

Nature Island Fading?

(The Struggle to Preserve Dominica's Natural Environment)

by

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"Isle of beauty Isle of splendor

Isle, to all so rich and rare..."

(opening bars to the Dominica National Anthem, 'Isle of Beauty')

By **W.O.M. Pond and L.M. Christian**

Introduction:

A question mark hangs, like the sword of Damocles, over whether or not Dominica is, or will remain, the "Nature Island" advertised about in glossy tourist brochures; or the "isle of beauty", which reaps much blessings in the national anthem. Indeed, past and current Dominican governments, and ordinary Dominicans, were (and are) moved by a spirit of conservation long before it became politically popular to do so. But for that fact, much of the island's natural treasure would have been squandered a long time ago. However, current challenges to the island's ecology threaten disaster if they are not guarded against. Consider, the following: Dominican elementary and secondary school geography classes of the 1960's and 1970's taught that the island measured some 305 square miles. Now, most publications refer to our island as measuring 289.5 square miles . What happened to the other 16 or so miles? Was this change a result of more precise measurement? High altitude map calibration? Satellite technology perhaps? Or maybe, more disturbingly, 16 square miles vanished in the span of one or two decades due to poor sea defense management, along with unchecked beach front sand and gravel mining for local construction? With regard to rivers, Dominicans at home and overseas are fond of referring to our 365 rivers; one for every day of the year. But, really, are they now talking of dry river beds, or stagnant creeks? What of the crawfish (or "kweebish" in local french creole parlance) which were still plentiful in most of the local brooks and streams up till the early 1970's? Have their stock been depleted (where not totally vanished) because of increasing agro-chemical run-off from the export-driven banana industry? Many are the Dominicans (both those who have remained, and those newly returned) and returning visitors who mourn the passing of such notable natural features of our island. Sad, but real, the foregoing points represent but a small sampling of the environmental problems confronting Dominica and Dominicans near the end of the 20th century. If humankind exists long enough, to allow us a backward glance at the 20th century, it may well be written that it represented the period when we committed the gravest crimes against our own interests. That crime of despoiling our habitat, or literally cutting from beneath our feet, the very land upon which our survival is sustained. But such a scenario need not be.

This piece does not merely intend a gloomy forecast. Rather it is a call to heighten and broaden the struggle for the preservation of our common home. Such a struggle should not be a job solely of government, private enterprise, foreign environmental concerns, and individuals; rather every Dominican man, woman and child will have to enlist in the common effort. To speak about environmental protection, is to speak about Dominica's very survival. In time, if we are mindful of our duty to conserve, Dominica's unique natural features may well assume the role of a primary foreign exchange earner. Yes, that we have recognized (perhaps more than many others in the so-called third world) some of the problems and devised solutions thereto, is commendable. However, the following will illustrate the depth and scope of the challenge, and some solutions thereto; solutions in which we will all have to play a part.

Challenges to the Natural Setting:

Situated in the middle of the Caribbean arc of islands, and among the Lesser Antilles, Dominica rises majestically out of the azure waters between the French dependencies of Guadeloupe and Martinique. Volcanic in origin, the series of mountains and valleys which constitute the island's mass plunge to sea level, separating the Atlantic Ocean to Dominica's east, from the Caribbean Sea to its west. From the shoreline, the land rises more than 4,000 ft, in some places: Morne Trois Piton, at 4,670 ft; Morne Diablotin at 4,747 ft. Chanced upon by Christopher Columbus on November 3rd, 1493, Dominica was to be opened-up to Western imposed chattel slavery, its indigenous people vanquished. The island, which had only known patterns of, primarily, subsistence agriculture prior to European colonization was now to be a base for export driven agricultural production. By 1700's the land was being cleared, forests burnt, for large scale cultivation of coffee; later sugar for most of the 1800's, then vanilla, lime and (currently) banana production in the 1900's. With regard to colonial control Dominica had, by 1805, come under British rule. The influx of Europeans and Africans was to dwarf the early Carib population (which-by most estimates-numbered a few thousand) in size. The first post emancipation census of 1844 showed a population of 22,000; that figure more than doubling to 47, 630 by 1946. By 1980, the population had again doubled to about 80, 000. By 1991 migration had caused that figure to drop to about 75,000. With regard to the impact of that population, the "slash and burn" technique of clearing land, plus the growth of a small peasantry (following the emancipation of slavery in 1834) was to increase pressure on the environment; leading to soil erosion, noticeable receding of forests and a drop-off in river levels (to be detailed elsewhere). In addition that population had (at least for most of this century) remained rural and wedded to agricultural production (as opposed to industrial processes) for sustenance. A dearth of flat land prevented the growth of big plantation style agriculture, (as in, say, Jamaica or Barbados) delaying the environmental degradation which destroyed the original forests on most other Caribbean islands. However, the post World War II growth of the banana industry, along with 20th century trade, increased urbanization and US style consumerism, have all conspired to place a mounting burden on the fragile ecology of the island.

