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Implementing Permaculture in Paraguay: A Guide

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The Method to Combat Hunger

Agriculture has been a part of human survival for millennia, serving as a way for us to not just find, but to grow the food we need. Even as we enter an era where artificial intelligence is becoming commonplace in the developed world, and cars are able to drive themselves, the human need for food has not changed. What has changed, however, is the amount of food that is needed.

Back in 2011, the human population had just reached seven billion. A little over ten years later, in 2022, that population reached eight billion, and in 2025, continues to grow. More people means more mouths to feed, and a continuously increasing necessity for food resources.

However, while there is an increase in populations, there is a lag in the proper distribution of food. Despite the advancement of technology, hunger and malnourishment continues to persist at alarming rates -- as of 2024, it was reported by the World Health Organization that one out of eleven people face hunger. Statistically speaking, that means that in a room of eleven random people, there is at least one person that is suffering from starvation. For every eleven families, there is one that struggles to find their next meal. For every eleven children, there is one that may not see a proper meal for the next week.

As people who consider every person like their own child, Father Sun Myung Moon and Mother Hak Ja Han have worked tirelessly to relieve the suffering of the world's people. The solution that they came up with was the Ocean Providence: the providence to resolve the most basic of human suffering -- hunger.

While world hunger is a large issue that encompasses the globe, the solution is intuitive and easy to understand. If someone is starving, give them food, and then give them the means -- education, skills, technology -- to become self sufficient. The easy part is the first: giving food. For those that have money and food to spare, it is easy for us to simply give away a part of what we have to someone else. For us, it is but a temporary loss that will refill overtime.

The part that is often forgotten, yet is the most important, is the second aspect: staying with the person, teaching them, and sharing what you have and know for them to become self sufficient. Only when the person you look to help can walk on their own two feet without you holding their hand, can you say that you have successfully and truly helped them. "Help" should not be a temporary fix.

This is where agriculture and farming comes into play. While farming has become largely commercialized in the modern world, the culturing of the land and its plants is still a key method to producing necessary foods. However, commercialization has also led to the prioritization of speed and quantity, oftentimes leading to the exploitation of land and people, skewed distribution of food, and the destruction of important natural habitats. The human population continues to grow, so we cannot compromise in the way of lessening how much food we produce -- however, that does not mean there are no ways to both produce food while also conserving and even restoring the nature around us.

Permaculture. The permanent culturing of food products in a way that takes into consideration the environment around it. In other words, it is the growing of a "food forest." While you grow habitats for wildlife to reside in, you also produce food for consumption -- this is a method of agriculture that takes into consideration both natural and human needs. It is in this way that permaculture serves as a sustainable method to producing food resources. Not only does a forest that is cared for continue to produce food for one generation, it will continue to produce food, and if allowed, expand for generations to come while maintaining the integrity of the environment around it.

Permaculture serves as one of the potential solutions to resolving the hunger problem.

Done on a smaller scale, a family will be able to take care of a small food forest and produce their own foods while maintaining the health of the land around them. However, a food forest does not appear out of no where and does require effort and knowledge to successfully start. While each region around the world is vastly different, we hope to give information on at least one part of the world. To help those that can benefit from their own food forest, this article lists the basic information to know when considering starting a food forest in Paraguay, and real life examples of permaculture that can help inspire those around the world to look more into this method with the potential to combat local and global hunger.

Where Do We Begin?

Before going into permaculture considerations, we want to provide a list of recommended plants to use in a food forest in Paraguay. The subtropical climate with warm temperatures, high humidity, and well-draining soil make it possible to grow everything from tropical fruits to ornamental trees. Below is a basic guide to several plants that flourish in this region, along with their growth requirements and timelines.

Plants That Thrive in Asunción, Paraguay

1. Mango (Mangifera indica)

- **Description**: Mango trees are large, evergreen, and known for their juicy, sweet fruits.
- **Growing Conditions:**
  - Soil: Prefers well-draining, sandy loam.
  - Sunlight: Requires full sun for optimal growth.
  - Water: Needs moderate watering; avoid waterlogging.
- **Growth Timeline:**
  - Seedlings take about 5-8 years to bear fruit, while grafted trees may produce fruit in 3-5 years.

2. Papaya (Carica papaya)

- **Description**: A fast-growing tropical plant that produces nutrient-rich, orange-fleshed fruits.
- **Growing Conditions:**
  - Soil: Needs well-drained soil rich in organic matter.
  - Sunlight: Thrives in full sun.
  - Water: Requires consistent watering but does not tolerate waterlogged soil.
- **Growth Timeline:**
  - Starts producing fruit within 6-12 months.

