Michelle Sullivan Govani's Commentary on "Conservation in the Amazon"

Commentary On
Case: Conservation in the Amazon

In this case, Armando must consider competing interests among his constituents, colleagues, and advisors while being mindful of the myriad ethical dilemmas in which the forest is implicated. Here, we will consider the biodiversity and ecosystem services associated with the forest, the social and economic issues surrounding deforestation, and the 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.

The Amazon Rain Forest is the largest tropical forest on earth (6.7 million km^2 … eight times the size of Texas!); it contains more than half the planet's rainforests and record amounts of biodiversity. Brazil, the largest country in South America, encompasses the largest portion of the Amazon within its borders, particularly in the states of Amazonas and Pará in Northern Brazil. Although there is no current, official species count, Brazil likely contains around 50,000 species of plants alone, accounting for one-sixth of the earth's plant species (Myers et al. 2000). A 2005 estimate put the total number of species (plants and animals, both vertebrates and invertebrates) in Brazil at between 170,000 and 210,000 species, or approximately 9.5% the world total (Lewinsohn and Prado 2005). Deep within the forest, it is easy to feel isolated from human issues, totally encompassed by wild nature. But the forest is very much central to social, economic, and environmental interests at local, national, and global scales.

In the last 50 years, around 20% of the forest cover has been lost to logging, development, and agriculture (WWF 2016, The Nature Conservancy 2016). Deforestation leads to loss of biodiversity, particularly through habitat loss and habitat fragmentation. Biodiversity loss in the Amazon can affect the global pharmacology sector, the regional tourism sector, and the scientists and

environmentalists the world over who praise the intrinsic value of the unique and unparalleled plants and animals found there.

In addition to threats to biodiversity, the regional and global regulatory ecosystem services provided by the Brazilian Amazon are also in jeopardy. Plants in the Amazon contain between 90 and 140 billion tons of carbon (Soares-Filho et al. 2006). In perspective, human induced carbon emissions occur at a rate around 35 billion tons a year (and growing) (IPCC Report 2014). When trees are logged, the forest's capacity to absorb and hold CO_2 is greatly reduced. In particular, land use change for agriculture contributes to human emissions by burning off CO_2 contained within slashed and burned portions of the forest. In addition to being a carbon reservoir, the Amazon plays a crucial role in the water cycle. The forest recycles 25-50% of regional rainfall (Eltahir and Bras 1994), but large-scale deforestation could break the cycle and reduce average regional rainfall. The Amazon also impacts the amount of cloudiness, thermal insolation, land surface reflectance, atmospheric aerosol loading (which could effect *global* rain patterns), and surface roughness (affecting *regional* wind speeds) (reviewed in Malhi et al. 2008).

Besides regional and global ecosystem services, the forest holds local economic value to Brazilian citizens living in the forest. Though there are sustainable ways to live off of the forest, such as rubber tapping, many more people either directly or indirectly derive their income from logging. For example, in Tailândia, Pará, 70% of the 25,000 people living in the city depend financially on deforestation in some way (Economist 2009). Loggers take the best and most valuable trees for their lumber business, while farmers and cattle ranchers depend on cleared lands for their agricultural purposes.

Social issues in the forest abound. In the 1960s through the 1980s, the Brazilian government subsidized the mass migration of citizens into the forest in efforts to begin economically utilizing the country's vast interior (Economist 2009; Nordhaus and Shellenberger 2009). However, once citizens moved into the forest, promises of free land and prosperity were met only for the lucky few. Members of the elite class bought land ahead of the mass migration, and to demonstrate ownership they immediately began to log and burn the land. Still today, the top 1% of affluent landlords oversees 45% of the land (Nordhaus and Shellenberger 2009). And "only 14% of privately owned land is backed by secure title deed," while the rest is backed with fake documents (Imazon study quoted, Economist 2009).

Many low-income families living in the forest are forced to work in harsh conditions governed largely by landlords, gangs, poachers, and illegal loggers (Garcia-Navarro 2015; Economist 2009; Nordhaus and Shellenberger 2009). It is said, "the law of the Amazon is made by the bullet" (Nordhaus and Shellenberger 2009, 49). For example, a recent NPR report details the ongoing "war over wood" between rubber-tappers and illegal loggers in protected portions of the forest. Illegal loggers are barely penalized, due to a lacking and understaffed police force. When rubber tappers who depend on the intact ecosystem encounter loggers, arguments are settled with bullets, knives, and murder. Rubber-tappers fight to defend their way of life. Loggers not only fight to protect their illegal jobs, but also their own lives. Many are impoverished and treated no better than slave laborers, overseen by cruel gang lords who run the illegal logging operations (Garcia-Navarro 2015).

Finally, there is a long history of fear over foreign involvement in Brazilian affairs. Nordhaus and Shellenberger (2009) summarize:

> "As a country of great artists, architects, diplomats, designers, and engineers, and as people who speak Portuguese in a region where Spanish dominates, Brazilians justifiably see themselves as special and unique. At the same time, many Brazilians are ashamed of the persistence of widespread poverty, violence, and lawlessness… This stew of national pride and shame results in Brazil's love-hate relationship with the United States. Environmentalists' efforts to reassure Brazilians that their attempts to save the Amazon are in Brazil's best interests not only fail to assuage Brazilian concerns, they trigger Brazil's fear of being patronized…

> Brazilians continue to see environmental proposals [such as working with US funds to establish a new national park] as suspicious. …Brazilians ask themselves … 'Do you care about us or just our forest?'" (60-61).

