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Uplifting the Multi-functional Roles of the Rice Terraces (Part 1)

Throughout its 3,000 of history, the multifunctional roles of the rice terraces in Cordillera in establishing a reliable livelihood and quality human survival in Northern Luzon is slowly being acknowledged.

Before it's too late, such realization must spur prioritization of development policies and programs to benefit highland communities, the stewards of this national treasure. These communities, based on government reckoning, are among the most marginalized and malnutrition stricken communities in the country today.

An engineering masterpiece of integrated terraces carved into steep mountainsides, these scenic structures that once stretched from Cagayan Province on the northeastern part of the Cordillera to as far as Quezon Province magnifies the strategic role of this mountainous and centrally situated region as the watershed cradle of Northern Luzon for centuries.

Comprised of six provinces, the Cordillera has a total land area of 1,829,368 hectares (has) which is considered the watershed of all rivers and creeks of Regions I and II. Regions I, II, and III, and the lowland and flat areas of the Cordillera are major agricultural production areas and currently the main sources of rice of the Philippines.

Documents from the Department of Agriculture (DA)-National Irrigation Administration (NIA) named the four major river systems. River System, Agro River System, Magat River System and Abra River System. With their headwaters emanating from the Cordillera, these river systems are crucial to the irrigation water supply of Northern Luzon's food and agricultural production centers.

Through the national irrigation system (NIS), the NIA taps the water from these major river systems to provide water for the 209,065 has service area in the Cordillera, Region I and Region II. These river systems also supply water to communal irrigation systems (CIS) with an estimated service area of 169,359 has.

Natural Resource Management Specialist Alberto Banatao said that in the Cordillera highlands, a great volume of rain and spring water from creeks and streams emanating from the forest are first collected in the rice terraces before these are gradually released into the rivers to be tapped as irrigation water for the lowland agricultural areas.

The rice terraces is estimatedly comprised of over 20,000 has of fully functioning paddies. These rice paddies were built in steep mountain slopes to withstand erosion in a country which holds the world's highest rainfall record, and the Cordillera possibly the country's rainiest zone. Monitoring undertaken by DA, Bureau of Plant Industry (BPI) at its station in Guisad, Baguio City shows that the city receives an average of 4,096 mm of rain a year in the last 10 years.

Carved with strong ridges to hold water, the rice terraces prevents damage - caused by sudden run-off and floods - to farms, irrigation canals and other infrastructures.

For both the highlands and lowlands of Northern Luzon, the rice terraces serves well its function in water conservation. It collects and utilizes water for rice production. It gradually releases water in a manner that is beneficial to food production the whole year round.

Here is how it is done. Some of the collected rain and spring water in the terraces slowly overflows downstream following a complex system of dams, sluices, earth canals, dugout woodwater conveyors and bamboo pipes until it finally drains into a river or stream at the base of the valley.

Some of the water linger longer and penetrate into the soil and eventually drain into the rivers. Some contribute to the stabilization of flow regimes, and some sink deeper and become part of the ground water reserves. "Without the rice terraces, what could happen when all the rain comes roaring downstream as flashfloods during the rainy months," Banatao asked.

Due to the need to conserve water and soil and to sustain the rice terraces, the natives developed indigenous ways and practices to do such. In areas where these practices are still followed, it resulted in the protection and preservation of the forests from degradation and devastation. Overall, such practices contributed a lot in keeping the integrity of the Cordillera forest as the watershed cradle of Northern Luzon throughout these years.

A watershed, according to the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD). "is a basin like geographical structure bounded by surrounding ridges. It has a network of stream tributaries leading to a common mouth or drainage channel. It is a combination of components such as soil, water, terrain, vegetative cover and associated animal life."

Banatao, who helped in the conduct of studies on indigenous forest and watershed management practices in the Cordillera, said that the watershed concept has long been practiced by the Cordillerans. As a proof, he cited the Ifugao's Muyong system, the Lapat system of the Tinguians of Abra, the Batungan system of Mt. Province and the Ginabat system of Kalinga. These indigenous forest and watershed management practices were handed from one generation of Cordillera indigenous group to the next.

Banatao said that the Muyong is common in Ifugao. It is a small forest where a family or clan tends for its timber resources. Situated in the upper portions or above the rice terraces, the muyong is either privately or communally owned. Its good point is that it is maintained purely for microwatershed contribution, wood resources and irrigation for the renowned rice terraces of the province.

Reporting on the Lapat system of the Tinguians in a documentation project undertaken by DA's Central Cordillera Agricultural Program (CECAP), Philip Tinggonong, provincial development officer of Abra said that lapai literally means prohibit or parit in Iloko. A century-old system of regulating the use of natural resources among the upland Tinguians in Abra, the lapat system enjoins all community members and neighboring communities to abide by its rules, like refraining from cutting trees in the forests, gathering rattan, hunting animals, and even fishing in the river. The ban covers the whole lapat area for a definite period.

