Geday: An exploration of the local knowledge of landslides in Sitio Lamut, La Trinidad, Benguet

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Kabite or riprap stabilizes the land (Photo by Dale Mercurio)

Introduction

The province of Benguet frequently experiences rainfall-induced landslides due in part to its climate and mountainous topography.[1] These landslide events partly constitute local knowledge and understandings of surroundings of residents of Sitio Lamut in La Trinidad, Benguet. In this paper, we explore how the lives of flower farmers of Lamut, La Trinidad, Benguet, are entangled and engaged with precarious situations brought about by landslides. We also look into local knowledge on landslides and how flower farmers experience landslide events. We argue that local knowledge is (re)shaped through encounters with uncertainties such as landslides.

Sitio Lamut is a small community of some 815 people located in Barangay Beckel in La Trinidad, Benguet. Flower farming serves as their main source of income. The plots of land producing flowers are often subjected to landslides, an occurrence that many *gardineros* (flower farmers) are used to yet remain afflicted by. During our short stay in Lamut, we were able to learn about the experiences with landslides of ten long-term residents of Lamut, both flower farmers and barangay officials. The *gardineros* exhibited an intimate knowledge of the land that they cultivate through their understanding of landslides. We spoke with barangay officials whose views were concerned with disaster risk reduction and mitigation in Lamut.

Landslides occur as a consequence of a variety of factors, but are primarily triggered by water. Rainfall-induced landslides are the most common in the Philippines.[2] From an anthropological perspective, disasters such as landslides are seen as embedded in the daily human condition[3], to be understood in relation to a seamless web of connections that link society to environment to culture. Thus, disasters are "symptomatic" of a society's maladaptive strategies involving its social, economic, modified, and built environments.[4]

Despite efforts towards a social science-grounded view of disasters, scientific inquiry into landslide events has been largely concentrated in the field of natural sciences. In the case of the landslide-prone Cordilleras, the settlement of the local communities was found to be in conflict with extreme topographical conditions and geomorphological activities.[5]

Little is known about the lived experiences of farmers, particularly flower farmers considering cut flower farms serve as a primary source of livelihood in the area. An estimated 53 million dozen flowers are produced annually from over 1,500 hectares of flower farms in the region.[6] To better understand the precarity of flower farming, we employ Tim Ingold's notion of lines. In *Lines: A brief history,* Ingold[7] makes the argument that the world can be understood as interwoven or interconnected lines. We take this to include people and the environment, in this case gardeners and landslides. Using this as a framework, we hope to examine the networks formed by and between the *gardineros* and the land they cultivate and live on.

Coming into the field, we were armed with little knowledge of both our field site and landslides apart from what was available online, which were mostly demographics, weather reports, and the like. None of this data information prepared us for the realities of flower farming the persistent threat of landslides.

The main data gathering period was done from June 24 to July 10, 2022 in the field site as part of the Anthropology Field School. As with any ethnographic research, participant observation played a huge role in our data gathering, providing a more nuanced and vivid description of the gardeners' experiences.

This "process of learning through exposure"[8] allowed us to take note of how people interact with their environment in landslide-prone areas, both generally in Sitio Lamut, and specifically in flower gardens. Frequent visits to gardens facilitated our admittedly limited, but still active involvement with the day-to-day activities of our research partners.

We supplemented our data with correspondences through email, Facebook Messenger, and text messages to contact our research partners after our in-person field work.

Key informant interviews (KII) were also conducted with barangay officials concerned with disaster risk reduction and management, and members of the community who have had firsthand experience with landslides. We secured written and verbal consent to conduct our semi-structured interviews. Barangay officials contextualized the landslide events that occur in the community and explained the barangay policies and programs implemented in response to these. Meanwhile, residents of Sitio Lamut shared their own stories of living in an area deemed vulnerable to landslides.

Lastly, to create a visual representation of how landslides are experienced by members of the community, counter-mapping (or cartography produced by the people instead of institutions) was also utilized to learn where and why the community deemed certain spaces as safe and unsafe from landslides. This countermaps were based on information from research partners and our own notes on places mentioned during interviews. Doing so proved to be beneficial in "discover[ing] locations of importance" and "how residents connect and think of these locations."[9]

While in the field, we faced challenges in conducting our research. The time constraints forced us to fast track our data gathering and prevented us from reaching a deeper understanding of the community that can be expected from a longer period of field work. The weather conditions also hindered our movement around the site and threatened our safety and that of our research partners'. Lastly, we also struggled to communicate with some members of the community given our lack of fluency in the local languages of Ilokano and Kankana-ey.