Enlightened leadership on the island (in association with like-minded foreign friends) made an early start in putting together an environmental protection structure. The base of that structure resides in the national park/reserved forest areas, presently under the jurisdiction of the Ministry of Environment's Division of Forestry and Wildlife . It is in the thickly forested area of land over approximately 1,500 ft. that the Morne Trois Piton National Park and Northern Forest reserve are located. From that area drains most of the water used for agriculture, drinking, export to water-poor islands, and for energy generation. Literature on Dominica's ecology sometimes trace the original national park concept to the input of U.S. scientist David Lowenthal who visited the island in 1961. Be that as it may, Dominica's agricultural division had always maintained a solid cadre of soil conservation officers and forest rangers, as far back as the 1940's (the Forestry Department being established in 1949) most of whom worked diligently at soil and forest conservation. Urged on by Chief Forestry officer (of the 1960's and early 1970's) Christopher Maximea and others, the government passed the National Parks and Protected Area Act in 1975, which formally established the park. That area of government oversight has continued to benefit from local leadership provided by the likes of Felix Gregoire, Collymore Christian, Arlington James (all of whom-as civil servants-are formally involved in environmental protection) among others. However, despite such leadership, the pressures of export driven agriculture, poor land use management, natural disasters and commercial lumber operations have all posed (and continue to pose) threats to that verdant area of forest at Dominica's core.

Dominica's forests are the most undisturbed in the entire Caribbean, and described as sheltering 50 species of resident birds, inclusive of the Sisserou parrot-Dominica's national bird. The island groups approximately a dozen forest types, from Mature Rain Forest at about 1,000 ft., to Fumarole Vegetation near areas of volcanic activity, to Montane Thicket and Elfin Woodland above 3,500 ft. These forests have always been important to the island: once a refuge for runaway slaves; the source of mythical island lore; the "zion" or "eden" sought after by local dreadlocks;, and always-the towering guardians of the Dominican citizenry who craved the cooling shade and barrier against fierce hurricane winds, provided by the stout centuries-old foliage and tree trunks.

When the disturbing news of an impending hurricane swept Dominica in the days immediately prior to August 29th, 1979, many dismissed the threat. With an almost natural reflex, many figured that Dominica's mountains would act as a sufficient barrier to the impending hurricane winds. Such faith in the island's mountains may not have been entirely misplaced. For, though lives and much of the tree cover was lost with David's passage, the damage done paled in significance when compared to the losses sustained by the Haitian people. There, loss of forest cover made the Haitian mountains prone to landslides, and the valleys susceptible to massive flash-flooding. In Dominica the suffering was mitigated by the presence of forest cover which (though temporarily denuded by the fierce winds) acted as a brake to the flooding and landslides seen in the Haitian countryside. In essence, though there were many

landslides around the island, much more of the top-soil was able to hold than would otherwise have been the case (if, for instance massive deforestation had, prior, taken place). Therein lies the lesson: That, though we may never preclude destructive acts of nature, wise forestry management offers insurance against the sort of damage visited on islands (e.g. Haiti) where massive deforestation has recently led even to desert-like landscapes.

Indeed, a correlation may be seen between the poorly managed cutting of lumber by local farmers and the Canadian firm Dom-Can Timbers (after it was granted a lumber concession in 1966) and the Roseau River flood of 1971. That flood (during which the Roseau River burst its banks when it rose-at times-in excess of 25 ft. above normal level) swept away a portion of the so called "Old Bridge" which spanned the Roseau River, killing one Dominica Fire Brigade officer Nicholas who had ventured out to rescue stranded pedestrians. The roiling mass of water, carrying huge trees, livestock and mounds of earth along, most likely found its tap-root (not just in the down pour which preceded it) but in an improper lumber harvesting regime. As recorded by an English survey team in the early days of Dom-Can's operations:

No account had been taken for the steepness of the land and the soil type...Dom-Can's promise to use the "best Canadian practices" were not necessarily the best for Dominica's sensitive tropical environment ...the practice of skidding logs to spar a tree is acceptable in the temperate forests of Canada, in Dominica it destroyed virtually every tree and sapling in the area and caused gully erosion and soil compaction in the skid path.

As a result of the carelessness mentioned above tens of thousands of tons of precious top soil washed away; never to be replaced. A decade after the rape visited on the land by Dom-Can has elapsed, recent evidence reveals that the lessons have not been learnt. Dominica Timbers Ltd. (DTL) is said to utilize the same skidder method . As result lengthy furrows, or skidder tracks, have led to gully erosion. As of this writing it is questionable whether a land management plan proposed to DTL is being fully utilized . Degradation of the forests in that area, Morne Plaisance, is expected to result. Northeastern Timber Cooperative' (NET) use of a D6 tractor, along with its clear felling on steep slopes has also been criticized. Even though both groups (DTL and NET) allegedly engage in selective cutting, are they monitored for adherence to any national forestry plan? Who does the monitoring? Is reforestation taking place at the same pace, so as to ensure continued ground cover and minimize soil loss? Who is liable for any land-slide damage, or substantive soil erosion which ensues? Are there certain established benchmarks (for damage to the flora and fauna) beyond which DTL and NET cannot go? Are the costs in environmental degradation, justified by the benefits garnered thus far? Or is the push for profitability going to overwhelm the interests of environmental protection and long-term survival? In essence, who are the ones asking questions; and is anyone listening while there is still time?

