

**The Economic Situation of Dominica and its Environmental
Implications**

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The Big Picture

Throughout history, scientists have always been pushing the limits with their discoveries. However, as more is discovered, the scientists are forced into narrower fields of study. It was only a 100 years ago that Texas A&M offered just a Bachelor of Science and a Ph.D. student could study "Texas Frogs". Now there are thousands of degrees and Ph.D. dissertation titles take up three lines on the title page. But, while specialization may be the natural progression of scientific study, taking a step back, and looking at the big picture helps put the what and why of things into perspective.

There are many ways to look at this overall picture and one of them lies in the fundamental principals of economics and engineering. By establishing a system and tracking imports and exports, one can account for mass and energy flow, build-ups and deficits within a system. This information can then be used to analyze a variety of problems, especially environmental problems.

I took my system to be the Commonwealth of Dominica, W.I. By using government and U.N. supplied figures, I was able to identify several interesting as well as disturbing trends, with definite implications for Dominica's environmental health.

My data came from a variety of sources. The main source was Dominican import/export figures supplied by the Ministry of Finance, Main Statistics Division. I also used U.N. import/export figures courtesy of Peggy Noynaert and the Texas A&M West Campus Library. Along with these figures, I conducted personal interviews with Dr. Sasha Steiner, Mona George Dill, Jill Borger, Wim Holleman, and Francis Cambran. These interviews focused mainly on environmental problems on the island.

To analyze the import/export data, I simply extracted the imports and exports that

were pertinent to possible environmental problems. I then looked for trends that would point to the causes and effects of environmental problems for the present and future.

Environmental Problems on Dominica

First, let me discuss the environmental problems facing Dominica. As far as air pollution, Dominica has few problems. Dominica has several geographic features that work to its advantage. First, is the fact that it is hundreds of miles away from any large producers of air pollution. Also, the strong jet stream coming across the Atlantic combined with winds associated with currents, results in a high air turnover rate. The rainforest takes care of what little carbon dioxide is put out by cars. There is only one case of industrial air pollution, the Bello foodstuff factory, serious enough to warrant a government threat of action (Wim Holleman).

Land pollution's seriousness is a step up from the air pollution. There is no formal garbage collection system, which results in Dominicans dumping their trash in their backyards out of sight. While fishing the Salisbury area, I noticed numerous houses backing up to sea, with trails of trash down the sides of the cliffs. There also is no formal collection of industrial waste such as scrap metal, cars, or batteries. An attempt was made to collect these wastes, but there was not enough money available for the barge necessary to haul it away (Mona George Dill). Another problem is plant pollution. Burned and otherwise deforested areas are being taken over by a non-indigenous species, lemon grass. The effect of lemon grass is two-fold. First, the grass is highly combustible and is thought to be able to spontaneously combust, leading to a high fire danger. The second and far worse effect is that once the land is taken over by lemon grass, it takes at least 20 years to fully recover and grow secondary rainforest (Mona George Dill).

Another problem land-wise is deforestation for agriculture and the resulting sediment movement. The best and most glaring example is the Layou River. Several years ago a landowner up-stream used too much of a herbicide, Gramazone, to clear for a banana crop (Wim Holleman). A massive landslide resulted and the Layou's mouth and the surrounding coastline has never been the same due to sediment outflow.

Water pollution is the most visible and most damaging of pollution types. One disturbing problem is that all sewage goes untreated on the island. It then pollutes streams and rivers inland and is piped directly into the ocean. The import figures for N-P-K fertilizers were 4574 metric tons in 1998 (Statistics Office). This is in spite of a declining banana industry. As the banana industry continues its downward slide, many farmers will quit the business and let their land lie fallow. However, those that do try to keep on going will use more fertilizer per square acre, resulting in much higher localized concentrations and the subsequent effects. When petroleum products are combined together under one umbrella, they are second only to beer in importation (Statistics Office). Petroleum pollution in water is often seen in a thin film on standing water. The best example of this is the fishpond next to the lab at Springfield. When the light is angled correctly, then one can watch the water turn opaque from a film created by passing cars' exhaust.

The most visible and possibly devastating pollution is that from the soap and concrete plants North of Roseau. From the proper vantage point, one can see large blooms fanning out into the ocean coming from these plants. Because the coral reef system is in such a delicate balance, the slightest change in the water can destroy the reefs (Jill Borger). However, these plants were in place before anyone began a

comprehensive study of corals in Dominica. Therefore, these industries' effect can only be estimated (Dr. Sasha Steiner). However, in a study of phytoplankton concentrations by a Texas A&M student, Sarah Augustine, the phytoplankton concentration was three to four times lower in polluted water versus clean water. Tourism also has begun to make an impact on water quality. According to Francis Cambran, there is an attempt to fence in some dolphins North of Portsmouth for tourist viewing. Projects such as these will disrupt normal water flow while causing more human impact on the precarious reef system.