3. Yerba Mate (Ilex paraguariensis)

- **Description**: A culturally significant plant used to make mate and tereré, Paraguay's iconic beverages.
- **Growing Conditions:**
  - Soil: Prefers slightly acidic, well-drained soils.
  - Sunlight: Grows best in partial shade.
  - Water: Needs regular watering to maintain soil moisture.
- **Growth Timeline:**
  - Takes about 3-5 years to mature enough for harvesting leaves.

4. Lapacho (Handroanthus spp.)

- **Description**: Paraguay's national tree, famous for its stunning pink, yellow, or white blossoms.
- **Growing Conditions:**
  - Soil: Adapts well to most soil types but prefers well-drained soil.
  - Sunlight: Requires full sun.
  - Water: Tolerates drought once established.
- **Growth Timeline:**
  - Takes 5-10 years to reach flowering maturity.

5. Sweet Potato (Ipomoea batatas)

- **Description**: A fast-growing root vegetable that's a staple in local diets.

- **Growing Conditions:**
  - Soil: Thrives in loose, sandy, or loamy soil.
  - Sunlight: Requires full sun.
  - Water: Needs consistent moisture but avoid overwatering.
- **Growth Timeline:**
  - Harvestable in 3-4 months after planting.

6. Bougainvillea

- **Description**: A vibrant ornamental plant with colorful bracts that resemble flowers.
- **Growing Conditions:**
  - Soil: Prefers well-drained soil.
  - Sunlight: Needs full sun to thrive.
  - Water: Drought-tolerant but benefits from occasional watering.
- **Growth Timeline:**
  - Grows rapidly, producing blooms within a few months of planting.

7. Cassava (Manihot esculenta)

- **Description**: A hardy root vegetable widely cultivated for its starchy tubers.
- **Growing Conditions:**
  - Soil: Prefers sandy, well-drained soils.
  - Sunlight: Requires full sun.
  - Water: Moderate water needs; tolerates dry spells.
- **Growth Timeline:**
  - Ready for harvest in 8-12 months after planting.

8. Citrus Trees (Citrus spp.)

- **Description**: Includes oranges, lemons, and limes, known for their fragrant flowers and vitamin-rich fruits.
- **Growing Conditions:**
  - Soil: Needs well-drained, fertile soil.
  - Sunlight: Requires full sun.
  - Water: Regular watering; avoid waterlogging.
- **Growth Timeline:**
  - Typically it takes 3-6 years to start bearing fruit.

9. Hibiscus (Hibiscus rosa-sinensis)

- **Description**: A striking ornamental plant with large, showy flowers.
- **Growing Conditions:**
  - Soil: Grows well in fertile, well-drained soil.
  - Sunlight: Prefers full sun but tolerates partial shade.
  - Water: Requires regular watering.
- **Growth Timeline:**
  - Blooms within 6 months to 1 year.

10. Banana (Musa spp.)

- **Description**: A fast-growing tropical plant that produces sweet, energy-rich fruits.
- **Growing Conditions:**
  - Soil: Needs rich, well-drained soil.
  - Sunlight: Requires full sun.
  - Water: High water requirement, especially during fruiting.
- **Growth Timeline:**
  - Takes about 9-12 months to produce fruit.

With the right care, attention, and planning, these plants can thrive in Paraguay's subtropical environment.

Plants that can Enhance a Food Forest

When considering a food forest, there are a few plants of note that can help enhance your project with the proper design and care! The difference between regular gardening/farming and permaculture is that permaculture requires the cultivation of plants in a cohesive and concurrent manner. Plants work

together and rely on one another's effects on their surroundings, just as a naturally occurring forest would. With this in mind, the following plants and plant types listed have qualities that can help enhance this cohesive aspect of your food forest!

Bamboo

- **Description**: A fast-growing, eco-friendly plant from the grass family known for its strong, hollow stems used in building, furniture, and more
- **Growing Conditions:**
  - Soil: Well-draining, loamy soil rich in organic matter
  - Sunlight: Prefers full sun to partial shade
  - Water: Regular moisture, especially during establishment; drought-tolerant once mature
- **Growth Timeline:**
  - Germination (if from seed): Rare and slow—bamboo is usually propagated by division or cuttings
  - Establishment: Takes 1–2 years to fully establish root systems
  - Shoot Emergence: New shoots emerge each growing season (spring/summer)
  - Height Growth: Can reach full height in 60–90 days for many species
  - Maturity: Most bamboo reaches full maturity in 3–5 years
  - Lifespan: Individual culms live 5–10 years, but the plant itself lives for decades through continuous regeneration

Guadua angustifolia specifically, or the Colombian timber bamboo, is a bamboo species native to South America, and has been dubbed "vegetable steel" for its strength, seen to be helpful in eco-construction and rural development.

