

STRENGTHENING AGROBIODIVERSITY CONSERVATION: ENSURING FOOD SECURITY & ENVIRONMENTAL PROTECTION



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Keypoints:

We encourage policymakers to institutionalize agrobiodiversity conservation ordinances at barangay, municipal, provincial and national levels to mainstream agrobiodiversity conservation into local development and agricultural planning frameworks.

Institutionalize the establishment of germplasm and seed banks to strengthen the recognition and protection of traditional biodiversity.

Uphold traditional agroforestry farming systems that mix diverse crops, trees and animals and make use of organic residues and inputs to maintain soil fertility.

Strengthen and maintain collaboration and partnerships with other agencies working on agrobiodiversity to ensure support for the means of implementation including funding for agrobiodiversity-related programs.

Agrobiodiversity¹ conservation is a strategic investment in food security, climate resilience and sustainable rural development. By protecting diverse traditional crops and Indigenous farming systems, the Province of Nueva Vizcaya in the Philippines can strengthen local agriculture productivity, safeguard traditional knowledge and reduce vulnerability to climate change and other market shocks.

This brief calls for strong provincial leadership and legislative support through barangay, municipal, provincial and national ordinances to institutionalise programs that are proven to help conserve agrobiodiversity, such as community seed banks, tree nurseries, demonstration farms, farmer incentives and biodiversity-friendly agricultural and environmental policies and practice.

SUMMARY

Traditional farming systems such as those practiced by the Kalanguya-Ikalahan people in Nueva Vizcaya, Ifugao and Benguet provinces in the Philippines are vital to conserving agrobiodiversity, regenerating Indigenous varieties, restoring crop diversity, and maintaining soil health and farm resilience.

The Kalanguya-Ikalahan experience provides a proven, community-driven model that can inform national policies and be adapted across similar upland and Indigenous agricultural landscapes. It shows that agrobiodiversity conservation is a strategic priority for advancing food security, climate resilience and inclusive development, not only in the Kalanguya-Ikalahan Ancestral Domain but also in the province and the nation as a whole.

However, these farming systems are under threat and need urgent protection. Policy support is essential to sustain these systems for future generations. Investing in seed banks, germplasm conservation and biodiversity-friendly agriculture will enhance local productivity, reduce disaster risks and safeguard traditional knowledge. Strengthening the protection of traditional crops, trees, livestock and Indigenous farming systems will also directly support national food security objectives, climate change adaptation efforts under the Republic Act No. 9729 (Climate Change Act of 2009), and the goals of Philippine Development Plan 2023–2028.

Policymakers must take legislative and national action that is essential to institutionalize these measures, which align not only with the needs of the peoples of the Kalanguya-Ikalahan Ancestral Domain but also the needs of the broader Philippine population, in line with the country's commitments to the United Nations Sustainable Development Goals, particularly SDG 2 and SDG 13.

The Philippine context

Rural and Indigenous farming communities have long practiced traditional agricultural systems that sustain diverse tree and crop species and varieties and livestock breeds. In many upland and ancestral areas, these systems have enabled the continued cultivation of Indigenous crops such as sweet potato (camote), including rare and locally adapted varieties.

But today, the loss of agrobiodiversity is accelerating not only in the Kalanguya-Ikalahan Ancestral Domain but across the whole country. Once abundant traditional foods are vanishing so quickly that one day they are on our plates, and the next day they are gone. This disappearance is captured well by the saying: “Now you see it, now you don’t. Now you eat it, now you don’t.”

The rate of decline in traditional tree and crop species/varieties and livestock breeds is so alarming that without immediate and coordinated conservation efforts, these vital components of our biodiversity and cultural heritage risk extinction. They will survive only as photographs, illustrations or stories for future generations. Protecting them is not just an ecological necessity but a safeguard for our food security, traditional knowledge and cultural identity.

The loss of Indigenous knowledge and biodiversity is accelerated by the preference for commercial farming and expanding monocropping, the use of commercial hybrid seeds instead of traditional varieties, and overuse of chemical fertilizers and pesticides. Land conversion, urbanization and climate change exacerbate this situation. Without intervention, food security and local livelihoods will increasingly be at risk.

Why ordinances supporting agrobiodiversity conservation are so important

To counteract these threats and risks, long-term solutions are needed. Policymakers should craft ordinances that institutionalize the promotion and conservation of agrobiodiversity is one easy way to start such long-term solutions. Ordinances transform conservation efforts from temporary projects into sustained legal commitments. In essence, ordinances shift the emphasis from isolated voluntary initiatives towards structured, funded and enforceable governance actions.

By embedding into law measures to promote and conserve agrobiodiversity and traditional farming

practices, local governments can create durable systems that address the root causes of agrobiodiversity loss and secure agricultural diversity for the future. Ordinances should not only be crafted at the barangay, municipal and provincial levels but should be upscaled to the national level.