To ensure confidentiality, each participant was assigned a pseudonym and anonymized at the first instance of data collection. Data was analyzed using both inductive and deductive coding to identify themes and categories. Again, we were guided by Ingold's notion of interconnected lines.

Because of the ubiquity of landslides in Sitio Lamut, residents have developed ways through which they mitigate its effects and protect themselves and their property
from harm or damage, and ultimately, understand and make sense of landslides. The following section details the knowledge and practices that we were able to observe and document.

Entangled relations to land

The ways through which land is used, altered, and developed to suit the residents' needs is revelatory of the profound connection between people and the soil. Practices such as *pagpatag* (leveling of the land) and building *kabite* (riprap) are informed by the need to make land arable, and consequently inform how people use the soil.

Even with the active flower farming activities in the area, the steep slopes of Lamut are not the most conducive to farming. Thus, *gardineros* must flatten the land to make it suitable for agriculture in a process called *pagpapatag* where they use either a pickaxe or a tractor. *Pagpapatag* destabilizes the land. To address the lost stability of the land, *kabite,* the local term for riprapping, is done interchangeably with *pagpapatag*. Riprapping refers to placing rocks on banks to prevent movement of the soil.[10] Aside from rocks, the farmers use makeshift materials such as rubber car tires and sacks filled with soil to create ripraps. It is a common sight both outside houses and in flower gardens. Kuya Henry, 32, built one both in front of their house and in their garden. The land in the latter had already slid many times and this stopped it from happening again.

Kabite is done as a preventive measure but is also used in recovery following a landslide, where the soil that covered the land is cleared and placed into the sacks or in the middle of tires. These can then be used as new steps forming pathways to navigate the changed terrain of the garden. Other post-landslide strategies will be discussed in a later section.

Speaking of engagements with land necessariliy touches upon the structures that are built on the said land. For flower farmers, greenhouses in gardens are carefully planned and are made from light materials – a frame of *kawayan* (bamboo) poles cloaked by at least 50 kilos of plastic cellophane. *Gardineros* make sure to secure their greenhouses because they expect heavy rainfall. Furthermore, amid the greenhouses, a small dwelling called *kampo* is built in the flower garden. Here, *gardineros* can cook meals, rest in between gardening, and take refuge from the elements. Some choose to spend the night here as well. It provides a convenient alternative that allows them to rest and quickly return to their work the following day.

Rain is heavily associated with the onset of landslides. Therefore, drainages and canals are often mentioned as an important measure to prevent landslides. The farmers fix drainages in their gardens so that water will flow instead of infiltrating the soil that may lead to landslides.

Many synthetic farm inputs are used in flower gardens to produce profitable flowers. However, Ate Elise, 33, a *por dia* (daily wage earner) worker in the garden, warned us that the continuous use of chemical fertilizers and the like makes soil acidic. "*Umaasim ang lupa,"* she explained. This stunts the growth of flowers. Still, gardeners can neither afford to stop production nor use expensive organic fertilizer. This is where having a greenhouse in a landslide-prone area is seen as advantageous. The soil here is regarded as "*maluwag*" (loose). It is constantly shifting. This means that the soil here is "fresh" as Ate Elise puts it. This way, the flowers are able to grow well even when flowers are produced continuously with the use of synthetic chemicals. "*Maganda yung tanim doon*," (The flowers grow well there) Kuya Henry, a third-generation gardener, confirmed when we asked about the condition of the flowers that he grew in his greenhouse which had been destroyed the year before.

The landslide, or more accurately, the land it leaves in its wake, is the lifeline of many *gardineros*, turning their already limited and acidic land cover into something productive once more.

Engaging with landslides

In Kakana-ey, the term *geday* refers to both a landslide event and to a site of frequent landslides. The event leaves the residents fearing for their safety, both physically and economically. At the same time, Auntie Selena, 46, a flower gardener of over 30 years, told us that landslides are an unavoidable natural calamity. Landslides are bound to happen. After all, they lived among steep slopes and towering mountains.

The perceived causes of landslides manifest the knowledge of locals after years of living in Lamut. Most of our research partners believed that heavy rains, combined with the sloped terrain led to landslides. Aside from this, another research participant also said that previous sites are also prone to repeated landslides.