Why Bamboo Fits Permaculture

- **Multifunctional**: Bamboo has multiple uses, offering food (shoots), shelter (building material), ecosystem support (erosion control), and aesthetics (shade, structure).
- **Regenerative**: Bamboo grows back after harvest and reduces pressure on forests.
- **Low-input**: Bamboo becomes relatively easier to take care of once established, needing little irrigation or fertilizer.
- **Resilient**: Bamboo serves to be resilient, and can tolerate a wide range of climates.

Bamboo and Permaculture in South America

Another reason why bamboo is great for permaculture, especially in the Paraguay region, is because of its historical use by indigenous communities in South America, having been used for housing, baskets, musical instruments, and fishing tools. Even today, bamboo has been adopted into regenerative agriculture and agroforestry projects across Brazil, Colombia, Ecuador, and Peru, a testament to its use in permaculture-related efforts.

Eucalyptus

- **Description**: Eucalyptus is a fast growing tree, often planted in large commercial scale for fuel wood, poles, timber, etc.
- **Growing Conditions:**
  - Soil: should have good drainage, loamy; best to avoid waterlogged and saline soils

    - Sunlight: full sunlight for 8-10 hours
    - Water: requires irrigation in the first couple years before establishment; regular year rainfall from 500-3000mm is sufficient (the average rainfall in Paraguay is 500-1000mm)
- **Growth Timeline:**
    - Nursery: seeds are sowed in raised beds and are ready to be transplanted into polythene bags after 6 weeks
    - Field: seedlings are ready to be transplanted into the field after 3-5 months during the rainy season
- **Maintenance:**
    - Initial stages will require hand weeding to keep weeds from overtaking the plant
    - Irrigation should happen right after transplantation, and done throughout summer seasons until the tree is well established

Eucalyptus in Permaculture

Eucalyptus can serve as a beneficial and successful permaculture plant with **proper management**:

- **Regular coppicing and pruning** will stimulate growth chemicals and promote biomass accumulation and syntropy
- Utilized in a well organized and **stratified polyculture system** will allow its benefits to most shine

A note: Eucalyptus will often be farmed separately from other crop because of its tendency to be allelopathic (releasing chemicals that can affect/stunt growth of surrounding plants) without consistent pruning, leading to the possibility of plants in its vicinity to lose access to nutrients. When not incorporated directly in a food forest, they can serve as good windbreaks. However, when done properly, they serve to enhance a food forests' syntropy (nutritional interdependence). This can be seen in a real life example of a successful food forest at Toca Farm incorporating the eucalyptus in Brazil by Ernst Gotsch.

When properly done, as seen by Toca Farm:

- **Coppicing and pruning**, at least twice a year, generates accumulated biomass that can help produce soil for the forest -- because it is such a fast growing plant, the amount of soil being generated is also large
- The biomass produced by eucalyptus tends to be high in stable carbon, making it effective for **mulch**, especially when paired with nitrogen rich biomass like banana, grasses, lantana, and herbaceous species
- By regularly coppicing and pruning, the tree will remain in a state of vigor where **growth chemicals** will be sent out to help not just the eucalyptus but surrounding plants to better grow
- Organization and design of the forest also plays a part in how beneficial the eucalyptus will be for the forest. A **stratified several-floor design**, with the eucalyptus as the emergent layer, helps promote water control and maintenance of the forest. The proper inclusion of eucalyptus can help a food forest persist through even drought thanks to this.

Stratification in a food forest according to Ernst Gotsch

Good intercrops (crops that do well together) for Eucalyptus

- Turmeric / ginger / medicinal plants
- Banana / fruit trees for the middle layer
- Guinea-grass for the lowest layer