Dominica receives some of the highest rainfall per square inch on the planet. It is estimated that an average of 300-400 inches per year falls in the interior. Yet, with all that water, access to a reliable water supply, water pollution and water conservation

are among the greatest challenges currently facing the country. The destruction of forests, or ground cover, inexorably leads to the death of rivers. In Dominica, the reality is chilling in the definite connection, observed by the most casual of onlookers, between improper harvesting of lumber or poor land use and the near death of the Roseau Massacre, Mahaut and St. Joseph Rivers (as with most other rivers on the island which have witnessed a steady drop-off in water levels). As recently as the early 1970's, both rivers allowed full-body submersion, swimming (and even diving in popular bathing areas like "Silver Lake", "Under Power", "Titou Gorge" and "Big Stone"). But with the advent of reckless lumber harvesting by foreign concerns, and poor land use management by locals, the rivers now wend their way lazily, almost stagnantly, through the major population areas they once served. That tragedy, cannot be made to continue. The difficulties associated with dying rivers may have, also, negatively affected the provision of a reliable system of pipe borne water to the majority of the population. Even today, the population has to put up with erratic water supply, including frequent shortages. A 1989 study on the issue found:

Twenty one percent of the estimated 16,000 houses in Dominica had access to piped water; another 43 percent had access to piped water at a distance of less than 100 meters ; the remainder (approximately 36 percent or 5,760 houses) had no acceptable or convenient access to water supplies.

Indeed, most of the inadequacies cited above may have to do with poor human use management, antiquated piping systems and overall underdevelopment of water resources, as opposed to the availability of water, or water catchment degradation. Yet, the marked drop in river levels are too visible to not be included in any assessment of water catchment destruction. Thus, water catchment areas must be given the highest priority and protected (either by legislation and/or economic incentives/disincentives). Further, the fact that 70% of the water catchment areas currently identified are within private hands should not be a bar to regulation of land usage. Though the entity responsible for the Dominica's water supply, DOWASCO, intends moving further into the interior for water catchment areas, that may not be feasible. In any case, one should not operate on the principle of avoiding the problem by seeking to move away from it. The limited area determined by Dominica's geography will not allow for an "avoidance" approach to problem solving. In this instance, the concept of the "commons" (that the environment belongs to all in common, and must be protected for the general good) validates the regulation of land-use by the sovereign authority to further the public good . Even the legal doctrine of "necessity" (one of the prime maxims of which holds: that the safety of the people is the supreme law) could provide the basis upon which to ensure the protection of that most crucial resource. Water which sustains life, agriculture, increasingly provides hydro-electric energy, and is now touted as a foreign exchange earner, belongs within the realm of the national patrimony . And as such, the population which relies on a dependable source of that life-blood, should not be held hostage. Thus, no conflict between private/public spheres of interests should penalize an entire nation because of the narrow interests of a few. It is therefore imperative that owners of private lands within water catchment areas be educated in land management which preserves the

catchment. Compensation and other reasonable state support, should be provided as an incentive towards that end.

Another challenge is human waste disposal which poses more than a threat to the natural aesthetic; it is an issue of public health. Poor waste management once had the main road to Roseau (at Ravine Coque) abutted by a sprawling garbage dump. The dump was for a time moved to huge hole (measuring about a quarter a mile) which had been gorged-out of the earth just beneath the Government Live Stock Farm at lower Goodwill. That hole was created by the mining of rich seams of pumice for export to Puerto Rico. It is obvious that not much thought went into what was to be done once the mining operation ceased. Once the bulldozers had fallen silent, the area was to later become a bleak site of horrendous water and wind erosion, sometimes being filled in with rain water which formed stagnant mosquito infested lakes. On the "brilliant" initiative of someone in waste management, the hole was to be used for a time as the city garbage dump after the close-down of the Ravine Coque site near Fond Cole. However, such half-measures resulted in noxious fumes, and clouds of flies invading nearby homes and even the general hospital less than a mile away . Community protests and sabotage of the dump's bulldozers (by young environmental activists) eventually saw the site moved to Palm Grove, next to a source of the Roseau River which served the bathing, drinking and washing needs of many homes down stream. The somewhat erratic selection of disposal sites, evinced a lack of long-term planning and thorough study. In 1986-1988 an effort was said to have been made to equip villages from Pointe Michel to Colihaut with garbage vehicles which would then transport waste to the Woodbridge Bay landfill (same general area of the earlier Ravine Coque facility). Nonetheless, little systematic effort could be seen in other areas such as Marigot, Grandbay, Castle Bruce, and La Plaine where solid waste disposal in the 1990's was said to "egregious" . The implementation of an island-wide system of solid waste disposal, though under increased focus, remains an elusive objective. Any government effort to select an appropriate site, would need to be accompanied by a rise in the public consciousness about proper waste disposal (fostered by the appropriate public education) and adequate legislation via which to impose penalties for solid waste polluters. Any delay in that area would obviously undercut any serious attempts at attracting tourists interested in the island's natural beauty.

In some areas of waste disposal, movement is being seen. Commendable proposals have been voiced in recent times to build a modern sewage system for Dominica. The New Chronicle of November 16, 1990 mentions DOWASCO's manager Damian Shillingford as stating that his organization is "presently investigating and designing a sewage system for the Roseau" area . Yet as of 1991, it was reported that since 60% of the household were without satisfactory waste disposal facilities, water quality and coastal resources (i.e. fish, marine life etc.) remain under great threat from such inadequacies . A re-ordering of priorities would entail increased public education on waste disposal, along with the construction of a modern sewage treatment system. As of 1992, such a sewage treatment project was still said be on the drawing board.

