok with you if I write it down later?"

"Are you a reporter? Who do you work for? Why so many questions?" he demanded first.

"No, I'm not a reporter. I'm now a student, for PhD. But people might read what I say after today. I don't know what will happen, but that can happen. People might read."

"He's a student now," said my Norwegian ex-UN-boss, slapping me on the back.

"Ok," continued the ex-Marine, "Sometimes, sometimes only ok, sometimes, soldiers selected a child to save from among a group of people they killed, which would have included the parents of the child. One time, 1979, in Los Palos (a region to the east of Betano) after I finished with her parents, I tried to take this girl back, back to Sulawesi. She was light-skinned, maybe even Portuguese, like half-half."

"Did you choose her for her 'half-half" I asked.

"No, I just liked it."

"What did you like about it?" I asked, not wanting to let up.

"For status for myself, ya? If my family sees me with a dark-skin child they will lose face, I will lose face. Because, dark no good," he said, gently pinching my arm before pinching his own. "You know, ya, people like us, we dark and that is what everyone will see first. But it's also same for her, if she is light she will have more opportunities in Sulawesi or Java or Malaysia or Singapore, wherever she wants to go."

"Ok, I see. And then what happened to her?" I asked. I needed to know more from him at that point forward.

"My own people stopped me at the border, they asked me for papers. So, I went back to my commander, but they kept her in the home of one of their families."

"Border? Where, you mean, Atambua?" I inquired. (Atambua is the border town between East and West Timor).

"Ya, ya Atambua. So, I went back, and got "adoption" papers. I had to get it signed by the district administrator and the police and our own military commanders, ya? So many papers, ya. Indonesia is just one big government of paper inside a red *map* (folder)!"

We all laughed thinking about the *maps*, these red folders filled with documents that the Indonesian bureaucracy demanded. We had ample experience with papers and the Indonesian 'government of paper,' which demanded original documents, multiple photocopies, passport photographs against a red-colored background, all stuffed into a red or pinkish-red folder.

The ex-Marine continued, "All of us, the administrator and police, we wrote the letter to say that I should raise the children as my own because her parents were dead and there was no family member to take on the responsibility of her care."

"Did it work? You got the papers and then you went back for her?" I asked.

"Ya, but she was not there when I returned to Atambua. They said she ran away. Later someone else told me she died because she refused to eat. Another person told me she was sold to a Chinaman."

Neither of us knew what to say next.

"I still have the papers."

"WHAT?!" I cried out. "What do you mean you still have the papers?"

"Ya, in case she came back. But I only have one form, the one saying she is mine. They took the rest."

"She's not going to come back, man, leave this topic now, come let's drink," said my former UN Chief.

I returned to Betano two days later. I told Roza everything I was privy to a few nights before. I told her because I wanted to be helpful, that perhaps she too could find her child.

"It's ok, she said. I will never find my child."

I sighed. "Yeah. I'm sorry."

"Hai, it's ok, take my photo. I will smile for you."

Figure 19. “I will smile for you.” December 2015. Photo by author.

Roza died three months after I returned to Ann Arbor. Her grandchildren sent me a WhatsApp message: “RIP. Grandmother is no more. She is at peace. She is with Maromak[49]. She died in her sleep last night. Do you have any of her old photos? We want to remember her. RIP.” Attached was a photo of her lying in bed. Her arms were folded across her chest, one hand over the other. A blanket, a gift I gave her when I met her ten years ago, was draped on the lower half

[49] “Maromak” referring to a god, supreme being, for orthodox Christians, refers to Christian conception of God, for most Mambai refers to non-Christian god, and rather to a supreme being, including dead human and non-human ancestors.

of her body, covering her feet. Two great-grandchildren were by her side. One was or had been crying. I moved up to Roza's face, her worry lines permanently etched into her cheeks and forehead. But there was something odd about her eyes. They were not closed fully. Unlike her cataract laden eyes that had a hard time focusing on objects, her eyes appeared big, red, bold, almost bulging with life, almost. I knew then what she knew. She could finally see.

Conclusion: Sea-change

This dissertation developed "sensory practices" to examine how Mambai *sense* and *make sense* of socioecological change in their lived environment. Whereas prior research has treated the senses as secondary in the study of exploitative extractive development, this dissertation bridged phenomenological approaches with political ecology to argue for the primacy of sensory knowledge to Mambai efforts to overcome the uncertainty wrought by transformations in their socioecological relations. Embodied, sensorial practices around scent, sound, vision, taste, and balance are part of Mambai intangible cultural heritage that shapes how people define and confront extractive megaprojects and its consequences.

On one hand, "Sea-change" could be read as an ethnography of the social sensory practices of politically subordinate people in scattered communities barely subsisting in the midst of intensifying displacement from their sources of livelihood and pollution from toxic, potentially deadly substances, generated by an international corporation, against which they have no social or political-economic leverage. This is one possible reading. On the other hand, I have also tried to motivate another reading that pays specific attention to people's sensory practices that reveal how sensory practices are not only vital to people's understanding that "something is not quite right" but also crucial in how people respond politically to sea-change in their lived environment. In pursuing this reading, each of the chapters demonstrated how sensory practices involving smell, taste, touch, vision, and balance contributed to collective sensory practices, the capacity to make political claims, to engage in rekindling relations, in sustaining mortuary

practices, and in the teaching and learning of ethical pedagogy.