Our research partners identified other causes that had nothing to do with the terrain or weather. According to them, flattening lands and cutting slopes made the ground "*marupok*" (fragile). Soil like this is more prone to faltering under heavy and continuous rain that "softens the soil" (*lumalambot ang lupa*). Flattening entire mountains to accommodate development and agriculture makes for landslide-prone areas.

From the gardineros' point of view, little to no state policy exists when it comes to landslides in gardens. Aside from the barangay's lack of budget, policies regarding landslides simply are not prioritized because gardeners already know what to do. They don't need the barangay telling them how to act in the event of a landslide because they would know better themselves. Their countless years of tending to their gardens has made them the experts.

The lived experiences of gardeners in Lamut are entangled with the land where they live, where they make a living. However, they have also developed techniques to disengage with the land in order to keep themselves safe. One such example is Auntie Selena. While Auntie Selena and her family stay in their garden

most of the time, they immediately prepare to leave when there is a typhoon alert. They secure their greenhouses and leave their home. Others still visit their gardens in poor weather to check if anything has been damaged. There is always an evaluation of risk that each *gardinero* must make, weighing between life and livelihood.

After assessing the wreckage left behind by a landslide, plenty of work goes into restoring the greenhouses and still trying to make a profit from the *radus*, the flower they cultivate. Flowers are salvaged wherever possible. When typhoons occur around harvest time, being able to sell what flowers are left is prioritized.

Gardeners whose greenhouses are damaged by landslides are forced to rehabilitate their gardens. They call this process, "*pag-improve*." *Pag-improve* involves clearing debris from a landslide, flattening the ground, and replanting their flowers. Depending on the extent of damage, this can take anywhere from a few months to even a year.

Many *gardineros* spoke about recovering after a landslide in a cyclical manner. Often, the response to a landslide was only one: they do it again. This repetitive pattern of rebuilding after a disaster can take an emotional toll on its victims. "*Masakit*." (Painful.) Auntie Sally, 51, encapsulates the tumultuous emotions that landslides cause in a single word. "*Parang nawalan na ako ng gana. Pero hindi pwedeng mawalan ng gana... walang pambili ng pagkain.*" (It's like I lost all my strength for it but I can't stop...or else I won't be able to put food on the table.)

If they stop gardening, they risk financial instability. Gardeners need to maintain "*gana*" (zest) despite unfavorable circumstances. When income from flowers provides for your every meal, your children's matriculation, your means to survive every day – you are not allowed to give up. Conversely, other gardeners like Kuya Henry expressed an almost indifferent response to landslides. He had experienced a landslide firsthand after a strong storm which had caused the ground to loosen. Without any bitterness in his voice, he told us that he lost a hefty 70,000 pesos in profits. Instead, he seemed resigned to the inevitability of landslides in Lamut. He even said: "*Sanay na*." (We're used to it.)

Sanayan implies developing a familiarity with, and even acceptance of the precarious conditions that the gardeners of Lamut contend with to make a living. Auntie Selena told us that landslides are an unavoidable natural calamity. After all, they live along steep slopes and towering mountains; a landslide is bound to happen.

Considering all this, gardening thus becomes a gamble. Any number of things can happen that drive the *gardineros* to loss: typhoons, landslides, market fluctuations. The ground can crumble from beneath their feet at any moment, but there is always the chance that it will not. The word Auntie

View of greenhouses in Lamut (Photo by P.A. Echague)

Maricel uses to describe all of this is *sugal* (gamble). They take their odds and they do so knowingly. Auntie Sally adds, “Talagang alam mong isusugal mo ‘yun. Pero yun din naman ang hanapbuhay kasi natin kaya talagang susugal ka talaga.” (We know it’s a real gamble. But this is our livelihood so we do it anyway.) *Gardineros* regularly shell out additional capital for their greenhouses, often incurring debt as well. Auntie Sally estimated that constructing a single greenhouse could cost them about 100,000 pesos to build. These are temporary structures that are replaced every few years and repaired often because of frequent typhoons and landslides. This sum does not cover the cost of maintaining the gardens, which is made more difficult by the rising prices of chemical farm inputs.

Flower farming is thus a calculated risk that takes into account a number of factors and it comes with its own set of emotional consequences due primarily to the possibility of disaster striking and rendering their efforts and investment meaningless. Instead of making a profit, a *gardinero* can end up at debt. Thus, they view landslides as a major disturbance to their work.