The need for community seed and gene banks to improve resilience

In the face of climate change, agrobiodiversity plays a crucial role in strengthening climate resilience. Diverse farming systems are better able to withstand extreme weather, pests and diseases because they do not rely on a single crop or genetic strain. By cultivating a wide range of traditional crop varieties, especially those that are drought-tolerant, flood-resistant or pest-resistant, Indigenous communities reduce vulnerability and enhance their capacity to adapt to changing environmental conditions.

Additionally, food security depends not only on the availability and stability of food production but also on the nutritional quality of that food. Conserving diverse genetic resources ensures a continuous supply of nutritious and culturally appropriate food. Establishing community seedbanks, gene banks, nurseries and demonstration farms helps to maintain vital repositories of plant genetic resources. Collecting, preserving and managing traditional seeds and other genetic materials safeguards them from loss due to disasters, environmental degradation or neglect. Using these approaches to maintain genetic diversity also supports farmer-led research, crop improvement and future food production needs.

The vitality of maintaining traditional agroforestry farming systems

Traditional agroforestry farming systems like those practised by the Kalanguya-Ikalahan people play a significant role in conserving agrobiodiversity. The farming system is a sustainable, community-based way of agriculture that uses Indigenous knowledge and time-tested agricultural practices to promote a mixing of trees, crops and livestock, including mixed cropping, crop rotation, seed saving and natural pest management. These approaches enhance soil health, protect ecosystems and sustain biodiversity while supporting local food systems.

Traditional farming systems such as these are not relics of the past: they are living, adaptive systems that play a crucial role in conserving agrobiodiversity, regenerating endangered crop varieties, and restoring crop diversity. Policymakers can strengthen these

systems through supportive policies, which are essential for ensuring sustainable agriculture, resilient communities and the preservation of invaluable genetic and cultural resources.

The Kalanguya-Ikalahan system: an example of success

A success story that demonstrates the effectiveness of activities to promote and facilitate the sustainable use of biodiversity for climate is the work of the Kalahan Education Foundation (KEF) in the Kalanguya-Ikalahan Ancestral Domain. In partnership with the Nature Nurture project,² KEF is focusing on how to support traditional farming practices in-situ, by promoting agrobiodiversity conservation through varietal regeneration and crop diversity restoration.

Documenting and enhancing farming systems that support agrobiodiversity

The Kalanguya-Ikalahan farming system is a balanced relationship between people and nature, where farming is done not just for survival, but with deep respect for the environment. To document local knowledge and its vital role in agrobiodiversity conservation, climate mitigation and prevention of biodiversity loss,³ KEF has conducted research with farmers in the Kalanguya-Ikalahan Ancestral Domain in the barangays of Bacneng, Baracbac, Imugan, Malico, Santa Rosa and Unib. The research participants included 20 commercial and 20 traditional farmers (both men and women).

KEF has also established a demonstration farm planted with traditional crop varieties with a focus on sweet potato (camote) varieties. Camote – alongside other traditional crops such as taro, corn, chayote, legumes, peanuts and squash – has been a staple food crop of the Kalanguya-Ikalahan since time immemorial.



KEF demonstration farm

Camote is one of the best foods for people in the uplands to cultivate. It is highly nutritious and safe to eat. Camote leaves contain protein and vitamins

and the tubers contain good carbohydrate, vitamins and minerals, and no chemicals are required to cultivate it. It also protects the soil from erosion and can be grown on level ground or on steep slopes, which is especially important in mountainous areas.



Camote varieties from the KEF demonstration farm

Advocacy for ordinances that conserve and promote agrobiodiversity

KEF has also conducted sustained advocacy to support the formulation and institutionalization of ordinances promoting agrobiodiversity conservation in the barangays of the Kalanguya-Ikalahan Ancestral Domain. One such ordinance is 'An ordinance promoting the conservation of agrobiodiversity in barangay Imugan and sustainable farming practices to ensure food security, and adapting measures for environmental protection.'

Implementing policies such as this and strengthening programs that protect agrobiodiversity, support community germplasm and seed banks, and recognize traditional farming systems is essential to building climate resilience and ensuring long-term food security for present and future generations.

Key features of traditional farming systems to protect and conserve

There are several key features of Kalanguya-Ikalahan traditional farming that merit protection and conservation. Together, these measures have several key benefits: they protect biodiversity, prevent soil erosion, sustain food security, preserve Indigenous culture and knowledge, and help combat problems

such as climate change and land degradation..

Swidden (slash-and-burn) farming

Known as '*uma*' by the Kalanguya-Ikalahan Farmers, swidden farming involves carefully clearing and burning small forest areas. Crops are planted for a few years, then the land is left to recover (fallow period). This allows soil nutrients to regenerate naturally. Unlike more destructive forms of swidden farming (such as *kaingin*), this method is controlled and sustainable. *Uma* maintains the balance between providing for subsistence in the short term and conserving forests and natural resources over the long term.