Below the parks and reserve areas export-driven banana cultivation (for the most part) has reigned supreme (even though some farming encroachment on the reserve areas have been noted). Dominica's, major export bananas has been (at times) referred to as the island's "green gold". However, we may yet realize that its cultivation with the help of agro-chemicals may have introduced insidious toxic elements into our eco-system. Of late many Dominicans have been puzzled and complaining of the increased incidence of cancer deaths . Are there any relationships between the increased use of agro-chemicals over the past twenty or so years, and diverse forms of cancer affliction in the local population? No study has yet been done to disprove, what is now widely rumored. Public concern is now raised; consciousness, with regard to agro-chemical pollution of water, now rising. The benefits of agro-chemical utilization cannot mask its dark side. Toxic side effects in humans have been noted in areas where paraquat (a herbicide) have been used over time. Marketed in Dominica under the trade name Gramoxone, paraquat has (unfortunately) been the suicide potion of choice for many a frustrated Dominican farmer or distraught lover . Thus, its fatal impact once ingested is well known. However, what about its percolation into the soil? What of its residue which may be leached into streams. On an island with one of the highest rainfall patterns in the world, we may have escaped the concentration of Gramoxone necessary to cause harm within a short time-frame. But what about prolonged exposure? Or exposure, via contaminated drinking water? Farmers are known to wash Gramoxone receptacles in rivers, with deadly results: dead fish bobbing on the river surface soon afterwards. Also, it is common knowledge that empty Gramoxone receptacles are frequently used in rural areas of Dominica to carry water to and from standpipes or rivers. Even discounting such direct use of contaminated containers for water transport, what of the pipe borne water? Has any study ever been done to check-on agro-chemical (particularly Gramoxone!) trace elements in the public drinking water system? It is known that the United States Environmental Protection Agency (E.P.A.) banned the use of paraquat more than a decade ago, since it was found to be a carcinogenic (i.e. cancer causing) substance . Have Dominicans been made aware of the U.S. ban, so that they could take heed? The danger of such pollution to the future of Dominica's water-export enterprise cannot over-emphasized? Has the government or Banana Growers Association engaged in a thorough-going education program (including use of television and/or radio) with farmers, housewives, students and others so as to educate the populace on the dangers inherent to agro-chemical use? Indeed, DDT which was a much heralded insecticide used in the U.S. and elsewhere after World War II, was only (much) later fingered as a culprit in causing negative side effects in humans, including cancer of the pancreas. As a result, its former lavish use was restricted, where not banned outright. That such side-effects took time to discover (in countries with a higher degree of technological development than Dominica) should jolt us out of any complacency on the matter. It would be to Dominica's credit if the Produce Chemistry Laboratory of the Ministry of Agriculture, in coordination with the Princess Margaret Hospital Laboratory were to take the lead, and undertake such a study to rule-out any contamination of drinking water by agro-chemical trace elements. Later, trace elements absorbed by farmers in heavy-use areas could be tested for, and side effects (if any) determined. For now,

however, simple habit changes (such as a halt to the washing of agro-chemical applicators and receptacles in rivers) can certainly protect marine life, and the public water supply. Appropriate legislation to halt such negative traits may be fashioned, although a proper public education strategy focusing on the health risks might be sufficient. In addition, updated monitoring of studies by the relevant U.S. (e.g. E.P.A.) or British institutions should be maintained (inclusive of access by computer modem to their data-bases on agro-chemical side effects) to keep abreast of their own advanced studies. Chemical manufacturing giants like Imperial Chemicals Inc. (ICI) which have seen growth on the basis of sales to countries like Dominica should now be approached to assist that effort of data exchange. By consistent exchange of data, electronically or otherwise, Dominicans can avoid the tragedy of being the last to have dumped upon them products outlawed elsewhere. That sort of "last-in-line" treatment has already been meted out to developing countries with unenlightened leaderships and/or complacent populations. With a population literacy rate approaching 95% in 1992, Dominicans cannot be accused of being illiterate. So, any failure by the population to avail itself of such information would be negligent to say the least.

With increased travel, the explosion of cable television viewership and a general affection for U.S. style consumerism Dominicans now drive more cars, and have access to more "throw-away" consumables than ever before. With the number of automobiles approaching 10,000 on an area less than 300 square miles in circumference, problems such as exhaust pollution and waste oil disposal are increasing. Certainly, Dominica is not yet anywhere near the levels of air pollution found in southern California or New York. But if national development is to find support in foreign exchange earnings gained from "eco-tourism", a national transportation policy favoring public transportation, and alternative transportation use must soon top the agenda. Not only would the island gain by conserving scarce foreign exchange for priorities in education, health and industry, but preservation of the natural environment and overall aesthetic (alot of which have already disappeared in most other places on earth) would result. Citizens in developed nations such as Holland and France already make massive use of bicycles for transportation, whereas others (more mountainous) have utilized cable cars for a wide range of transportation services. A feasibility study on cable car use, as opposed to costly-to-maintain mountain roads, is one option aimed towards new modes of transportation. In the alternative, countries as diverse as Singapore and Bermuda have enacted legislation limiting automobile import to a set number per family so as to contain pollution, and limit congestion. In addition, so called "earth days" have been instituted to eliminate automobile use in major cities of the West on particular days of every month. Articles in early 1990's issues of the New Chronicle speak of traffic congestion becoming an increasing problem. However, not discussed is the associated problem of lead pollution in the atmosphere from leaded gasoline usage; such being the primary gasoline type on the island. Lead gasoline, once burnt results in lead particles being suspended in the atmosphere; inhalation of such particles (over time) lead to debilitating results. Studies in U.S. urban areas have pointed to brain damage, birth defects, and high blood pressure amongst urban dwellers from air pollution derivative

of leaded gasoline use. Such adverse an impact on the public health of Dominicans can be avoided, if the relevant safeguards to arrest such congestion, waste disposal, and air pollution problems are erected.

