



The Amazing Amazon: Deforestation Myths Corrected

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Q. *There have been many reports by environmental groups in the U.S. claiming that the Amazon rain forest is being destroyed at a frightening pace. Many conflicting statistics are given concerning the alleged rate of destruction — 4 million hectares per year, 8 million hectares per year, 50,000 acres per day, etc. What are the facts and where are these statistics coming from?*

A. A good example of this is the report released at the Earth Summit by the FAO [United Nations Food and Agriculture Organization]. FAO claims that the world tropical deforestation rate is 16.9 million hectares per year. FAO has up to the present been still using their discredited 8 million hectares per



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year rate for deforestation in Brazil. But when pressed at the summit they conceded to the 2.1 million hectares annually that the INPE, the Brazilian national space agency, has asserted is the real rate. This is an admission that they were inflating the deforestation rate by nearly 300 percent.

But they also said that deforestation for all of South America is 6.9 million hectares annually, which raises an obvious problem. Since Brazil has 70 percent of South America's tropical forests, it would be incredible to suggest that other countries are deforesting at the levels necessary for the FAO figures to be valid. If you subtract the 2.1 million [Brazilian hectares] from the [FAO's] 6.9 million, you have 4.8 million hectares being cut down annually in the 30 percent of South American tropical forests outside of Brazil. That is far greater than any data shows.

There is a similar problem with their annual 16.9 million hectares statistic for world deforestation. If you subtract Brazil's 2.1 million, then you must ask who deforests the other 14.8 million hectares. When they were asked these questions, the FAO could not answer. They could not break the numbers down country by country or show any other means by which they arrived at this figure.

Q. *No maps, no satellite photos, no national data ? Where did they conjure up these figures ?*

A. They were put in a very bad light because they could produce nothing to substantiate these fantastic figures. This is an important example, because if the FAO cannot sustain these numbers, then you can imagine that these eco-groups — the NGOs [Non-Governmental Organizations] — could not either. They always use these big numbers to make sensational news stories, but they never can break the aggregate numbers down to show where they come from, and they never produce maps with alleged areas of deforestation specified so that they can be independently verified.

Q. *U.S. news stories on the Amazon usually show satellite photographs of deforested areas that seem to lend validity to their statistics. Can you explain the situation regarding satellite surveillance of the Amazon now and the unique position of Brazilian scientists ?*

A. The LANDSAT 5 satellite, which is a U.S. satellite, passes over Brazil every 16 days. It takes photos of the entire Amazon region and transmits them down to Brazil's National Institute for Space Research. Of course, sometimes some of the areas are obscured by clouds, but over time we are able to get a complete picture of all of the Amazon. This is the only practical way to inventory such a large area as the forested regions of Legal Amazonia, as the area is referred to, which is about 4 million square kilometers. Much of this area is covered with dense jungle and is without roads.

LANDSAT 5 is now malfunctioning and cannot record photos and hold them to be transmitted later when passing over the U.S. or other countries. It can only transmit to the antennas below it. In the case of Brazil, that is the INPE antenna. So Brazil is the only country with complete satellite data on the Amazon, and we have done by far the most extensive research and analysis of this data.

Q. *But this satellite data is available to others?*

A. Oh yes, anyone may obtain the satellite images and data from the INPE, but we have found that most of those making the sensational claims about deforestation have not done any extensive investigation of this data. In 1988, the World Bank came out with a report it had done in cooperation with the World Wildlife Fund and the Conservation Foundation asserting that the annual deforestation rate of the Amazon was 8 million hectares. Which, as I said previously, is about four times what INPE satellite images show. Others began coming out with similar or greater numbers. We wondered what they were basing these estimates on. We checked with INPE to see if there had been many purchases of satellite images, since that would be the only source for this information. The largest order had been for 16



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images, which is not a very large base of data. One can draw certain preliminary conclusions and extrapolate, but at some risk, since you have only a small sampling.

The INPE survey in 1978, by way of contrast, made use of 232 LANDSAT images, at the scale of 1:500,000. The 1988, 1989, 1990, and 1991 INPE deforestation surveys each made use of 229 LANDSAT images, in the scale 1:250,000. In the current INPE surveys, each image covers about 34,000 kilometers. With magnification we can see details down to 900 square meters. So, when we talk about numbers we can be very specific, and when we refer to areas of deforestation we can provide maps and coordinates that independent researchers can verify. So we are dealing with facts and science, not speculation and sensationalism.

