

# Indigenous Knowledge: Contours for a Science of the Folk Community

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To uncover the indigenous in our souls is the work of decolonization. But even as we decolonize, it is not enough; it is merely a beginning. The work must continue to deepen until the body, mind, and soul, become one.

— Leny Mendoza-Strobel (2010)

The Philippines have a complex history. Aspects of Indian, Arabic and Chinese culture spread to the early indigenous kingdoms of the Philippine archipelago, which were colonized by the Spanish in 1565, followed by the United States in 1898. The colonizers thought Native peoples had no civilization, so indigenous knowledge was relegated to the category of ‘superstition.’ National independence came in 1946 and, with it, a globalized business culture, which also disregarded indigenous knowledge. Finally, the recovery of indigenous heritage is now seen as vital, so that we may understand the full richness of our national identity.

My own specialization is Philippine Studies, where history and anthropology intersect. I find that a strategy for recovering indigenous knowledge is to engage with the abundant culture of our ancestors. My heritage is Kapampangan, an Austronesian farming and fishing people of central Luzon, and Holy Angel University, where I am a professor, lies in the heartland of Kapampangan territory, which is felicitous for my research. Our university hosts the first program of big-history in the Philippines, so this is where Indigenous Knowledge and Big History intersect.

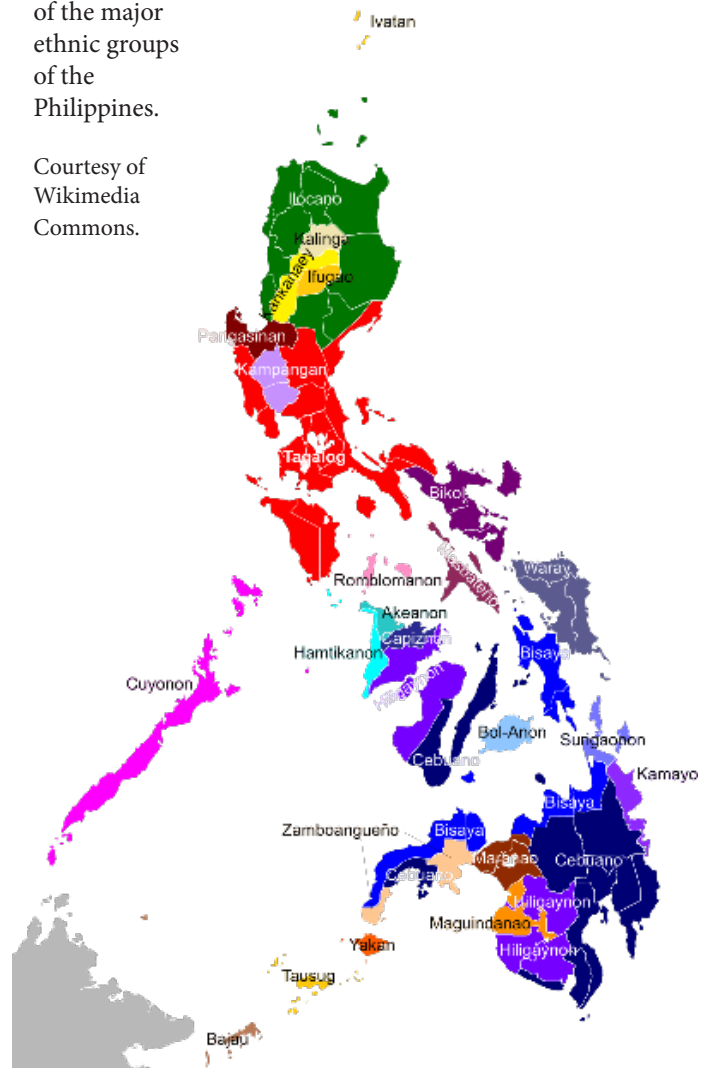
Humanity’s interaction with the environment has greatly influenced our worldviews. One of our most important cultural systems is knowledge acquisition. According to UNESCO’s program on *Local and Indigenous Knowledge Systems*, indigenous knowledge is a mosaic of understandings, skills and philosophies that have been shaped by local communities through their interaction with Nature and resulted in many deep-time narratives.<sup>1</sup>