With regard to oil-change waste, most local garages are not governed by any legislation which require environmentally-sound oil disposal. Accordingly, oil is discharged directly into gutters, backyards, bushes, rivers, or the sea. Again, an appreciation of the costly clean-up efforts faced by developed countries (most of which failed to arrest the automobile-waste disposal problem at an early stage) should move Dominicans to adopt corrective measures now. Since the plant and equipment investment required for recycling is prohibitive at this stage, collection areas for oil-waste could be set-up for later shipment to any nearby territory with the refinery or other capacity to recycle or utilize such waste. Any action taken now, would ensure future savings in clean-up and environmental costs, with regard to which there is no guarantee of 100% restoration of the former habitat.

No evaluation of environmental policy can be thorough without a focus on population control. Demographic instability is cited as one risk facing island developing countries (IDC's) such as Dominica. Excessive population pressures could strain the "carrying capacity" of countries with limited living space. Such strains would make the burden of housing, food and services provision unbearable. Accordingly, the efforts of government, Planned Parenthood and other non-government organizations are key to preventing such a population press. The Roman Catholic church would, as well, have to adopt a more enlightened and constructive approach to family planning.

One of the most short-sighted development proposals of late, relate to the Botanical Gardens at Roseau being chosen as the site for a new sports field. Protests from environmental concerns, and individual citizens may have delayed implementation of that idea for the time being. However education and continued vigilance in defense of the natural habitat is what will preserve the Gardens. Now over 100 years old (established in 1889), the Gardens are already home to the Chief Veterinary Office, the plant propagation unit of the Ministry of Agriculture, the Produce Chemistry Laboratory, and a new elementary school section of the St. Mary's Academy. Such physical plant intrusion, and irreverent pedestrian traffic has led to a degradation of plant life and general grounds upkeep. In reference to such degradation, and perhaps in a dramatic effort to stir his listeners to action, Dominica's President Sir Clarence Seignoret stated in a November 22, 1990 address to the Dominica Conservation Association, that he had terminated his walks through the Gardens since he did not like what he saw there . Apart from being a refuge for those seeking quiet amidst the splendor of nature, the Gardens trees and plants act as a giant filter to cleanse and revitalize the air in the capital Roseau, now subject to increasing automobile exhaust pollution. Preservation of this sole area of wholesome greenery within the bounds of Roseau will require every user of the facility to adopt a new attitude towards use of the facility. In that regard the Forestry Service, the Roseau City Council and Dominica Conservation Association have sought to impress upon users of the Gardens a new conservation consciousness. Only time will tell whether it takes hold. In the

meantime, turnstiles which open-up after the depositing of a small fee should be installed in certain areas of the national park system, where physically feasible. Perhaps the enforcement of a costs associated with facility use, will impose a new sense of respect for the importance of national park areas.

As the detritus of 20th century living (oil waste, agro-chemicals, raw sewage) washes out to sea, so too it has negatively impacted upon Dominica's coral and other marine life. Fish caught within one mile of the coast may well return to the dinner tables of Dominicans, carrying back with them some of the untreated waste so-recently expunged. For centuries, waste was flushed straight-out bay-front pipelines into the Roseau bay. Prior, the small urban population meant a waste load which could be rapidly, and naturally, broken-down, assimilated. With the rapid rise in urbanization in the 1970's and 1980's, the load on the city sewage system may have brought with it greater problems for marine life. It is now reported that Dominica's few coral-growth areas in the Soufriere Pinnacle may have experienced the first signs of coral bleaching. Detergents and untreated sewage are blamed as the cause. Dominica Coconut Products, with its rum and soap manufacturing operations currently is pointed to as the biggest local waste generator; with rum generating the highest per production unit per year (i.e. dead yeast cells, slops). As a major foreign exchange earner for the country (EC\$24.3 million in 1988) there would be a reluctance to clamp "any polluter pays principle" onto DCP's production costs. Indeed any overly stringent pollution prevention protocol, would be a certain hindrance to its competitive edge in the short-term. I emphasize short term, because any ecologically-sound production techniques articulated by DCP will eventually be to its long term, competitive, advantage. Where Dominica's natural beauty promises to be a major foreign exchange earner (in an increasingly polluted world) one has to weigh the damaged caused by pollution to our waters, against the costs of controlling the particular polluting discharges. DCP aside, any idea of Dominica, as a source for cheap labor, or location for heavy-pollution industries (which seek to avoid strict regulations in their own countries), is a dead end. Countries like Taiwan, Malaysia, and Singapore have all realized the massive clean-up costs and overall damage to the quality of life in their respective countries as prohibitive (and which need not have been engaged in the first place) during their rush to modernize in the 1960's and 1970's. Accordingly, with regard to marine (and other) pollution, we should not blind ourselves to the mistreatment meted out to the environment in these countries, when we seek to emulate any economic model they may have followed.