Mushrooms

- **Description**: Mushrooms are a diverse group of typically wood-decomposing species that are important in the breaking down of organic matter to recycle nutrients back into the soil. They can be used for edible, medicinal, and waste purposes.
- **Growing Conditions:**
  - Substrate: Dependent on the specific mushroom species, mushrooms can be grown in a variety of different substrates, but typically do well on agricultural and forest by-products like straw, wood chips, sawdust, etc.
  - Sunlight: When mushrooms are incubating, they should be kept in darkness with airflow, and once they have been established, they should be exposed to dappled light that mimics a forested area.
  - Water: Heavy rain promotes fruiting, should generally be kept in a consistently moist environment; this can be done through things like humidity domes when being grown in trays
- **Growth Timeline:**
  - Substrate: There are various methods depending on what you are going for; when considering growing indoors, use of substrate blocks in growing trays works well, while the preparation and use of logs or making of substrate beds made of agricultural by-products can be effective outdoors.
  - Logs: Typically, hardwood logs are ideal, and growth does better when the log is treated / sterilized through steaming. Colonization of a log typically takes around half a year, and are not ready to fruit until the following year.
  - Incubation: This is where consistent humidity and lower light should be maintained.
  - Colonization: To help promote colonization, there should be slight, but not too much air ventilation. An indicator of proper incubation is when white threads begin to spread across the substrate. Colonization of a log typically takes around half a year, and are not ready to fruit until the following year.
  - Fruiting: Fruiting can be triggered through increasing humidity, light, and ventilation.

Mushrooms Good for Permaculture

- **Wine Caps (Stropharia rugosoannulata):**
  - These mushrooms are well-suited for permaculture systems, thriving in gardens, under fruit trees, and on wood chip pathways.
- **Oyster Mushrooms (Pleurotus ostreatus):**
  - They can be cultivated on logs, in mushroom grow bags, or in buckets, and are known for their ability to clean up contaminated soil.
- **Shiitake Mushrooms (Lentinula edodes):**
  - Another popular choice for log cultivation, providing a long-term harvest of edible mushrooms.
- **Lion's Mane Mushrooms (Hericium erinaceus):**
  - These are another great option for log cultivation, known for their unique appearance and potential cognitive benefits.

Benefits of Integrating Mushrooms into Permaculture

- **Increased Biodiversity:**
  - Incorporating mushrooms into a permaculture system increases biodiversity by adding another layer of organisms to the ecosystem.
- **Reduced Reliance on External Inputs:**
  - By utilizing waste materials and promoting natural processes, permaculture systems with mushrooms reduce the need for fertilizers, pesticides, and other external inputs. Some mushrooms, like oyster mushrooms, can help break down pollutants in the soil, contributing to a healthier environment.
- **Enhanced Resilience:**
  - A diverse and healthy ecosystem, like the one created by permaculture, is more resilient to environmental changes and challenges. Some species like the oyster mushroom have the ability to prevent nematode (parasitic roundworms) infestations to plants that may be

susceptible.

- **Sustainable Food Production:**
  - Mushrooms are a sustainable source of protein and other nutrients, contributing to a more food-secure and environmentally friendly future. Many mushroom species, including those mentioned above, can provide a nutritious food source for humans and other animals within the permaculture system. Many organisms enjoy eating fungi (worms, snails, maggots), many of which can then be fed to larger animals in the system. It is also possible to make myceliated grains to feed livestock. Some mushrooms like the Wine Cap are also able to produce and provide sugars that can be used by pollinators like bees.
- **Soil Health**
  - Mushrooms, especially oyster mushrooms, can improve soil structure, drainage, and nutrient cycling, making them valuable additions to permaculture gardens.
- **Aquatic Health**
  - Mushrooms can also act as myco-filtration units that can assist in cleaning any runoff water that flows into any ponds that are incorporated in a food forest. Any common decomposing invertebrates found in freshwater aquatic systems like crawfish can also be fed mushrooms.

Edible Mushrooms Popular in Paraguay for Consideration

- Pink Oyster Mushroom
- Bridal Veil Stinkhorn
- Fan-shaped Jelly-fungus
- Slender Parasol
- Wood Ear
- Snow Fungus
- Blewit
- Corn Smut
- Shaggy Mane
- Pear-Shaped Puffball
- Common Puffball
- Wine Cap Stropharia
- Tiger Sawgill
- Weeping Bolete
- Sordid Blewit
- Lung Oyster
- Oyster Mushroom
- Common Stinkhorn

Rosemary

- **Description**: A hedge plant in the mint family with various uses (culinary, ornamental, groundcover, etc.).
- **Growing Conditions:**
  - Soil: well draining, as water logged can kill immature rosemary
  - Sunlight: full sun, can tolerate light shade
  - Water: once established, can tolerate drought; before it is established, make sure to keep well watered during growing seasons
- **Growth Timeline:**
  - Dependent on the size you want to maintain the hedge at, but to grow up to 1.5m tall, it typically takes 5-10 years
- **Maintenance:**
  - Pruning is typically done, to not just maintain the aesthetics, but to also make harvesting rosemary more fruitful -- this means cutting back after flowering. These cuttings can also be used for further rosemary propagation.