Indigenous knowledge stands in stark contrast to the global knowledge system that has been created by universities, research institutes, and private business. In a vernacular sense, indigenous knowledge is local – specific to a particular society. As a society’s information base, it serves as a foundation for decision-making. Other terms used in ethnoscience to describe it are *folk knowledge* and *peoples science*.<sup>2</sup>

Based on deep awareness of the local environment, indigenous knowledge grows over many generations. It comes from inside the community and is imbedded in its way of life, as a means of survival. It often utilizes a non-formal mode of transmission, is collectively owned, and subject to adaptation. As Kenji Yamada, a specialist in East-Asian science history, wrote: ‘Every culture and every society has its own science, and its function is sustaining its mother society and culture.’<sup>3</sup>

Map 1: Map of the major ethnic groups of the Philippines.

Courtesy of Wikimedia Commons.



### Indigenous Knowledge and Astronomy

Anthropologist Dante Ambrosio is considered the ‘Father of Philippine Ethno-Astronomy.’ He argued that whenever early Filipinos looked into the sky, they would see not just stars but their own civilization. He defined his *ethno-astronomy* as the study of civilization through astronomy, a form of traditional knowledge similar to archeo-astronomy, which investigates astronomical techniques that ancient peoples used to establish cycles of the year, especially for agricultural purposes.<sup>4</sup>

In reclaiming the stars, Ambrosio realized how the Indigenous peoples of the Philippines read the sky. He saw that early Filipinos imprinted their cultural identity onto the heavens and, in return, their cosmic vision affected their ways of life, thinking, and even worldview. These Indigenous tribes consulted heavens for their daily activities, as when selecting the best times for hunting, planting, and fishing.<sup>5</sup> At Holy Angel University, we include ethno-astronomy in our discussions of Thresholds 2 and 4, as part of our indigenization approach.

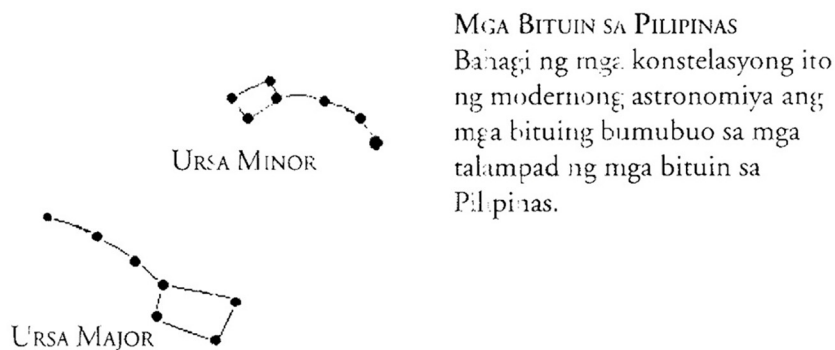
Such viewpoints can still be found in some Kapampangan planting strategies. They avoid planting when there is a full moon, and they don’t like to have a woman with menstruation come close to their crops. They avoid planting during the full moon because this is the time of some insects’ mating seasons. They have a belief / tradition that if they plant during this time, the newly hatched pests will be fully developed in three months – before the crops can be

harvested. Similarly, they forbid a woman with menstruation from approaching their crops since the smell of uterine blood is thought to attract certain insects.<sup>6</sup>

Early Filipinos had named celestial bodies long before Westerners arrived 500 years ago. In the Tagalog language, there are *Buntala* [planet] and *Bitumpuk* or *Talampad ng mga Bituin* [constellations]. For the Milky Way, they say *Dinaanan ng Barko ni Apung Noe*, while the Sama and Tausug of the archipelago surrounding the island of Mindanao use *Naga*. For an eclipse, the Visayan of southern Luzon and northern Mindanao say *Bakunawa*, while for the Kapampangan of central Luzon it is *Lauo*.