Any rush to modernize must be measured alongside costs to the natural habitat. Such a balancing cannot be over-emphasized with regard to current plans for an international airport. This author having had a television set and other luggage forever "disappear" while in transit in Antigua (after seeing it off-loaded from an Eastern Airline aircraft!) can readily appreciate the urgency with which many Dominicans view the need for such an airport. Currently, Dominica has two airports; Canefield near Roseau which accommodates small propeller aircraft in the 5 to 15 seat range; and Melville Hall in the north east, near Marigot, which accommodates mostly

propeller driven 20 to 50 seat aircraft, as well as some recent jet aircraft flights. As of 1992, complaints by industry and the travelling public ring-out against treatment received at regional transit points, the difficulties of overnight stay, the limits allegedly placed on the tourist trade, along with problems associated with delivery of air freight felt most strongly by the commercial sector. All of the forgoing problems, however, may be solved without resort to a new airport. First, any debate on the new airport must be in public, and must be forever removed from the narrow confines of party politics. Rather, an objective reading of existing aircraft technologies, physical plant management capacity, the flight patterns of regional aviation, and (most important) the dangers such construction would pose to Dominica's environment must be part of such a debate.

The current Freedom Party administration, to its credit, has utilized its close links with the US government to obtain feasibility studies for such an airport project. A US armed service Atlantic Command report noted that two on-site surveys by top US armed services experts were performed: Once, in January 1990, and again October 1991. An October 25th, 1992 review of both surveys revealed:

The proposed undertaking is a massive endeavor. The Eden Estate (proposed airport site) is located at the extreme northeast of the island, two hours by passenger car from the capital Roseau... Four water courses, the Eden River, Kraibo Gutter, and two unnamed streams must be culverted and covered. Depending on the final orientation an elevation of the runway, there a 4.8 million cubic yards of earth would have to be cut fill (sic). The report proceeds to state that the area is "thickly covered with banana trees and forest, with some grazing land". The negative environmental impact of such a reworking of terrain, cannot be minimized. In addition, the steady destruction of prime agricultural land for housing (which has already proceeded at an alarming pace!) will only be accelerated by this undertaking. Already slipping in domestic food production, especially in the area of livestock which lack grazing lands, Dominica's food security would be further threatened by this project.

Notwithstanding the forgoing, the very same experts noted:

Dominica has recently commenced 727-180 (cargo variant) flights into Melville Hall Airfield. The team was surprised by this unexpected capability which has been demonstrated [my emphasis]. Melville Hall has significant geographical restrictions--- A river at one end of the runway, the sea at the other, and approach departure obstructions on the landward side. But the operations of the 727 into the field, even with these restrictions [my emphasis] raises the possibility that something could be done to upgrade Melville Hall which would make it more attractive for passenger operations. This beyond the scope of this assessment, but the observations are recorded here for information.

Why not explore the (perhaps) less expensive, less environment destructive option? It is clear that the US army experts themselves felt that Melville Hall could be refurbished and/or made amenable to regular jet aircraft traffic. A June 24th, 1992 check with the Amerijet company of Miami, Florida (which operates the 727's mentioned above) revealed that it maintains a regular flight schedule to Melville Hall.

In addition, aircraft technology has grown to produce jet aircraft of the STOL (i.e. short-take-off-landing) variety. Thus airfields such as Melville Hall's could accommodate such jet aircraft. Even if Melville Hall were never to be certified as adequate for aircraft of the Boeing 727 (or contemporary passenger jet) variety, it has not been shown that an efficient inter-island service (inclusive of night landings, and using STOL-type jet aircraft) could not solve the problem of commercial air freight. Or the problem of Dominicans being "separated" from their luggage (besides having to, sometimes, overnight) while in-transit on neighboring islands. All of the above is to say that we must fully explore the costs associated with levelling mountains, destroying hundreds of acres of original forests, covering rivers, blocking valleys, which would be associated with any "international" airport project at Eden or elsewhere. It would be better that the entire population be engaged in a mature debate on the costs and benefits of the issue surrounding such a scheme, as opposed to secretive, prestige, or emotion-spawned efforts which deny the ability of Dominicans to make a reasoned and measured choice. From the vantage point of fostering eco-tourism, the argument can well be made that a refurbished Melville Hall, with the latest in radar technology and night landing equipment, could allow access to STOL jet aircraft and would be a cheaper and less-environmentally destructive avenue to current air travel problems. In addition it would utilize an already existing physical plant (i.e. Melville Hall), and so maintain the novelty associated with Dominica's reputation as being unspoiled (while efficiently facilitating the movement of people, goods and services!). No amount of money could ever restore the destruction to the natural habitat that such an "international airport" (with its additional maintenance costs) would entail. Already Dominica finds it difficult to expand its fishing efforts, or maintain coast guard patrols because of the expenses involved. The already strained local tax base would be further burdened, if required to upkeep such a major facility which may well be unable to generate sufficient funds itself in the near future.

