AIMING FOR SUSTAINABILITY

SUSTAINABILITY & CONSERVATION IN THE AMAZON - RESOURCE GUIDES

TEACHER NOTES

How do considerations of nature, economics, and human society overlap to create the “triple bottom line” concept of sustainability?

Students consider how these aspects of sustainability relate to conservation practices of the Maijuna Indigenous people in Peru and to an environmental issue of interest in their home communities.

OPENER:

As a class, brainstorm a definition for the word “sustainability.”

INTRODUCE THE “TRIPLE BOTTOM LINE” CONCEPT:

• Have students read What is Sustainability? (Student Reading #1)
• Discuss possible consequences of focusing on profit while excluding the other two aspects of the triple bottom line. Challenge students to relate these ideas to an issue in your home community.

CONSIDER HOW THE MAIJUNA INDIGENOUS PEOPLE IN THE PERUVIAN AMAZON ARE APPLYING THE “TRIPLE BOTTOM LINE” APPROACH IN THEIR COMMUNITY-BASED CONSERVATION PRACTICES:

• Watch the Guardians of the Forest film, and/or read Who are the Maijuna? (Student Reading #2).

• Have students use the Triple Bottom Line – Case Study Analysis (Student Worksheet) to analyze these Maijuna projects, with provided student readings and video clips:
  • The Aquaje Palm Project (Student Reading #3)
  • The Stingless Bee Project (Student Reading #4)

1 Image source for the sustainability diagram: https://thecoroninitiative.wordpress.com/about/sstdi/
AIMING FOR SUSTAINABILITY

RELATE THE MAIJUNAS’ SUSTAINABILITY INITIATIVES TO AN ISSUE IN YOUR HOME COMMUNITY.

• Ask students to think of a local or regional issue in which they can envision working toward sustainability using the Triple Bottom Line approach.

• This could lead into the Calculating Ecological Footprints and Exploring Food Choices activity ideas (available as separate resource guides in this series).
AIMING FOR SUSTAINABILITY

STUDENT READING #1

WHAT IS “SUSTAINABILITY”? 

What comes to mind when you think of the word “sustainability”? Some people define sustainability in terms of economics – sustainable businesses earn sufficient income to cover expenses and possibly also generate a profit. Others think of sustainability in terms of ecology – sustainable ecosystems support healthy populations of a diverse range of species. A third aspect relates to people and cultures – sustainable human societies are based on universal human rights, economic justice, a culture of peace, and respect for nature. Combining all three, the United Nations defined sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

This figure illustrates the three overlapping goals of protecting the natural environment while ensuring economic vitality and the health of human communities. Together these three goals make up the “triple bottom line.” The triangle where the three circles overlap is where sustainability is achieved.

Historically, a company’s “bottom line” referred to its profit or loss. Which part of the diagram does this represent? What are some possible consequences of excluding the other two aspects of a triple bottom line?

---

3 Image credit: https://thecoroninitiative.wordpress.com/about/sstdi/.
AIMING FOR SUSTAINABILITY

STUDENT READING #2

WHO ARE THE MAIJUNA?

The Maijuna are an indigenous group of people who live in the Peruvian Amazon. “Indigenous” means that they and their ancestors have always lived in this area in northeastern Peru. The Maijuna are one of Peru’s smallest and most endangered indigenous groups, with fewer than 600 individuals living in four remote villages deep in the rainforest. Their average family income is less than $2 per day.

The Maijuna rely on the rainforest for food and shelter. They collect fruits, nuts, and plants for food and medicine. They also eat fish and caiman and hunt for wild game such as deer, monkeys, and tapirs. They grow crops including plantain and yucca. For income, they sell a variety of products from the rainforest along with crops they have grown and crafts they have made with palm fibers.

Many Maijuna homes are built with wood from the rainforest, with thatched roofs made of palm leaves. For transportation, they build wooden canoes and paddles.

In the late 1900s, the Maijuna suffered through hardship caused by commercial logging, poaching, and other illegal exploitation of the resources on which they depend. “The loggers demolished everything; the woods, the animals, the fish, they even hunted frogs. We were left with nothing but our hunger and our poverty,” said Sebastian Rios, a Maijuna leader.
AIMING FOR SUSTAINABILITY

Good news came in 2015, when the Peruvian government created a 391,000-hectare conservation area that legally protects much of their ancestral homeland. Empowered with managing this land, the Maijuna are implementing strategies designed to ensure sustainable livelihoods for generations to come. Instead of cutting down trees to harvest honey, now they cultivate bees in hives. Instead of cutting down palm trees, they have found less destructive ways to harvest the leaves and fruit.

Scientific studies indicate recovery of ecologically and culturally important wildlife including monkeys, tapirs, macaws, and even jaguars and harpy eagles. However, these gains are threatened by a government plan to build a 130-km-long highway directly through the heart of the Maijuna reserve. If built, this highway would bisect the conservation area and open it up for oil palm production and colonization by outsiders. This and other types of development along the highway would imperil the livelihoods of the Maijuna. It would disrupt the forest on which they depend for hunting, fishing, and collection of food and medicinal plants. The road and associated development also would destroy historical and sacred areas important to the cultural survival of the Maijuna.

STUDENT READING #3

THE AGUAJE PALM PROJECT

Aguaje palm trees (Mauritia flexuosa), are common in the Peruvian rainforest. Their fruits are a nutritious snack that people eat raw or in juice, jam, ice cream, and other desserts. The fruits also are used as fish bait and serve as an important food source for rainforest animals such as tapirs, monkeys, peccaries, and macaws.