While prior studies on the senses and environmental humanities have focused on relatively peaceful settings, this dissertation highlights the role that embodied sensory practices play in peoples' perception of atmospheric pollution and argues for the importance of practice to scholarship on resource exploitation (Appel 2012; Kirsch 2006; Sawyer 2004; Tsing 1993). The significance of this dissertation is two-fold. First, in a broader sense, this dissertation is intended to contribute to scholarship on the senses and environmental humanities about how humans contribute to and perceive environmental change, and how cultural differences and sensorial experiences shape human perception of lived environments, especially under conditions of socioeconomic and atmospheric transformations. Second, the dissertation serves to foreground the processes by which atmospheric pollution transcends physical boundaries and demonstrates that sensory practices play a vital role in understanding existential insecurity in Timor-Leste. While existing scholarship has carefully documented the external ordering of people's domestic lives, this dissertation surpasses neat narratives of domination of one group over the other and considers the ways that people's sensory practices motivate their response to novel political and economic systems.

My use of "sensory practices" emerged from fieldwork and with my engagement with the anthropology of the senses. I find continued commitment to the anthropology of the senses important for two reasons: first, every fieldwork experience is rich with the sensory experience of the anthropologist and their interlocutor(s). If the anthropologist assumes or substitutes their sensory experience with their interlocutors', they will be missing a key insight to how people experience the world and perceive changes to their lived environments. Sensing is culturally different with different histories and ideologies embedded in how we live and find significance

to our lived experience. In this dissertation, I've written about a homology between what I sense and what the Mambai sense. That homology or equivalence is what I'm challenging here especially with the traumatic sense by which the Mambai have to confront the sea-change in their lived environment. Second, a focus on the senses provides a unique way to conduct research and communicate about the changes experienced by our interlocutors. By focusing on the sensory practices of our interlocutors, anthropologists are able gain deeper insight into just how invasive state intervention and megaprojects are to peoples' lived experience in their dwelling. While a focus on the political economy of state-led change and megaprojects is important, it may foreclose the diverse ways of sensing change, ranging from the smells and sounds of megaproject development, the role of the senses in ritual language in the events of marriage and death, and the capacity for the senses to visually map olfactory pollution. The concept of sensory practices, thus, provides an embodied perspective to peoples' experience and perception of sea-change in their everyday lived environment.

Appendix

Table 1: Mambai Odor Terms	
A list of the Mambai odor terms are given. Not all of these were attested in tasks. Glosses are based on data gathered from long-term fieldwork.	
ODOR TERMS	**APPROXIMATE TRANSLATION**
iis morin	To be fragrant, or lightness in person, spirit, ambience. *e.g. Mambai person, tubers, sago.*
iis morin mori-sul	Smells that invite life. *e.g. pregnant women in their third trimester forward, salt water (more commonly the sea).*
mro	To have a smell that induces thirst and cravings. e.g. *roasted meats and fish like the Barramundi and Yellow Snapper varieties.* *Also smells experienced in dreams.*
hoe	To stink, have a stench like quality. *e.g. rotting bodies*
hoe-mehi	To smell in dreams. Stinky or smelly dream (lit.).
kosar	To be sweaty, or musty. *e.g. dogs, pigs, stale food, mushrooms.*
mat-ho-sul	Smells that invite death.
horo-raan	To have a blood like smell.
horo-na'm	To smell edible.
horo-medad	To smell heavy.

Table 2: Mambai Odor Terms and Exemplars		
ODOR TERMS	**APPROX. TRANSLATION**	**EXEMPLARS (Number of responses out of 24 people)**
iis morin	To be fragrant, or lightness in person, spirit, ambience.	Mambai people (24), the sea (22), washing and cleaning oneself (2), fruit (papaya) (20), fruit (soursop) (18), leaves (21), herbal medicine (14) sun (16), bamboo (16), tubers (five varieties, 22), forest (17).
iis morin mori-sul	Smells that invite life.	Sea (24), pregnant woman (21), soil (19), burning fire (17), kind of flower used in burials (24), tree (21), walking in the forest (22), tree sap (19), leaves (20), soil (24).
mro	To have a smell that induces thirst and cravings.	Fish - Yellow Snapper (22), roasted meat especially pig and dog (24).
hoe	To stink, have a stench like quality.	Power plant (24); oil (23); Mushroom varieties (18), water from the sea (21), fetching water from river (16), rotting bamboo tube (18), urine (1), drinking water from a rotting bamboo tube (6), non-Mambai people (17), snakes (20), rotting animal (18).
Hoe mat-ho-sul	Smells that invite death.	Dead animal (16), rotting animal (24), burnt pig hair (22), air during a full moon (8); power plant (24)

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