It is now evident that U.S. deregulation under President Reagan gutted the U.S. airline industry, leaving it in a shambles. Originally intended as a spur to competition in the industry, the current reality (as of 1992) is that many U.S. carriers which once serviced the Caribbean area (e.g. Eastern, TWA, PanAm) are gone; perhaps never to return. A virtual monopoly on U.S. bound air travel is held by American Airlines at present. Though this may change, there is no guarantee that Dominica's air traffic would ever rise to the level necessary to entice such carriers, (among others) which already service nearby islands.

Further, by forcing such a major upheaval in the natural environment (supposedly the lure associated with "eco-tourism") Dominica would be striking at what could in time be our greatest foreign exchange earner: the island's natural beauty. According to current Minister for Tourism C.A. Maynard, Dominica promises "the ultimate in nature tourism ". Thus it is not posturing for any mass influx of casino and white-sand-beach-driven tourists, a la Jamaica, Bahamas etc., which would necessitate such a high-air traffic facility. Current official thinking seeks to cultivate an ecology conscious type tourist less prone to fluctuations in the economic climate in his/her

home country, who seeks the best in natural beauty. To such a visitor, the novelty mentioned earlier would be crucial in maintaining Dominica's difference.

The old adage, "all that glitters, is not gold" still holds true, with regard to development projects. In that vein, it would be instructive to assess Grenada's international airport travails. It is a good example of a project which brought much controversy, partially instigated a U.S. invasion and created regional political upheaval, only now to be used way-below expected capacity. That is not to say that Grenada's airport should never have been built. But Dominica would be perhaps better off, if we avoided the potential "white-elephant" that a new airport could be, along with the other noise and air pollution associated therewith. An airport is not made international merely by its size. If the equipment and facilities at Melville Hall are modernized and introduction of STOL technology takes place, the airport may well meet so-called "international" standards. Again, the rapid advance of technology has reduced tarmac length requirements which once confined Melville Hall's use to that of propeller-driven aircraft. Now, Dominica should first explore the fullest use of what is currently available, before gorging at the fragile ecology any further to construct what may not be necessary.

Such lack of early debate, or a proper environmental impact study may have seen mistakes made in the recently completed Trafalgar Hydro Electric project. It is reported that the study for the Trafalgar Falls project which comprised hundreds of pages, contained only three (!) pages on environmental concerns . Such attention to the environmental impact section of the study seems woefully scant, when the importance of the falls to Dominica is considered. Most Dominicans view the falls as North Americans view Niagara Falls, or Yosemite National Park. Pictures of the falls grace every tourist brochure or travel article of significance which focus on the island. As well, considering the importance of hydro resources to Dominicans, it is amazing that the complete study was not published in the public media, or made available to secondary schools and colleges for discussion . In that regard, there continues to be a practice of involving Dominicans in development plans after the fact. With such crucial information being under the select scrutiny of a few technocrats. Such a policy (if continued), sadly, will eventually breed distrust of government and frustrate development objectives; no matter of what political stripe such a government may be, or how well meaning its intentions. Already gems of the natural habitat, such as Titou Gorge, are said to have experienced increased sedimentation; a drop-off in the Trafalgar Waterfall (Dominica's prime waterfall attraction) also being noticed. In a way, there always has to be some trade-off between development needs (in this case energy), especially where use of Dominica's hydro electric potential lessened the island's dependence on expensive foreign fossil fuels (in this case diesel). Nonetheless, vigilance should ensure that proper modulation of the dam intakes, and maintenance of ground cover in the water catchment area serving the Trafalgar Hydro Station be a priority. In that way, damage to the natural habitat may be mitigated.

Challenges From the Outside

In 1988 a garbage barge heaped with waste from New York state hospitals plied the Caribbean, seeking a dumping ground for its putrid waste. With a relatively ecology conscious government and enlightened people, the barge's captain was well advised to steer-clear of Dominica. For weeks, the barge was tracked sailing restlessly up and down Caribbean shipping routes, desperate for a port. To this date, it is uncertain whether or not the ship's captain found a dumping ground or whether his load may have been quietly tipped-over into the Caribbean sea at some point away from land, and beyond the reach of the islands weak coast guard services. With limited coast guard resources, Dominica is among many Caribbean islands which now face these new, perhaps more deadly, "garbage pirates". Cruise ships, ocean liners, oil tankers and other such vessels are said to regularly dump waste in Caribbean waters, in order to escape compliance with strict and readily enforced U.S. laws. Surveillance of vessels engaged in such practices would be an appropriate objective of the Regional Security System (RSS) set-up after the Grenada invasion of 1983. The U.S. coast guard could assist such a surveillance effort, since most of the vessels involved are moving to and from U.S. ports, or a U.S. owned. The risks to marine life, water quality and public health, posed by the pliers of such waste, are enormous. That problem can only adequately addressed on a regional level; with regard to which Irvin Andre's article on Caribbean unity assumes even greater, and more immediate, significance.

On the international level, the twisted thinking of too many individuals, some associated with international institutions, behooves Dominicans to be ever vigilant. The British historian Thomas Carlyle wrote of Dominica in 1860's thus:
Poor Dominica itself is described to me in a way to kindle a heroic young heart; look at Dominica for an instant. Hemispherical, they say, or in the shape of an inverted washbowl; rim of it, first twenty miles all around, starting from the sea, is flat alluvium, the fruitfulest in nature, fit for any nobler spice or product, but unwholesome except for niggers held steadily to their work: ground then gradually rise,...now bears oak, woods, cereals, indian corn, English wheat,...salubrious and delightful for the European, - who might there spread and grow,... well fit to defend against all comers, and beneficently kept steadily to their work a million of niggers on the lower ranges.