However, landslides, despite their destructive capabilities, can give old, acidic soil a new lease on life. Unproductive land can be made fertile once again. Landslides thus present a unique means to mitigate economic insecurity.

Conclusion

The likelihood of landslides and the danger it brings to life and uncertainty of return on investments constitute the precarious conditions of making a living by flower farming in Sitio Lamut. This way of existing is shaped by the social, economic, and ecological vulnerabilities of the terrain. Gardeners are always teetering on the edge, both physically and economically. However, as we have seen, landslides can also help produce better blooms by providing “freshness.” Landslides emerge as both their destruction and their deliverance, serving simultaneously as the reason for loss and the hope for growth.

Thus, landslides have a paradoxical aspect in Lamut. They create hazardous working conditions, but they also serve to mitigate potential financial loss should their flowers stop blooming well. Thus, flower farming becomes a precarious occupation, with gardeners necessarily straddling both sides of the line between safety and danger.

To properly make a living (and to an extent, live) within these dangerous conditions, gardeners employ a range of techniques that reveal the entangled relations with the land and how they engage with it. These

techniques allow gardeners to not only deal with the landslide-prone slopes, but also make a living out of it through gardening. However, this sort of occupation is not without risk or harm, whether physical or mental. As our research partners have shared, landslides do cause their wills to waver, but such uncertain conditions are met with *sanayan* and *sugal* as means of coping.

In a sense, the experience of farming in Sitio Lamut resonates with Ingold's (2011) view that "life [...] keeps on going, finding a way through the myriad of things that form, persist and break up in its currents. Life, in short, is a movement of opening, not of closure." *Gardineros* find means to operate their gardens despite the threat of landslides, exacerbated without need for support form the state. Landslides instead can become an opening, providing fresh soil when it has become acidic from chemical use.

This study was greatly limited by the fact that we were only in the field for two weeks. While not insufficient, our study would have benefitted from a longer time in the field as this would yield richer, more nuanced data regarding how gardeners negotiate the risks their environment poses with the greater need to provide for their families. Additionally, this paper only dealt with one aspect of disaster – landslides – and does not account for other calamities that may occur in the area.

Future researchers may find other interesting insights regarding livelihood and disaster, particularly, landslides in the Benguet region. They may also find richer information should they be fluent in the local languages of the area.

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Endnotes

1. Dymphna Nolasco-Javier and Lalit Kumar, "Deriving the rainfall threshold for shallow landslide early warning during tropical cyclones: a case study in northern Philippines," *Natural Hazards* (2017), 921–941.
2. Saro Lee and Digna G. Evangelista, "Landslide susceptibility mapping using probability and statistics models in Baguio City, Philippines," *Proceedings of the ISPRS 31st International Symposium on Remote Sensing of Environment,* (2005), 20-24.
3. Gregory Bankoff, "Cultures of disaster"*;* In *Cultures of Disaster: Society and Natural Hazard in the Philippines*, (United Kingdom: Taylor & Francis, 2003), 152-179.
4. Anthony Oliver-Smith, "The social construction of disaster: economic anthropological perspectives on the COVID-19 pandemic"*, Economic Anthropology,* (2022), 161-171.
5. Gareth James Hearn & Jonathan Roy Hart. "Settlements and slides: a large landslide case study from the Central Cordillera of the Philippines," *Quarterly Journal of Engineering Geology and Hydrogeology*, (2019).
6. Department of Agriculture-Agricultural Credit Policy Council, "SURE Implementation for Cut Flower Farmers in Benguet," (2020). https://acpc.gov.ph/sure-implementation-for-cut-flower-farmers-in-benguet/
7. Tim Ingold, "Lines: A brief history," (New York: Routledge, 2007).
8. Margaret Le Compte & Jean Schensul, "Participant observation and informal interviewing"; In *Essential ethnographic methods: A mixed methods approach,* (AltaMira Press, 2013), 83-111.
9. Margaret Le Compte & Jean Schensul, "Additional methods for collecting exploratory data"; In *Essential ethnographic methods: A mixed methods approach,* (AltaMira Press, 2013), 112-133.
10. David Reid and Michael Church, "Geomorphic and Ecological Consequences of Riprap Placement in River Systems," *Journal of the American Water Resources Association (JAWRA),* (2015).
11. Tim Ingold, "Being Alive: Essays on Movement, Knowledge and Description," (New York: Routledge, 2011).