There are also specific terms for the planets. Venus is called *Sulung Daguis* by the Kapampangan and *Tanglao daga* by the Tagalog. For Jupiter, the Tausug from the Sulu Archipelago employ *Bituing Magsa*. When a Tausug woman became pregnant, they believed ceremonies should be

Figure 1: Left – Dante Ambrosio’s illustration of two of the modern constellations recognized by indigenous Philippine peoples, as he writes (in translation from Tagalog): ‘The stars that made up the constellations of the Philippines are included in these constellations of modern astronomy.’ The Big Dipper (Ursa Major) was called, *Bubu*, a celestial representation of a traditional fish trap [*bubu*], used by the Sama people of the islands in the south-west Philippines. They saw it as a way to forecast their catches from the sea, depending on the number of stars seen in its boxlike end. Ambrosio 2005: 25. Right – Setting fish traps at sea by the people of Bucas Grande Island, in the south-west Philippines. Photograph by Jay Rosas 2015.





performed in Jupiter's honour in the hopes that her child would be beautiful.<sup>7</sup>

For the constellations, *Balatik* was commonly used by early Filipinos and other ethno-linguistic groups to refer to Orion's belt. The *balatik* was a hunting trap for wild boars, as used by the Tagalog, Maguindanao, Bikol, Antique and Bagobo peoples, who thought it looked like Orion's belt cluster. For the Bagobo, the *Balatik's* emergence in the night sky in December signified the start of *kaingin*, the slash-and-burn method of preparing land for farming. Then, in April, they'd see *Marara*, a constellation that they describe as resembling a man with just one hand and one foot, which would signal the beginning of the planting season. *Marara* is not matched with other existing cultural constructs of constellations, so it could be a unique conception of stars understood by just by the Bagobo.<sup>8</sup>

The Big Dipper was given the name *Bubu* by the Sama, a maritime people from Tawi-Tawi, because it resembled the *bubu*, a cage-like fish trap. The Sama people used this to predict whether or not fishing would be fruitful. For example, if they discovered a lot of stars within the sky 'cage,' they believed the weather would be ideal for fishing.<sup>9</sup>

### **Indigenous Knowledge for Human Survival**

Using in-depth interviews, I talked with two key informants from the Aeta community – Pan Tugak Lanum and Arnel Camaya – to learn of their peoples' indigenous knowledge. The Aeta live in western Luzon and are thought to be the oldest surviving inhabitants of the Philippines.<sup>10</sup> Five issues became prominent in our discussions – food, warfare, med-

icine, worldview, and their own survival as a people during crisis.

### *Food Culture*

The Aetas are famous for their *Imbungoy* or *Binulu*. In the absence of cauldrons or pots in the past, they, starting from their *manantau* [ancestors] used the *Bulu* (a variety of bamboo) to cook food, such as *kamuting dutung* [cassava] and *kanin* [rice], *kina* [fish], *manuk lalik* [native chicken], *babuy lalik* [native pig], and *ulang* [shrimp].

The *binulu* tradition is accompanied by a ritual dance, if somebody from the family is ill. The ritual is intended to drive away the evil spirit that causes the sickness.<sup>11</sup> This is similar to the *Canao / Kanyaw* ceremony, a ritual special to the Igorots in the Cordillera, a mountainous region in northern Luzon. The cooked fish is served on banana leaves as communal meal. It is consumed by all members of the community as a reflection of their *kalu-kalu* or *bayanihan* [communal] spirit.<sup>12</sup>

Indigenous Knowledge Systems and Practices (IKSP) in the Philippines contribute to sustainability and productivity of their ecosystems. The Ifugao peoples live in the mountainous areas of northern Luzon and developed traditions of *payoh* [rice terraces] and *muyung* [private-woodlots]. The Hanunuo people, on the island of Mindoro in the western Philippines, practice a traditional form of swidden

Figure 2: Left – Aeta river boat and crew, early 1900s. From the Mario Feir Filipiniana Library, Manila (Philippines). Right – Author Joel Regala (left) with his guide and informant, Arnel Camaya (right), from Sapang Uwak, Porac, Pampanga (Philippines).



agriculture that promotes biodiversity. Likewise, the Dumagat Aetas of eastern Luzon live along the coast and practice fish conservation.<sup>13</sup>

Historian Lars Raymund Ubaldo of De La Salle University in Manila discovered a tradition among the Bicolano fishing people of Catanduanes Island (eastern Philippines) that the optimum time to catch fish is right after a storm, based on their study of climate change in the typhoon-prone homeland. According to the fishing community, this is due to the fact that the fish are still 'dizzy,' making them easier to catch.<sup>14</sup> Certainly, such local knowledge is Indigenous science.