However, while Dominica does have environmental problems, there are several areas that remain non-problematic. First, air pollution has been established to have little effect on the island. Also because of the high fresh water volume coming into the island and lack of standing water reservoirs, any-cides (herbicides, pesticides, etc.) and anything else put into the watershed system runs off inland areas very quickly becoming a problem in the marine systems and estuaries. The biggest surprise was the lack of deforestation for lumber products. Dominica exports almost no wood products and the building material of choice is concrete (Statistics Office). This means that with a decline in the banana industry and the resulting decline in deforestation due to clearing for crops, deforestation should be at an all-time low.

Economic Trends and Their Effects on Dominica

Economics has always been a major stumbling block on the way to environmental protection, and Dominica is no different. The first and foremost fact that needs to be established is that Dominica's economic situation is poor and growing worse every year. This is evidenced by the growing trade deficit, and the trade deficit to export ratio. This

ratio has grown to 62 percent in 1968 to 157 percent in 1997 (ARET 1997). While this ratio does not take into account internal trade, in the absence of Gross Domestic Product data, it is a good economic indicator. When a country is in such an economic situation, its people are often willing to sacrifice the environment in order to bring the economy out of the red.

Individual product import/export ratios further the argument that the economy is on a downward slide. The ratio of sand, stone and gravel (mostly sand) to fruits and vegetables (mostly fruit) is 9.4: 1 when calculated using mass. Yet the same ratio is 1: 14 when calculated by \$EC (Statistics Office). The reason for this is the Layou River sand scandal. Martinique and Guadeloupe have signed a contract with Dominica to remove the Layou River sand for a royalty. This royalty was unknown to anyone I talked with, however it has been estimated to be fifty cents per cubic yard. This amounts to giving it away considering that in Europe, the price of sand is between 4 and 5 dollars per cubic yard (Wim Holleman). However, Martinique and Guadeloupe have been mining the sand for several years, and have yet to pay for most of it.

Exports of environmental note are numbers three through six or in order: soap, perfumery and cosmetics, any-cides, and paint. Because of their by-products and the production sites proximity to the ocean, all of these products are produced at considerable cost to the environment. Imports that weigh in when discussing the environment are petroleum products, fertilizers, and any-cides, which all have adverse effects on the environment. Fertilizers and any-cides are experiencing mild declines, most likely in response to the banana industry's decline. However, their decline has not been as sharp as the banana industry's because of farmers increasing fertilizer and any-cide applications

to increase banana production, which in turn they hope will offset falling banana prices. Projects such as Wim Holleman's greenhouses have the potential to phase out heavy fertilizer and any-cide use. However, getting these projects off the ground is proving to be a challenge (Wim Holleman).

Location is also key in determining an import's or export's environmental impact. The Atlantic side is inhospitable to ports and large settlements, and has a high water turnover rate there as well, leaves the Caribbean side with the point source pollution (pollution which can be tracked back to a single geographic point). The numbers one, and three through seven exports are produced within a quarter of a mile on the Caribbean side. All of these products produce by-products which are either sediments (from sand) or chemicals (from soap, perfume, any-cides, and paint) that can harm marine life.

Conclusion

Dominica's trade deficit makes an environmental remediation effort difficult. With a declining banana industry, their big money maker, and no other industries other than corrupt sand mines to replace it the situation is not improving. Dominicans are looking at the very real possibility of calling the present "the good old days" in several years due to an economy built on a natural disaster (sand) and an industry the U.S. has effectively destroyed (bananas). In this economic climate, the environment gets put on the back burner.

This is not a new scenario by any means. All one needs to do is look at Africa or former Soviet Block countries to what happens in this situation. The people will bring in any possible industry, no matter how environmentally destructive it is. People also begin

to take raw materials out of the country causing two problems. First, raw material removal destroys the natural environment. Second, even the quickest replenishing raw materials take at least twenty to thirty years to replace.

So far Dominicans have kept their impact on the environment to a minimum. Deforestation for wood is non-existent, and tourist resorts are not encouraged. The government seems to be promoting eco-tourism while trying some (not many) conservation techniques. One of these is the encouraged tag and release of all billfish such as Marlin.

Dominica is at a very critical time right now. While the economy has been going downhill for a long time, the banana industry has provided a foundation for the economy. Dominicans have therefore been able to keep a positive focus on the environment and eco-tourism. But, the question now is can they keep that focus in the event of a possible economic crash? If Dominica can replace its downward trending industries with something else, the outlook is good. Whether that solution is eco-tourism, greenhouse organic farming, or some other environmentally-friendly and lucrative enterprise, I believe a positive solution can be reached. This belief and hope should be held out by the current political climate of a positive predisposition toward environmentally friendly practices. The ball is now in Dominica's court, and they have something many other countries never had: a chance to win the game.

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