Rosemary in Permaculture

Benefits

- **Low maintenance**: Once established, the hedge needs little maintenance, and can survive drought conditions helping in the conservation of water in the system.
- **Soil improvement**: The root system of the rosemary helps prevent soil erosion.
- **Good companion plant**: Because rosemary is allelopathic, it also releases natural chemicals that can help to serve as a weed deterrent; its scent can also deter pests, promoting growth of neighboring crops.
- **Foundation for good design**: Rosemary functions well as a hedge, and can be used to create a border or focal points in designs, heightening the beauty of a forest while also being able to create natural separations; because rosemary can be propagated via cuttings, once established, farmers will have a virtually unlimited amount of stock for the future.

An Important Note on Hedges in Permaculture

Hedges like rosemary have been historically used in hedgerows, or perennial polyculture planted along the edge of a food forest or riparian locations (along edges of water bodies) that can provide various uses:

- Food
- Shade
- Privacy
- Windbreak
- Condition soil
- Shelter for tender plants

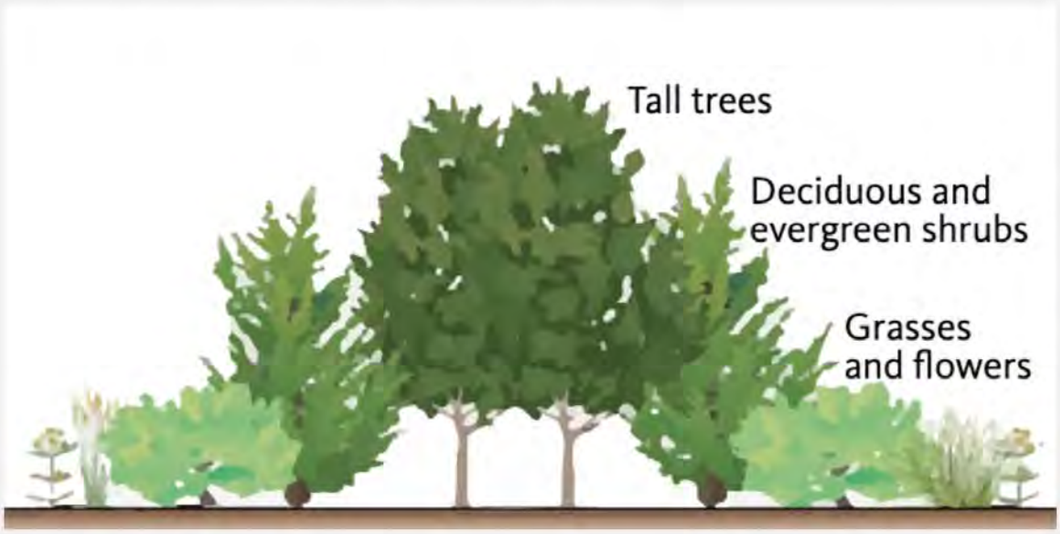
Hedgerows are a polyculture (the culturing of multiple crops at the same time) technique and are not limited to the use of hedge species. Trees, berries, nuts, roots, shoots, and fungi can all be included in a hedgerow design. Hedgerows typically take around 4 to 8 years to become well established, and similar to how rosemary is resilient once established, so are hedgerows, helping to serve as a good base for permaculture.

Benefits of Hedgerows

- **Microclimates**: Can serve as natural fencing and separation between distinct sections of a food forest design.
- **Biodiversity**: Can serve as attractive habitats for beneficial pollinators like insects and birds.
- **Windbreak**: Can lessen the impact of strong weather and dampen wind.
- **Stabilization**: When developed along banks of bodies of water, can serve as shade/cooling and help stabilize the shoreline -- and soil in general -- from erosion

When considering establishing a hedgerow and developing its design, you must consider the purpose of its use. Depending on what the focal goal of developing a hedgerow is (windbreak, aesthetics, fencing/privacy, conservation, resource production, etc.) will change the overall design. However, one thing that will remain the same when considering the design is spacing between plantings, irrigation, mulch needs, and for some species, pruning.

Below is a cross-section of what a typical hedgerow design may look like when focusing on creating an effective windbreak and microhabitats for animals (such as birds):



The graphic above and further information on hedgerows can be found here.