#### Ethnomedicine

Scholars and field workers around the world advocate for how traditional healthcare practices should be recognized and integrated within the public framework to ensure long-term viability.<sup>15</sup> Similarly, there are ethnomedicines of the varied Filipino Indigenous Cultural Communities (FICC).

Pan Tugak Lanum, also known as 'Apung Jungle,' described how the Aeta use herbal medicines to help them live. They collect *sulasi* [*Ocimum tenuiflorum* / holy basil] to treat headache, *pansit-pansitan* [*Peperomia pellucida* / pepper elder] for stomach pain and *tawa-tawa* [*Euphorbia hirta* / asthma plant] as an anti-bacterial. He reports that because of the success of *tawa-tawa*, which is used to treat dengue fever, they do not fear Covid-19.<sup>16</sup>

#### Experience in Warfare

Apung Jungle is not only a culture-bearer, but he was also a veteran of the Second World War. The Aeta fought the



Figure 3: As part of Aeta ethnomedicine, *pansit-pansitan*, or 'pepper elder' (*Peperomia pellucida*) is used for gastric ailments.

Japanese with their *uyung* [bow] and *paslu* [arrow] using indigenous poisonous herbs. During the mopping-up operations with the American military in 1945, they helped pursue the Japanese in the tunnels in Bamban, a town in Tarlac province. Because they could smell the Japanese inside the tunnels, they were asked to lead the hunt. The Americans would next employ flame-throwers to eliminate their enemy in the tunnels. The Aeta had developed a keen sense of smell, an ability that was passed down to their descendants.<sup>17</sup>

After the war, Apung Jungle took care of Kaneko, an orphaned Japanese boy. For three years, Kaneko lived in one of the Aeta caves, adopting their traditional way of life. He wore a traditional *lubay* [loincloth] and ate *tugak* [frog], *bitin* [python] and *barag* [monitor lizard]. As soon as the Porac municipal authorities became aware of Kaneko's whereabouts, they informed the Japanese embassy, who were unaware that the youngster had survived the war. Kaneko went back to Japan around 1949 and, years later, out of gratitude, he invited Apung Jungle to visit. According to Apung Jungle, he received VIP treatment in Tokyo.<sup>18</sup> This shows that humanity knows no borders.

During the Vietnam War, Apung Jungle, along with other Aetas, assisted in the training of American pilots in jungle survival. According to Shimizu, the Americans travelled to Mount Pinatubo to acquire Aeta techniques for camping in the woods, cooking without smoke, collecting water from vines and trees, healing dangerous snake bites, and hiding from pursuing adversaries.<sup>19</sup>

#### Worldview

The Aeta innate spirituality is shown by their harmony with nature. The mountains surrounding them are named. Apung Jungle says that they even speak with the hills, as when he would call out:

*Apung katuno* [Apung Jungle is here]. Please spare my children and grandchildren from any harm and sickness!

The Aetas live among the Zambales Mountains in western Luzon, home of their most important landmark, Mt. Pinatubo. The Aetas call it, *Apo Malyari*, after their supreme deity. She is the Keeper / Guardian of Mt. Pinatubo and the nemesis of King Sinukuan, represented by Mt. Arayat in Pampanga. The Aetas feared *Apo Malyari* and paid homage with animal offerings embellished with ornate rituals. Mt. Pinatubo exploded in 1991 and was the second largest eruption of the 20<sup>th</sup> century (the Aetas believe it was caused





Figure 4: Left – Pan Tugak Lanum, ‘Apung Jungle,’ one of our primary Aeta informants and guides from Sapang Uwak, Porac, Pampanga (Philippines). Courtesy of Tonette Orejas, a journalist with the Philippine Daily Inquirer. Right – Mt. Punatubo, which is the Aetas supreme deity and they call, *Apo Malyari*. This photo was taken on 16 April 1991, just before its eruption. Photograph by the United States Geological Survey; courtesy of Wikimedia Commons.

by *Apo Malyari*’s wrath). As literary-scholar Julieta Mallari wrote: ‘As far as the contending forces of the two mythical gods are concerned, [the Aetas] god overpowered the mythical god of the lowlanders and straight-haired Kapampangans.’ Many Aeta villages were buried by lava, ash and mud, requiring their relocation. Land rights were given at lower altitudes, which resulted in many new social adaptations by the Aeta.<sup>20</sup>

The Aeta have few distinctions of territorial borders. The mountains are interconnected, and so too the mountains also connect them as a people. They can visit their Aeta kin on foot in Zambales (a nearby province) in only 5 or 6 hours. As a result, they teach us to embrace such awareness.