Unfortunately, aguaje palms are becoming scarcer in the Amazon because it is common practice to chop down the trees to harvest the fruit. With support from the NGO,
AIMING FOR SUSTAINABILITY

OnePlanet, the Maijuna people are working to reverse this trend by using harnesses to climb the trunks rather than chopping the trees down. This way they can sustainably harvest the fruits, over and over again.

They also are cultivating these palms in their agricultural fields and home gardens to reduce the need to harvest this species from the wild.

Climbing an aguaje palm to harvest fruit. Photo credit: OnePlanet

[For more information, this video shows how the Maijuna use a harness to climb the trees and this article tells about the importance of aguaje and the effects of deforestation on food in the Amazon].
AIMING FOR SUSTAINABILITY

STUDENT READING #4

THE STINGLESS BEE PROJECT

Peru has many native bee species, some of which do not sting but produce honey that is highly valued for its taste and medicinal qualities. People living in Amazonian villages traditionally have cut forest trees to harvest wild honey. This not only kills the tree, but also destroys the hive when the combs are removed to squeeze out the honey.

Carrying a log with wild bees into the village.                                                                 Photo credit: Phil Kohler

The average Maijuna family survives on less than $2 per day. Selling honey can help to boost in an environmentally and socially responsible way, providing a sustainable alternative to logging and overhunting. The project provides income for school supplies, health care, and other important expenses.

With support from the NGO, OnePlanet, the Maijuna have learned how to raise stingless bees in a sustainable way. They began by cutting several trees that contained wild bee colonies. After bringing these tree trunks into their village, the Maijuna began transferring bees into box hives. Because this type of bee does not sting, the hives can be kept in or near each family’s home. Once production becomes high enough, the honey will provide a valuable source of food and income.
Traditionally, honey was extracted by removing the honey combs and squeezing out the honey. This destroyed the hive.
A stingless bee hive in a box.  
Photo credit: Brian Griffiths

[For more information, Beekeeping in the Amazon is a 3-minute video that shows how the Maijuna raise stingless bees and harvest the honey].
AIMING FOR SUSTAINABILITY

STUDENT WORKSHEET

TRIPLE BOTTOM LINE: CASE STUDY ANALYSIS

Name: 

Use this organizer to consider the three goals of the Triple Bottom Line as they relate to the case study you are exploring.

What is the topic of your case study?

Who are the stakeholders? What individuals, communities, businesses, or governments are most directly impacted by the actions in your case study?

<table>
<thead>
<tr>
<th>Benefits of what has happened in this study</th>
<th>Drawbacks of what has happened in this study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural Environment</strong></td>
<td></td>
</tr>
<tr>
<td>How does this impact the environment in the area?</td>
<td></td>
</tr>
<tr>
<td>How does it affect the ecosystem services provided by this area?</td>
<td></td>
</tr>
</tbody>
</table>
## AIMING FOR SUSTAINABILITY

### Healthy Communities
What impact does this have on the well-being of the community?

Is the local culture and tradition of the people respected?

Are business practices fair to all?

### Economic Vitality
How does this impact people's ability to make a living, both long-term and short-term?
AIMING FOR SUSTAINABILITY

STUDENT WORKSHEET WITH EXAMPLE ANSWERS

TRIPLE BOTTOM LINE: CASE STUDY ANALYSIS

Name: __________________________________________

Use this organizer to consider the three goals of the Triple Bottom Line as they relate to the case study you are exploring.

What is the topic of your case study?
*The Stingless Bee Project*

Who are the stakeholders? What individuals, communities, businesses, or governments are most directly impacted by the actions in your case study?

*The primary stakeholders are the indigenous Maijuna people in the Peruvian Amazon.*

<table>
<thead>
<tr>
<th>Natural Environment</th>
<th>Benefits of what has happened in this study</th>
<th>Drawbacks of what has happened in this study</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does this impact the environment in the area?</td>
<td><em>Use of native stingless bees means that no new species are introduced to the ecosystem.</em></td>
<td><em>None</em></td>
</tr>
<tr>
<td>How does it affect the ecosystem services provided by this area?</td>
<td><em>Raising the bees in hive boxes avoids the need to chop down trees, providing a more sustainable way to harvest honey and preserve forest resources.</em></td>
<td></td>
</tr>
</tbody>
</table>
## Aiming for Sustainability

### Healthy Communities

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>What impact does this have on the well-being of the community?</td>
<td>This practice enables the Maijuna to use their ancestral lands in a sustainable way while earning income from a valuable product.</td>
</tr>
<tr>
<td>Is the local culture and tradition of the people respected?</td>
<td>Maijuna people of all ages valuing cultural traditions of passing down information.</td>
</tr>
<tr>
<td>Are business practices fair to all?</td>
<td>None</td>
</tr>
</tbody>
</table>

### Economic Vitality

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does this impact people's ability to make a living, both long-term and short-term?</td>
<td>Honey is a commodity in high demand and could provide a sustainable source of income for Maijuna families who cultivate bees.</td>
</tr>
<tr>
<td></td>
<td>None, other than the start-up costs of creating hive boxes and teaching the Maijuna how to cultivate the bees.</td>
</tr>
<tr>
<td></td>
<td>Selling the honey also will require some investment in packaging, marketing, and distribution.</td>
</tr>
</tbody>
</table>

Visit the Morpho Institute [Resource Bank](#) for more titles in this series. Submit questions, comments, and suggestions to: curriculum@morphoinstitute.org