Paraguay-friendly Species for Hedgerows for Consideration

- Shrubs
- Artichokes
- Currants
- Filbert Trees
- Rosemary
- Collards
- Common hedgerow plant
- Typha subulata / cattail for riparian zones
- Native Paraguayan Trees
- Mistol
- Chanar
- Banana Carob

Permaculture Design: Importance & Considerations to Make

Now that we have covered some of the recommended plants that can fair well in the Paraguay region as well as plants that can enhance a food forest, we will now go into some more specifics on things to take into consideration when designing a permaculture system.

Intercropping: Plants That Grow Better Together

Intercropping—the practice of growing multiple complementary plants side by side—has long been a core strategy in sustainable agriculture, and can be utilized in permaculture. By mimicking the diversity of natural ecosystems, intercropping reduces pests, improves soil health, and maximizes yields. In Paraguay, several crops thrive when grown together, creating a mutually beneficial environment for a successful food forest.

Here are some Paraguay-relevant plants that intercrop well according to a paper published on the Journal of Applied Horticulture in 2019 titled *Tree used in horticulture based alley cropping* by O. Montes et al.:

- **Mango** (Mangifera indica): Mango trees provide a shaded understory perfect for crops like eggplant, cowpeas, and sweet potatoes. These companions thrive in the partial sunlight and contribute to soil health, especially when leguminous plants are involved.
- **Papaya** (Carica papaya): Papaya works well with nitrogen-fixing support trees such as pigeon pea and Mexican lilac, while also pairing nicely with okra, watermelon, and tomatoes.
- **Citrus Trees** (Citrus spp.): Citrus groves benefit from intercropping with legumes, ginger, peppers, and coriander, which help manage weeds, preserve soil moisture, and keep the ecosystem balanced.
- **Banana** (Musa spp.): Bananas are natural team players, growing harmoniously with ground-level crops like sweet potatoes, ginger, and cassava, creating moist, shaded microclimates that allow other species to flourish.
- **Cassava** and **Sweet Potato**: Both of these staple crops interweave with taller trees and support species, filling the forest floor and protecting against erosion.

Rather than thinking in rows, these combinations thrive when planted in layers—trees, shrubs, vines, and groundcovers—each with a purpose and role in the larger system. A good example of this kind of design that is often referred to for permaculture systems is the stratified several-floor design mentioned earlier (refer to the Toca Farm section).

Guaraní-Inspired Agricultural Systems

When creating a food forest, it is always good to take into consideration the history of the land being cultured. Long before modern concepts of permaculture or regenerative farming took hold, the Guaraní people of Paraguay practiced sophisticated methods of polyculture. Their traditional food systems weren't just about growing crops—they were about creating living landscapes that sustained

communities for generations.

The following information was collected and published in *Integrating Landscapes: Agroforestry for Biodiversity Conservation and Food Sovereignty* by Christopher Jarrett, and *Biodiversity-friendly Agricultural Practices in the Indigenous Agricultural Systems in the Biodiversity Corridor of the Alto Paraná Atlantic Forest (Paraguay)* by Federico Vargas Lehner et al.

Key principles of Guaraní agriculture include:

- **Crop Diversity**: Traditional fields combined staples like corn, beans, cassava, sweet potatoes, and pumpkins in dynamic rotations. These combinations not only provided a balanced diet but also supported soil health.
- **Seasonal Rest Cycles**: Fields were periodically left fallow, a practice called kokuere, allowing the land to regenerate. This rest was guided by natural indicators—certain wild plants that signaled when the soil needed a break.
- **Edge Embroidery**: In areas with remaining forest cover, Guaraní communities wove crops into the forest's edges, blending agriculture with wild biodiversity. This “embroidery” style of planting is still an effective way to soften the boundaries between cultivated land and nature.
- **Food Forest Layers**: Guaraní agroforestry often mimicked forest structures, combining tall trees like bananas and papayas with lower crops and vines, creating a resilient, self-sustaining ecosystem.

By applying these principles today, growers in Paraguay can revive these time-tested systems, adapting them to modern contexts while preserving biodiversity and honoring cultural heritage.

When designing and choosing intercrops, examples can be taken from what has been seen to be common in Guaraní agroforestry. The following plants are as such:

- maize
- cassava
- pumpkins
- watermelon
- orange tree
- banana
- yerba mate

Integrating Animals into the Landscape

In Guaraní systems and beyond, animals aren’t separate from agriculture—they’re part of it. The careful introduction of animals into food forests and polycultures enhances the health and productivity of the system.