Gerardo Banawa, a Tinguian who works with the regional office of the DA in the Cordillera, said that the high points of the lapat also serves the purposes of soil, water and forest protection primarily for rice production in the uplands of Abra.

On one hand, the Batangan system, which has closely related variations in eastern and western Mt. Province, is either managed by a family or a clan. Members of the clan can harvest timber from the clan's forest for their house construction. However, their harvest is not for sale. For communal forests, the dap-ay or village elders council decides or presides on management practices issues, while the clan leader decides on how to manage the clan forest. Today, most of the municipalities in Mt. Province where this practice is properly implemented still have extensive forests stands and their terraces continue to be operated mainly for rice production.

In Kalinga Province, the ginubat, an indigenous woodlot and food production management system, was practiced from one generation to the next, says Connie Aligo, a native, of Pinukpok, Kalinga. The ginuhat is being managed in a way where the plain and gently rolling terrains are utilized for food production. The trees, the indigenous species of vines and shrubs which are used as medicines, and the insecticides are conserved, protected and harvested from the steep slopes or those in the higher areas of the ginuhat.

Indeed, the rice terraces was not really meant simply as an object to beautify a rural mountain landscape for tourism purposes. It does not end there. Intertwined with the people who manage it, the rice terraces is a uniquely Filipino treasure that speaks of indigenous engineering and production, knowledge and technology, culture, customary activities and traditional practices of environmental practices.

To stretch the case for the rice terraces further, visit, walk and rest in the terraces during summer and you will feel the effect of evaporation from the paddy fields. There is a distinct cooling effect on ambient air as the smell from the paddies enlivens the urban visitor. As a whole, the rice terraces certainly contributes to the cooling of the surrounding areas.

The rich biodiversity in the rice terraces is not only confined to rice but to a host of living species that thrive within its ecosystem as well. Host to more than 300 varieties of indigenous rice, the rice terraces contributed to the National Rice Gene Bank, maintained by the International Rice Research Institute (IRRI), and to the restoration of more than 3,000 Philippine traditional cultivars turned-over by IRRI to the Philippine Rice Research Institute (PhilRice) for conservation.

In earlier times, old tribal folk harvested from the rice terraces, edible water ferns, water beetles, water vegetables, crabs, native snails and indigenous fishes. Conservation of the rich biodiversity in the rice terraces also serves the continuous scientific quest for developing nutritious food and pest - resistant, aromatic, productive and adoptable rices and food crops.

The multifunctional role of the rice terraces, a designated world heritage site, serves the local people and the nation as a whole in more ways than food production and tourism. Mary Hensley, former US peace corp volunteer in Lubuagan, Kalinga has noted that over the past years, headlines in the newspapers (printed and on-line) chronicled the deterioration of the rice terraces, the collapse of its centuries-old irrigation systems, and the disappearance of the indigenous cultures on the growing traditional rice.

As the locals continue to abandon rice terraces farming in favor of livelihood opportunities in the tourism industry, or migrate to other provinces where farming is more lucrative, Hensley monitored the news about the rice terraces in the newspapers. The reports speak of a nation watching and waiting for the most

appropriate action to ensure that these food production structures will not disappear in the next generations.

What Hensley did is an eye-opener. In 2001, she went to graduate school with a desire to “establish a project that would be successful financially and not dependent on dole outs from the government or international development agencies.”

She later established the Cordillera Heirloom Rice Project and partnered with Vicky Garcia, executive director of the Revitalize Indigenous Cordilleran Entrepreneurs (RICE), Inc., a Filipino capacity-building and non-government organization, to promote “people’s existing agricultural knowledge as a source of economic development, community revitalization and environmental preservation.”

Hensley also established the Eight Wonder, Inc. to retail rice from the terraces in USA.

From 2005-2006, the implementation of the Cordillera Heirloom Rice Project through RICE, Inc. puts value to the indigenous cultures of the Cordillera and to the heirloom rice that they grow. The project is proving to be the evasive key to the decades-old quest to save the rice terraces.

Reports from the provinces of Ifugao and Kalinga said that farmers are returning to cultivate the abandoned terraces because they can earn good profit buy basic necessities and support their families by exporting their rice produce to USA through Eight Wonder, Inc. Last year, Eight Wonder, Inc. was able to retail over 7 tons of Kalinga and Ifugao terraces rice. This year, farmers intend to increase their export to USA to 20 metric tons of selected varieties of traditional rice through Eight Wonder. Inc.

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