Q. *Aren't there also problems with using satellite pictures to measure "deforestation" caused by fires?*

A. Yes. Burnings and deforestation, although often related, are not one and the same. The dense, tropical rain forest doesn't burn well. If the trees are not going to be used for lumber, paper, or other products, they are just cut down and left in open areas to be dried by the sun. Farmers plant crops and ranchers graze cattle among the cut trees. During the dry season, they burn the dead trees and weeds. It may take several years of burning for the logs to be consumed. Farmers burn their sugar cane stubble and other crop remains to clear their fields and control weeds and pests. So the detection of a fire by a satellite cannot be used to calculate the amount or rate of deforestation, since many of these fires are taking place year after year in the same place that was already cleared many years before.

Q. *What are the aggregate totals and rates of deforestation that have been verified?*

A. We still have surveys ongoing and are continuing research on the deforestation that took place during the 1978 to 1988 period, but the available data indicate that the peak deforestation cannot possibly have reached the 80,000 square kilometers per year that has often been cited. The data show that the mean annual rate of gross deforestation during the 1978 to 1988 period was 21,130 square kilometers, which amounts to 0.54 percent of the total forest, and it has dropped off dramatically since that peak period. In 1988 to 1989 the annual rate dropped to 17,860 square kilometers, or 0.48 percent. For 1989 to 1990, it was 13,810 square kilometers, for a rate of 0.37 percent annually. For 1990 to 1991, it was down to 11,130 square kilometers, or 0.30 percent.

The total Brazilian Amazonia deforestation is about 426,000 square kilometers, or about 10 to 11 percent of the forest. That includes very old deforestation that has occurred over the past couple hundred years, although most of that has taken place in the last 20 years. Now, that is a very large area, larger than the area of Germany, so I don't want to minimize that. And some of it was wasteful and ecologically unwise, but not all deforestation is bad, in spite of what the extreme environmentalists may say. People need lumber for homes and construction. We need paper products, agricultural space, living space. It is stupid to say that the forests must be protected against all human use. We can balance human use with sound ecological values.

Q. *But isn't that where we get into the problems with "sustainable development, biodiversity," and other vague environmentalist concepts?*

A. Yes. I was a member of INFORUM, the international scientific organization for sustainable development, before that term became so politicized. Now "sustainability" is defined and used by political and environmental interest groups in ways that have no relation the true ecological meaning.

Q. *Is the soil of the rain forest unsuitable for agriculture, as the eco-fanatics claim?*



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A. The Amazon rain forest is a vast, diverse area with many types of soils, differing amounts of rainfall, and varied topography. It is true that much of it is not suitable for large-scale commercial farming and ranching, but some of it is. Some of it is suitable for certain crops and farming techniques. Most of it is suitable for small, family farms where they grow their own food. It is just as foolish to say that the rain forest is not suitable for agriculture as it is to say that all of the rain forest should be converted to farming and ranching. Besides, what holds today may change tomorrow as new technologies, techniques, seeds, machines, etc., are developed.

Q. *Does it alarm you when others suggest that the Brazilian Amazon is so important to the earth's ecology that it should come under international control?*

A. Just before the start of the Earth Summit, Michel Rocard, the former prime minister of France, was interviewed by a Brazilian newspaper. He said he hoped that within five years the United Nations will have placed severe limitations on national sovereignty in questions of ecology. The UN, in Rocard's view, should be able to go into any country where there are ecological problems. Or if there is a facility that is a "danger" to the world's ecological equilibrium, the UN could take it over. It's incredible. I would not have believed it had I not read it myself.

Q. *Hasn't French President Mitterand also made similar statements about the Brazilian Amazon?*

A. Yes, there are many people talking about this, and it is alarming. Because we have not only national sovereignty, but also scientific sovereignty over the Amazon. There is much that science still does not know about the interactions and influences in ecosystems in the Amazon, but that is true everywhere. We are continually learning. But the Brazilian scientific community has studied these issues more thoroughly and has a better understanding of these issues than any other group of scientists. We know pretty well how to balance human needs, development, and agricultural practices with the ecology, and are continuing to learn. We welcome the interest and contributions of the international scientific community, but the future of the Amazon and Brazil can only be determined by Brazilians.



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