How animals contribute:

- **Seed Dispersal**: Free-ranging animals like chickens, ducks, and even cattle play a vital role in spreading seeds, which encourages natural regeneration of native plants and volunteer crops.
- **Pest Control**: Chickens and ducks keep insect populations under control, reducing the need for interventions while contributing natural fertilizers through their droppings.
- **Soil Health**: Grazing animals cycle nutrients back into the soil, trample organic matter to build humus, and, when managed well, help aerate compacted areas.

Traditionally, Guaraní farmers kept smaller animals free to roam among the crops, allowing natural interactions between the animals and plants. Meanwhile, larger animals like cattle grazed in designated pastures or among less sensitive areas of the landscape. The result is a closed-loop system where waste becomes fertilizer, pests become protein, and landscapes stay balanced.

The Impact of Permaculture

Permaculture has proven successful across the globe, with over 1 million certified practitioners in 140+ countries and more than 4,000 active projects. Its benefits extend beyond the environment—helping combat malnutrition, increase food security, and build resilient communities.

A prime example is Malawi, where organizations like Never Ending Food have leveraged permaculture to address food insecurity. Thanks to Malawi's year-round growing season and diverse native crops, families are transforming their farms with low-cost, sustainable improvements. Studies show that Malawian permaculture farmers enjoy higher crop yields, more diverse diets, and better food security than those using conventional methods.

Projects like the Red Soil Project, supported by the Kusamala Institute, create spaces for farmers to share knowledge, while global organizations such as the International Fund for Agricultural Development (IFAD) recognize permaculture as a practical solution to global hunger.

Permaculture in Action: Inspiring Global Projects

From rural farms to urban gardens, permaculture is being applied creatively around the world. Some standout projects include:

- **Ferme MiKu Valley (Canada)**: A 68-acre educational farm with food forests, livestock, and market gardens.
- **Findhorn Ecovillage (Scotland)**: A holistic community that integrates environmental, social, and spiritual sustainability.
- **Green Beat Farm (Mexico)**: Producing organic greens for local restaurants while hosting global volunteers.
- **Habiba Organic Farm (Egypt)**: Turning desert land into productive farmland with desert-friendly crops.
- **Happy Food Farm (China)**: A nearly self-sufficient farm that teaches local children about sustainability.
- **IDEP Foundation (Indonesia)**: Providing permaculture education focused on disaster resilience.
- **Koanga Institute (New Zealand)**: Home to the nation's largest organic seed bank and hands-on training.
- **Senegal Permaculture Project**: A village-centered model promoting water harvesting, tree planting, and soil regeneration.
- **Third Millennium Alliance (Ecuador)**: Revitalizing the Pacific Forest with reforestation and community empowerment.

And hundreds more, all uniquely designed to fit the local environment and community needs. With the basic information provided in this article, we hope that you can also begin your own permaculture projects and contribute to the ever growing investment into a more sustainable future for both people and nature.

God's Vision for Permaculture

The world was once in need of a solution. And so came Jesus, who told us,

> "If your enemy is hungry, feed him; if he is thirsty, give him something to drink" (Romans 12:20).

And as Jesus fed the hungry and healed the blind, he told us all that

> "If you spend yourselves on behalf of the hungry, and satisfy the needs of the oppressed, then your light will rise in the darkness, and your night will become like the noonday" (Isaiah 58:10).

Jesus then passed down his mission to the Second Advent, Sun Myung Moon, who told us to live for the sake of others and to love humanity as you love your own family (As A Peace-Loving Global Citizen, Chapter 8). True Father proceeded to give us the solution to all internal and external issues in the world.

Humanity has struggled through many internal and external issues, including atheism, communism, war, poverty, depression, and most detrimentally, hunger. An average person blinks 15-20 times a minute. Every time you blink, a person, somewhere in the world, has died of hunger related issues. In some poverty-stricken country, God is mourning another child who enters their eternal sleep with an empty stomach. How can we save these people?

True Father came to this Earth, inherited his mission, and united with God's vision to invest in eradicating these issues. In Father's vision, the world would be saved through the ocean. He shared that:

> "In the future, the sea will supply food to many of the world's people. Naturally, the development and cultivation of the sea will truly become a preferred method for bringing an end to the starvation that plagues humankind" (The Pacific Rim Providence Chapter 1, 193-324, 1989.10).

The ocean is what connects the world, and this is all extensively explained in what Father called Ocean Providence (learn about this at oceanhobbyseminar.com).

A portion of the plan for Ocean Providence included the implementation of agriculture worldwide. Father encouraged church members to learn methods of agriculture and fish farming, such as permaculture and aquaponics, to provide food for the world.