Armando will consider these multi-scale social, economic, and environmental interests as he decides how to recommend using the US funds. He must also manage input from his constituents, his Senate colleagues, the US government, and Maria and his other trusted advisors. His personal compass further complicates his decision. Armando's anthropocentric ethic and utilitarian view of the forest make him partial to social and economic interests. So although he is aware of the global and regional benefits of a protected area, his constituents have local, immediate needs that he feels more answerable to. Having grown up as a rubber tapper and

having studied the forest extensively in school, Armando loves the Amazon, but he believes that people can co-exist with nature and there is no need for a national park that would restrict human use of the forest.

On the other hand, Maria's ecocentric ethic fuels her bias toward preservation of the forest, particularly for its intrinsic value. She would like the forest protected in pure form, free from human influence. Her US-based education may contribute to her admiration of the US National Parks. And having come from the large city, Belém, Maria is detached from the direct interactions between people and nature occurring at the border of and within the Amazon in Pará, such as in Tailândia. Thus, it is understandable that she would believe the best policy is to create a national park, and as an advisor she can provide this opinion to Armando. It is his decision whether or not to act on Maria's suggestion.

Maria should be able to perform her job as a science advisor despite her personal biases. It remains up to her how she elects to use her expertise. For example, Maria might choose to be an "Issue Advocate," and "[focus] on the implications of [her] research for a particular political agenda" (Pielke 2007, 15). In the case study above, she did just that, aligning her policy suggestion to her ecocentric ethic and using media outreach to push her agenda. Maria could also be an "Honest Broker," with a responsibility to provide information regarding a suite of different policy alternatives and how they will effect or be affected by the state of the forest. A politician or the political process (e.g., popular vote) takes on the responsibility of making a choice among the alternatives (Pielke 2007, 17). Armando's negative reaction to Maria's media statement and his disapproval of her narrow vision for a policy suggestion alludes to his preference for science advisors that act as "Honest Brokers."

There is also a workplace authority problem in this case. It is possible that Maria could advocate her position and Armando would not mind. But, whether Armando agrees with her recommendation or not, she should not be talking to the press without permission from her boss. Typically, institutions (including Armando's Senate office) have press secretaries that are charged with communicating to media outlets. Because she spoke to the press without a clear message, Maria and the reporter and editor at *O Liberal* who misunderstood her all share responsibility for the misquoted phrase. However, there is a possibility that the reporter did understand but decided to embellish the story. If that is the case Maria bears less responsibility, but speaking via a press secretary may have helped, as press secretaries are knowledgeable about how to communicate clearly and consistently

with reputable news sources. If in the future Maria is allowed to speak directly with the press, she should be honest and she should be clear that her statements in no way reflect the as of yet unannounced opinions of Armando or any other members of Armando's team. The press secretary will release statements that represent the views of the institution as a whole.

Considering that Armando does not plan to adopt Maria's vision of a national park, below are a few alternative policy options that are more in line with Armando's desire to both protect the forest *and* support his constituents with the funds (by no means, an exhaustive list). An "honest broker" analysis by a Maria might have revealed some of these policy alternatives. Note that many of them are not strictly scientific, an indicator that it may also be the job of a science advisor to collaborate with experts and advisors of different expertise to come up with a more thorough and inclusive field of potential policies.

Although law enforcement efforts in the forest have increased in recent years, "the basic factors driving deforestation — including poverty and the profitability of agricultural land — have not changed" (Tollefson 2015). To address these "basic factors," Armando could use the funds to invest in local economic issues. For example, investing in public education and stimulating creation of service-economy jobs could help to eliminate the need for a logging-derived income. Another option, subsidization of advanced faming equipment, could preclude the need for slash and burn agriculture. Armando could also advocate using the funds to bolster efforts to put together a rural land registry in Pará (Tollefson 2015). A land registry could aid in easing violent disagreements over land ownership and allow the government to more easily enforce land-use laws. These locally minded suggestions would also be appealing to Brazilians who would like to minimize replicating or depending on the American environmental movement.

Funds could also be used for a "payment-for-ecosystem-services" (PES) scheme for the farmers within Pará. Such a scheme would reward farmers for keeping parts of the forest that fall within their property intact. For example, a farmer could be paid for the economic hit they take for not planting on a forested portion of their property. However, PES schemes are difficult to implement (e.g., how do you decide the value of the intact forest? How do you monitor the scheme?), and an Amazon forest PES scheme may only benefit large land owners because they are the ones who own the majority of land (or at least appear to own the majority of land based on documents, both legal and fake) (Börner et al. 2010). PES schemes could also be

internationally scaled, such as REDD ("reducing emissions from deforestation and forest degradation"), in which foreign countries pay Brazil to keep the forest intact to prevent the carbon emissions associated with deforestation. In 2015, Norway paid the last installment of an unprecedented $1 billion investment in the program. However, Brazilian farmers and local programs complain that they've seen few direct benefits from the REDD program (Tollefson 2015).

Another idea, Armando could use funds to advertise and implement a boycott of products and goods that are implicated in deforestation. For example, initially backed and promoted by the international environmental organization, Greenpeace, the Soyabean Moratorium is essentially an agreement among soyabean exporters (led by McDonald's) to cease buying from growers in the Amazon and to fund monitoring programs to ensure the success of the moratorium (Greenpeace 2016; Tollefson 2015; Economist 2009). The moratorium appears successful thus far. A 2015 study found that deforestation was higher in areas not under the moratorium, compared to those that were (Gibbs et al. 2015). Funding could potentially be used to maintain and expand the soyabean moratorium, or to replicate it in the cattle or logging industries.

What remains for Armando, is to decide which of the options (among these and among others) he thinks could be successful and desirable. Then he will advocate his selection to his colleagues and constituents in the upcoming Federal Senate session.