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FOR ENGINEERING AND SCIENCE

# Case: Conservation in the Amazon

## Author(s)

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## Description

In this case, Armando, a Brazilian Federal Senator with a BS and MS in Biology, must confront ethical dilemmas concerning the Amazon forest. Topics for consideration include: 1) the biodiversity and ecosystem services associated with the forest, 2) the social and economic issues surrounding deforestation, and the 3) options available to Armando as he makes his recommendation on how to use the US funds. Finally, we will explore the role of Maria as a science advisor and address her responsibilities, as well as her mistake in addressing the press.

## Abstract

This biodiversity case is part of a larger collection of Life and Environmental Science ethics education resource sets on ethics of emerging biotechnologies, big data in the life sciences, human enhancement, and biodiversity. Doctoral students from Arizona State University's Center for Biology and Society developed the resources under the direction of Karin Ellison and Joseph Herkert between 2014 and 2019.

## Body

Armando Santos grew up the son of rubber tappers in the city of Tailândia, Brazil, in the northern state of Pará. Throughout his childhood, Armando would often accompany his parents on their trips into the Amazon forest to harvest latex from the trees (a sustainable, legal process). His rubber tapper parents often directly competed with illegal loggers, slash-and-burn farmers, and cattle ranchers. Logging, farming and ranching typically destroy mature, “mother-trees” that rubber tappers harvest from. Entrenched in the Tailândia community, however, Armando did not blame his fellow citizens for the Amazon’s destruction; he knew that many people log the forest out of financial or personal desperation. Most citizens of Tailândia rely on soybean agriculture, cattle ranching, and logging for their income.

Armando became interested in how people and the forest could co-exist, and he went on to complete undergraduate and masters degrees in biology at the local university, with a special focus on coupled social and ecological systems. Throughout his education, he became more aware of the political and economic implications of forest management and realized that as a biologist he wouldn’t have the type of political power he wanted to affect the ways in which the government manages the Amazon. Thus, Armando ventured into a political career. Having worked through positions in local and regional government over the last 15 years, today Armando represents the state of Pará in the Federal Senate, the upper house of the national congress. Armando is a proud member of the Worker’s Party, a left of center party with a social and economic platform that resonates with the citizens of Pará who struggle to live in harsh working and financial conditions.

In the upcoming Federal Senate session, senators will vote on a bill to appropriate funds from an investment by the US of around \$750 million (USD) to be distributed over 10 years as a part of the Amazon Fund organized by the Brazilian Government in 2008. As a well-liked senator from Pará with considerable expertise in forest ecology and management, Armando will be expected to weigh in on the bill. Armando’s many responsibilities as a senator necessitate hiring advisors of different expertise to aid him in decision-making. Maria Duarte, Ph.D., is the new science advisor to Armando. Though raised in the large capital city of Pará, Belém, Maria completed undergraduate and graduate schooling in the US, studying the ecology of tropical forests. Regarding the upcoming Senate session, Maria argues that Armando should recommend putting the US funds towards creating a new swath of protected area in Pará resembling a US National Park. This, she argues, is the best and most ethical way to ensure the ecosystem remains intact for generations to come and to

demonstrate to the US that funds are being used in an effective and discernible manner. Should resistance to this idea arise in the Senate, she notes that Armando could emphasize the global and regional ecosystem services offered by the forest to justify protection, though she feels the intrinsic value of the ecosystem is justification enough.

Before presenting her policy recommendations to Armando, Maria takes the liberty of replying to an inquiry from the Pará newspaper, *O Liberal*. Asked about Armando's response to the US investment, Maria states that she is recommending that he heed her suggestions: If so, "Pará will soon be home to a new, US-funded, US-inspired national park." *O Liberal*, however, misquotes Maria and reports that Armando has already agreed to Maria's plan for the US investment. Upset that Maria spoke to the press without permission, Armando reminds her that he is not obligated to follow her advice. Yet Armando understands that the press can occasionally take statements out of context to the point of miscommunication, so he allows the mistake so long as Maria promises to leave news communication to the press secretary in the future.

Though he loves the forest, Armando explains to Maria that there is more to the Amazon than the trees. The social system in Pará is deeply tied to the ecological system. Armando believes it is unethical to exclude humans from the forest and is doubtful a protected area restricting human use will be popular with his constituents or his Senate colleagues.

First, monitoring protected areas in the region is difficult. More money will buy more personnel, but Armando feels it is unlikely to halt violent encounters among police, illegal loggers, rubber tappers, and farmers. Second, Armando's constituents elected him on the Worker Party platform, hopeful that he could improve infrastructure and broaden economic opportunities. Investment in a protected area would be unpopular with citizens of Pará who rely on developing and using the forest for income.

Armando is up for re-election at the end of the year. If he disappoints his constituents, he could lose his Senate seat. Finally, both his constituents and his Senate colleagues will be sensitive to attempted replication of a US National Park in Pará. Brazilians in general are wary of foreign influence, and particularly look out for foreign powers that threaten to "annex the Amazon forest unless the country can find something useful to do with it" (Economist 2009). Efforts by the international community to conserve the Amazon in Brazil are met with suspicion and frustration: "Do you care about us, or just our forest?" (Nordhaus and Shellenberger 2009, 61).

Armando has one month to deliberate with Maria and the rest of his team on a plan for the US investment. He will present his suggestions in front of the Federal Senate, a nationally televised event.

### **Discussion Questions:**

1. Briefly summarize the competing interests involved in conservation of biodiversity in the Brazilian Amazon Rain Forest, categorized by scale (local, regional, global).
2. How would you describe the ethical stance of Armando Santos? Do you agree or disagree with his views? Why or why not? Summarize the competing interests he must manage in his decision. Which do you feel he should prioritize? Why?
3. How would you describe the ethical stance of Maria Duarte? Do you agree or disagree with her views? Why or why not? Provide a critique of Maria's argument to preserve the Amazon in Pará as a national park.
4. What is Maria's job as a science advisor? Is Maria performing her job as science advisor in a responsible manner?
5. Was it ethical for Maria to talk with the press without permission? To what extent does Maria bare responsibility for the reporter's error? Should Armando discipline her? Is there a positive lesson Armando can teach Maria about dealing with the press?
6. How can the US investment be appropriated to avoid tension in foreign relations?
7. How could the US funds be used to serve both economic and ecological interests?

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### **Links:**

The Amazon Fund: <http://www.amazonfund.gov.br/en/amazon-fund/>

Greenpeace:

<http://www.greenpeace.org/international/Global/international/code/2014/amazon/index.html>

REDD: <https://unredd.net/about/what-is-redd-plus.html>

The Nature Conservancy:

<http://www.nature.org/ourinitiatives/regions/southamerica/brazil/placesweprotect/amazon.xml>

### **Notes**

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International Perspectives

Life and Environmental Sciences