Exotic language, clearly, by one who coveted Dominica's natural attributes. That such wondrous prose did not extend to the inhabitants is evident: woe be upon those who were to work Dominica's fertile lands on behalf of their masters! And that is what passed for scholarly commentary in 1867; a full thirty three years after the formal abolition of slavery in the British West Indies, no less! Why then mention the above today, with all its squalid language of "nigger this, and nigger that"? Keeping Carlyle's word "washbowl" (this time right side-up) in mind, the following tells why: In a December 12, 1991 internal memorandum the World Bank's vice president and chief economist Lawrence Summers argued.; "Should the World Bank encourage more migration of dirty industries to the LDC's?" (i.e. Less developed countries).

The memo which fell into the hands of the international environmental protection group GreenPeace, has stirred controversy worldwide, and has shaken confidence in the intentions of the bank. The memo, has Summer's proposing that the bank encourage the dumping of toxic waste in Africa and other "vastly under-polluted" countries. Summer's is quoted as saying, "I think the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that!". Just imagine. The insolence, disregard, and insult to the populations of the LDC's evident in the proposals by this World Bank official is mind boggling. Again, poor Africa, raped of its population, plundered of its resources, is now singled out as the dumping ground for waste. But pause for one moment! If the repugnant behavior of the garbage barge captain from New York who, in 1989, plied the Caribbean Sea be any guide, it might as well have been Dominica or some other LDC Summer's might have been talking about. GreenPeace has since condemned the memo as "crass, racist, and environmentally destructive". Brazil's recent Minister of Environment Jose Lutzenberger, asked for Summers to be fired. A world-wide outcry has ensued, especially in view of the fact that the World Bank was charged with the responsibility to assist economic and social development in the so-called third world at the Summer, 1992 Earth Summit in Brazil.

In a January 14, 1992 rebuttal memo Summers's lamely argued that his ideas were only meant "as a sardonic counter-point, an effort to sharpen the analysis". A tepid February 6, 1992 World Bank memo responded to the worldwide outcry that "it deeply regretted the memo". That Summer's could have the audacity to make such proposals or float such ideas, is a function of the mindset at the World Bank and the parameters within which he believed himself safe. The forgoing is instructive, and should serve as a warning to all those who would leave the protection of Dominica's habitat solely in hands of any so-called "international civil servant". Certainly, the ideas referenced above are not representative of other well intentioned international experts who operate with the best of motives, including that of preserving the planet so all may share in its riches. However, the Summer's discharge is merely the flip-side of the racist and selfish coin traded-in by Carlyle a century or so ago. The trajectory of Summer's proposal is a stern warning that many individuals and organizations in this so-called "new world order" are still caught within the web of their colonial prejudices, and seem unable to escape it. Accordingly, we should welcome help from those who would, in good faith, seek to offer it. But popular local input, and oversight must never be far removed from any environmental impact study or development policy. We should always be wary of those who appreciate Dominica's natural attributes, without sparing a moment of concern for the development of their fellow humans, who form a part of that habitat. With that in mind, it must be remembered that for years (and to this date, I dare say!) South Africa boasted the most splendid of game parks and natural reserves, while crushing its black population underfoot; condemning the majority population to a life of abject socio-economic misery.

In that vein, a very laudable statement, with regard to human concerns, was issued by Dr. Peter G.H. Evans, an Oxford University-based environmentalist who spoke at a

Dominica Association of Washington D.C./Smithsonian Visiting Scholars Program event, at the Georgetown University Law Center, in Washington D.C. on November 16, 1991. At that time, while championing the idea of a bird reserve in the south of Dominica, he cautioned his guests to always be mindful that when they viewed the splendor of Dominica's varied bird life, they see beyond. Beyond to the inhabitants so as to, in his words, "appreciate their difficulties, needs and aspirations". The humane character expressed by Evans and others, is what will build an indestructible bond between Dominican environmentalists and their foreign friends and allies. Simply put: to save the planet, old prejudices and practices will have to go. And, further, it is useless to speak of saving the birds, or forests, if people are saddled by poverty and/or social injustice.

Conclusion

Not all the challenges to Dominica's natural habitat could be outlined. However, it my hope that this will represent a clarion call for more Dominicans to assist government, and non-government efforts aimed at preserving Dominica's natural environment. With the current threats to the island's protected banana market (as well the environmental negatives of that industry itself) it is certain, that diversification, proper land use, and eco-tourism would enhance economic growth. But to exploit these opportunities requires, mass participation spurred by the adoption (on an individual) level of a conservation consciousness. Vwa Diablotin, an insert to the New Chronicle, and published by Arlington James and M. Jones of the Forestry and Wildlife Division, is currently spreading such conservation and nature awareness concepts to the very young . Vwa Diablotin, reflects a positive beginning to the journey ahead for all Dominicans, indeed, humanity. In that regard, it is of essence, that we educate ourselves and make the relevant sacrifices where necessary; time is running out.

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