Crop diversity (agrobiodiversity)

Farmers grow a wide variety of crops together including root crops (camote, gabi), rice (upland varieties), corn, beans, vegetables and fruit trees (such as guava and citrus). This mix reduces the risk of crop failure and supports ecological balance.

Intercropping systems

Farmers interplant different crops in the same area at the same time. For example, corn is planted with beans and some root crops in the same area. This helps improve soil fertility and maximizes land use.

Forest conservation practices

Farmers protect forest areas as '*muyong*' (private woodlots) and communal forests. These serve as watershed protection areas, sources of medicinal plants and a habitat for wildlife.

Indigenous knowledge and spiritual beliefs

Farming is guided by traditions, rituals and respect for nature. Farmers believe in maintaining harmony with the environment. Elders play a key role in decision-making.

Minimal use of chemicals

Farmers opt not to use any synthetic fertilizers or pesticides. Instead, they rely on and use natural compost and organic methods. This makes their farming environmentally friendly and sustainable.

Foundational values for protecting agrobiodiversity and ecosystems

Agrobiodiversity conservation is possible not only for the Kalanguya-Ikalahan Ancestral Domain but the whole country as a whole. But to address agrobiodiversity loss, we must adopt a profound change in attitude toward the environment. The following key values lay the foundation for this change:

Respect the environment: Allow it to function properly and it will be productive. It is not necessary to force the environment with chemicals or genetic engineering.

Understand the environment so that it will be easier to cooperate with it.

Protect the environment: Do not destroy anything unnecessarily. You may not know a thing's purpose now but protect it anyway. Someone else will discover its purpose later.

Repair the environment when it is damaged:

Sometimes protection is all that is needed but reforestation and check dams (small barriers built to slow water velocity and reduce soil erosion) are sometimes needed also.

Do not poison the environment with excessive waste or toxic material. Where waste is necessary, recycle whenever possible.

Share the environment: There is enough for everyone if everyone will share. The world produces enough for every person's NEEDS but cannot produce enough for every person's GREED.

Keep the environment balanced: Remember that you are part of the environment and you will eventually be affected by everything you do to it, whether good or bad. Remember also that when people damage the environment, the damage is often irreversible.

POLICY RECOMMENDATIONS

The Kalanguya-Ikalahan experience demonstrates the effectiveness of traditional farming systems in promoting and facilitating the sustainable use of biodiversity for climate resilience, food security and local livelihoods. It is a proven, community-driven model that can inform national policies and be adapted across similar forest and farm settings in upland and Indigenous agricultural landscapes in the Philippines.

To ensure the future sustainability of traditional farming systems that conserve and enhance agrobiodiversity, the following five recommendations for policymakers provide guidance on how the approach should be implemented:

1. Institutionalize community-based conservation

Policymakers should such support farmer-led initiatives in maintaining Indigenous camote varieties and other traditional crops in their natural environments. These grassroots initiatives

successfully blend traditional knowledge with modern conservation to protect ancestral domains, generate sustainable livelihoods and preserve agrobiodiversity.

2. Establish community seed banks and seed exchange systems

Supporting community seed banks and farmer seed exchanges protects, preserves and propagates rare local crop varieties. This helps to ensure genetic diversity and strengthens local capacity for varietal regeneration.

3. Integrate Indigenous knowledge into education and extension

To ensure the continuity of Indigenous knowledge, policymakers should engage elders in knowledge-sharing and learning exchanges. Combining traditional knowledge with scientific research helps to innovate sustainable farming solutions tailored to the local communities.

4. Support documentation and research

In partnership with local institutions, policymakers should provide support to catalogue traditional practices as well as traditional crops and varieties, including camote. This will also support younger generations and help ensure the continuity of Indigenous knowledge.

5. Promote Indigenous crops in local markets

Policymakers should support the development of branding and value-adding strategies for traditional crops such as camote. This will help expand markets and improve livelihoods, making traditional farming systems more sustainable.

The traditional farming systems of the Kalanguya-Ikalan are vital for conserving the rich agrobiodiversity of Nueva Vizcaya. By supporting these systems, policymakers can ensure the regeneration of vanishing camote varieties and other traditional crops, restore crop diversity and strengthen resilient, culturally grounded food systems.

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NOTES

1 Agrobiodiversity (or agricultural biodiversity) is the subset of biodiversity found within agricultural ecosystems: the full variability of animals, plants and microorganisms that make farms function, as well as any wild foods collected.

2 Collaborating with smallholder farmers in Indonesia, the Philippines and Tanzania, the Nature Nurture project is focused on upscaling smallholder resilience for agrobiodiverse supply chains. The project is implemented by IIED, NTFP-EP and MVIWAARUSHA, in partnership with KEF and the Riak Bumi Indonesia Foundation.

3 See Gerdan et al. (2025).

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