> "The oceans contain limitless food supplies, but the best method for saving humanity from the food crisis is fish farming. I foresee that there will be buildings, similar to the skyscrapers we see in our cities today, devoted to fish farming. By using water pipe systems, we can farm fish in tall buildings or even on the tops of mountains. With fish farming we can produce more than enough food to feed all the world's people." (As A Peace-Loving Global Citizen, Chapter 7)

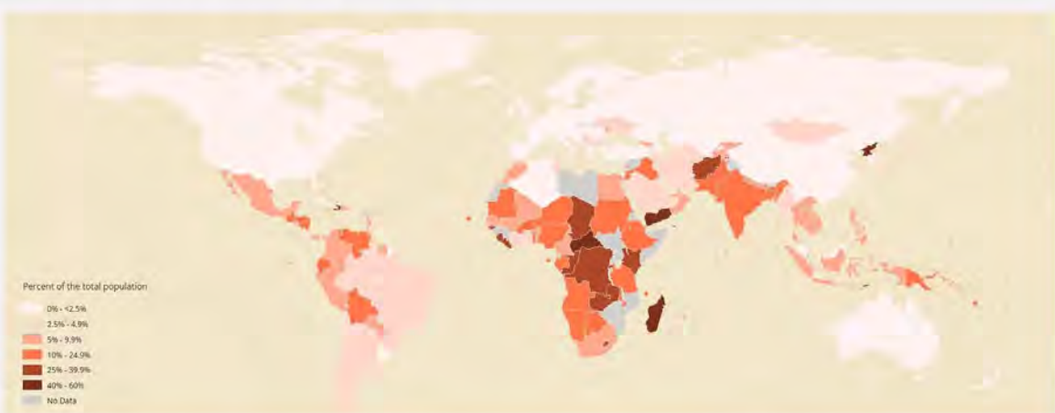
Father understood that simply using the ocean is neither efficient nor sustainable. By taking advantage of the harvests from both the ocean and the land, there would be more food supplied for the hungry. He emphasized taking care of our environment, and looking upon Puerto Leda, a city in Paraguay, he exclaimed:

> "Let us make this impoverished city into a new city, one whose culture is in harmony with nature" (Chambumo Gyeong Book 10, Chapter 3, 407-176, 2003/05/15).

Furthermore, he proclaimed that:

> "We need to begin now to study the climate, the soil, and the character of the people in areas that suffer from hunger" (As A Peace-Loving Global Citizen, Chapter 7).

Displayed below is a hunger map. As shown below, Africa and India are suffering the most from the effects of starvation. They contain some of the most densely populated countries and do not have enough resources to provide for everyone.



Taken from the Food and Agriculture Organization interactive "A Tale of Empty Plates"

To the left is an arable land map which displays the areas with the most fertile soil. Here, it is evident

that parts of Europe, North America, India, and the Pantanal region of South America are the most fertile. This tells us that, one, educating these countries about sustainable agricultural methods are important, and two, that the ocean will be the main method of transporting resources.

Father created this model:

> "You should go to the developing nations and become instructors and teachers at kindergartens, elementary schools, middle schools, high schools and universities. You should improve standards by teaching them the most modern agricultural methods. This is how you can save people who would otherwise starve to death" (Chambumo Gyeong Book 10, Chapter 2, 444-191, 2004/04/04).

By teaching people agricultural methods, places like India with high potential of harvest as well as a large population of starving people can be saved.

On the second point, Father had a big vision for using the ocean to connect the world through transportation.

> "Imagine the people of the world's developed nations getting to know, be inspired, and get excited as we use ships entering the harbor to distribute food to the villages of the world. All you have to do is go around the port cities all over the world, take a rest when you arrive, unload your cargo, and enter the local site" ("Development of the Oceanic Realm" speech on August 1. 1994).

> "In the near future, therefore, all these nations will be compelled to form a shared system. Once raw materials are managed jointly throughout the world, their production and sale will also be managed jointly. In the end, the future world economy will depend on forming shared institutions that will organize the distribution of needed resources to the people of the world" (Chambumo Gyeong Book 10, Chapter 1, 080-174, 1975/10/22).

Once fish farming and agriculture is fruitfully implemented in South America, boats can then transport these resources to Africa. With small boats, resources can reach local villages, and a global network would be established.

God has a beautiful vision for the world. Through the oceans, the world is connected, and with each nation's individual blessings and potential, the global network of peace and unification can be achieved.

What the world needs now is not a solution, it is passionate people. The people of today that are eager to learn, and to grow for God's vision.

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