#### *Disaster Knowledge*

In addition to the crisis of volcanoes, earthquakes and invaders, other disasters court daily life in the Philippine for indigenous peoples. Batanes, an archipelago in the northern Philippines and home to the indigenous Ivatan people, is the country’s ‘typhoon capital,’ but it is said that no one dies in a tropical storm.

The Ivatans have relied natural indicators for their weather forecasts. Birds, wind, cloud movement and hue of the sky can all give omens for the weather, sometimes days in advance. An imminent typhoon is anticipated when birds start seeking cover inside houses or go down on the

ground, or when the sky turns pinkish orange.<sup>21</sup> Cows are the most dependable forecasters for storms.

‘You will know there’s a typhoon coming when the cows at the *payaman* [communal pasture] come down to seek shelter,’ reported Carlos Balasabas, a local Ivatan. The pastures are normally located on higher slopes, so cows automatically seek shelter as a storm approaches. They only return to the slopes after the rain and wind have subsided.<sup>22</sup>

#### *Indigenous Knowledge and Disaster Relief*

While there has been an insufficient acknowledgement and use of Indigenous Knowledge in risk-reduction initiatives, there is strong evidence that it has the ability to decrease disasters on many levels. It is especially of value since it is:

- understandable to users
- easily implemented
- originated within communities
- based on local needs
- specific to culture and context (environment and economy)
- provides core knowledge with flexibility for local adaptation
- uses local knowledge and skills
- uses materials based on local ecology
- proven to be time tested and useful in disasters

- applied to or applicable in other communities or generations.<sup>23</sup>

These considerations are important, as researchers should follow a code of behaviour when rushing to a disaster zone, so as not to upset the inhabitants' delicate position, as had happened in Ache, Indonesia in 2004. In that case, residents were exhausted and enraged by the influx of foreign scientists, with many turning down requests for interviews. Likewise, understanding local languages, policies and customs is critical and can help improve reaction and recovery times. Despite this, a lot of disaster research is still framed by limited worldviews. Vulnerability and resilience are two concepts that don't always translate well. Even if analogous phrases exist, they may be dismissed as meaningless, because natural disasters such as cyclones and floods are not often regarded as threats.<sup>24</sup>

In terms of understanding the local language, in 2013, Filipinos were struck by the super-typhoon Haiyan, one of the most powerful and deadly cyclones ever recorded. It was an event intensified by climate change. Haiyan killed over 6000 people in the Philippines and laid waste to the homes of 11 million residents in Micronesia and the South China Sea. The effects could have been reduced in the Philippines, if the government had used the indigenous word *humbak* (Hiligaynon/ Bisaya) or *daluyong* (Tagalog) instead of 'storm surge,' which was not familiar to the villagers. The residents argued that if only the word 'tsunami' had been mentioned, they would have been able to evacuate quickly.<sup>25</sup>

Incorporating indigenous knowledge into existing practices and policies encourages the impacted community's engagement and enables its people to take the lead in disaster risk reduction actions. Various Indigenous techniques and strategies are ingrained in local knowledge that have proven useful in the face of natural disasters can be shared and adapted to other communities facing similar challenges.<sup>26</sup>

### **Conclusion**

This paper shares some examples of how early and modern Filipinos' indigenous knowledge interacts with conceptions of astronomy, human survival, and disaster risk reduction, particularly in forming their culture and defining their indigenous science. This is closely linked to Big History's Threshold 6 and the concept of collective learning, which is a most essential to the creation of culture.

There is also the issue of indigenization to consider. Big History is vast field. Dr. Vicente Villan, a historian, once commented that:

The danger there – it can be a threat to the discourse of nation-state formation, and it can weaken the nationalist discourse. Hence, there is also a need to focus on the self- as a nation.<sup>27</sup>

Such indigenization in Big History education is critical to comprehending our complex environment. As we advance in trying to resolve our societal and global problems, we also need to step back ... to rediscover and reclaim our basic knowledge and humanity.

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