Mango Groove (A)1
Mahajanga, Madagascar

Seamus DuBois sat on his couch in his computer-cramped office at Microsoft headquarters taking a break from work. It was 3:00 am and the shipping deadline for Windows 98 was in just a few weeks. Seamus had been practically living in his office for the past few months. Meals were catered in and his team was consumed with meeting their ship date. As Seamus sipped his coffee, he started realizing how long it had been since he had taken any time off to pursue his interests outside of work. In fact, the last truly liberating feeling he had was after Windows 95 shipped, Jay Leno came to host the launch, and according to tradition, all the developers jumped into the fountain on campus to celebrate. That only lasted a day, however, and in his mind he had since become Microsoft's slave once again. He looked at the globe on his desk and idly began spinning it around. As the globe slowed to a stop, he watched as if waiting for a divine sign – Madagascar.

Seamus continued his work over the next few weeks contemplating what he would do next. Why not try branching out and do something new? Having grown up on a farm, he had always been interested in agriculture. He also loved to travel, and he remembered watching televised wildlife programs as a child that featured lemurs and the diverse wildlife found only in Madagascar. He also spoke fluent French, which was quickly rusting away. Madagascar was one of the poorest countries in the world and also one of the most environmentally degraded. In fact, close to 90 percent of the island nation had been deforested due to slash-and-burn agriculture, fuelwood production, and logging, in turn causing extreme erosion and loss of biodiversity. Coming from the Pacific Northwest, he had watched loggers clear complete mountainsides over the years and now he closely followed issues of deforestation and sustainable ecosystem. He believed in economic market forces, but somehow the intrinsic value of nature had been left out of the system. He also felt it was not equitable that industrialized countries could benefit so much from developing country products such as medicinal plants, hardwoods, and cheap labor, yet the populations in those countries were stuck in vicious cycles of poverty. Maybe it was time he explored his passions outside writing software.

In the spirit of globalization and humanitarian development, he began devising a business plan that would benefit local villagers and their environment by producing a product he could sell in the U.S. With this in mind, he decided to learn more about working in a developing country and explore his options in Madagascar for a year to see what might develop. See Appendix 1 for background information on Madagascar.

One Year Later

It was 1999 and Seamus was sitting at the Pakiza restaurant in the small tropical town of Mahajanga, Madagascar. The town shops were closed for midday siesta hours, and he was eating his favorite chilled vanilla yogurt accompanied by a delicious glass of freshly made mango juice. It was December and the rainy season was just getting under way. It was also the height of mango season and the weather was almost unbearably hot and humid. Dark clouds were rolling in and the rain would soon inundate the already flooded streets and overflowing sewers. Seamus was again reflecting on his life and contemplating his next course of action, but this time mangos was his focus rather than software. More specifically, he was thinking about starting a business to produce and export dried mangos and other fruits. What

type of operation should he invest in based on the experiences and logistical challenges he had encountered over the past year in Mahajanga? Which technology would be most efficient? Which would be most profitable? Which would yield the most marketable product? Which technology would be best for the Malagasy people and the environment?

Seamus was getting ready to return to Seattle where he would make a decision about a possible longer-term move to Madagascar. He was thinking about becoming a supplier of dried fruit. He would sell to distributors in the U.S. or companies that buy direct. Finances were not really an issue since he had savings from his Microsoft days. He was thinking he could get a business license in Madagascar, buy or rent a house in Amborovy, and live there the majority of the year. True, he may have to bribe someone to get his business license and bank account, but that's the way things seemed to work unless he worked for an NGO or was a diplomat. He could even live part of the year in Seattle depending on the season. After a year in Mahajanga he was thinking he would need a dose of western civilization every now and then! Before leaving, he arranged to make another round of visits to existing dried fruit producers in the area to better understand their operations and the choices they made so he could better plan the scale, scope and technology of his own business.

Drying mangos seemed very simple in theory: peel and cut the fruit, dip the slices in a preservative such as metabisulphate (sulfur dioxide) or citric acid, put them in a dryer and wait till they dry. When finished, the mangos should be uniformly bright golden orange, not too fibrous, not too chewy, dried to about 15 percent moisture content, and ready to eat or to package and ship. However, Seamus had learned that every stage in the process was an art, from picking the fruit to packaging it, and that there was no one way to do each step. He had seen blackened mangos, ant-infested mangos, crispy mangos, you name it. Laughing to himself, he placed a napkin over his juice to deter any flies from dropping in, and smiled as he recalled his first impressions of Mahajanga.

Mahajanga

Mahajanga was timeless. The word *Mahajanga* means "place of healing" in Malagasy and the peacefulness and friendliness of the people there were a testimony to this. Mahajanga was a relaxed coastal town in northwestern Madagascar, situated at the mouth of the Bestiboka River, whose web of tributaries emptied into the Bay of Bombeteka, dyeing the sea the color of red clay (due to erosion of deforested land). The fall and winter months brought sunny, dry cloudless days, but the summer months brought monsoon rains and flooded streets. Somehow, after thirty hours of travel from the West Coast of the U.S., Mahajanga gave the impression of reaching the end of the earth. There were a couple of paved roads, but most were dirt and ridden with potholes. During working hours, old beat-up Renaults slowly wove their way around ox carts, mostly barefoot pedestrians and colorful *pousse-pousses* or rickshaws. During lunch the buildings were completely closed with metal shutters to keep the heat out as the town slept. As the afternoon waned and twilight approached, the streets filled with roadside benches where people ate brochettes, manioc root, and fried bananas. Bars and clubs then filled up with locals, prostitutes, and foreigners, commonly referred to as *vahazah* by the Malagasy. The local myth was that if a foreigner became romantically involved with a Mahajanga local, he or she could never leave.

As one of the regional capitals, Mahajanga had a population of approximately 90,000 and was one of the major ports of Madagascar. It was a deteriorating frontier town with wide promenades, interesting architecture, shady avenues and flowering bougainvillea. It was geographically divided into approximately four market areas: *Mahajanga Be* (Greater Mahajanga), *Mahabibo* (Cashew Nut), and two more impoverished markets on the outskirts of town. As in other parts of east Africa and the Indian Ocean, in addition to the Malagasy people there were a large number of upper-class Indo-Pakistani businessmen. In Mahajanga they owned most of the larger businesses such as electronic appliance shops, jewelry stores, bulk goods centers, hardware stores, and fabric shops. This was socially and economically significant since a definite ethnic class distinction was apparent and a great deal of money was kept within Indian trading circles, excluding the poorer Malagasy. There were numerous churches, at least 20 mosques, and the town has Madagascar's largest Comoran Muslim community.[2]

Approximately ten kilometers from Mahajanga towards the airport was the beach settlement of Amborovy and the village of Petite Plage. The beach was lined with many bungalows built by Western expatriates, upper-class Indians and some Malagasy. Amborovy was also a popular local weekend spot to swim.

About 200 kilometers south of Mahajanga on the road to the capital city of Antananarivo, or Tana, was the protected forested area of Ankarafantsika, which was managed by an environmental NGO, Conservation

International (CI).[3] At about 600 km² Ankarafantsika was the largest remaining forested area on the northwest coast. It was a beautiful spot to hike and see the several endangered species of lemurs, land tortoises, chameleons, birds, and plant life. The
area around Ankarafantsika was the second largest rice producing area in Madagascar and it was also surrounded by mango trees and banana and cassava plantations.

Conservation Enterprise

Forest conservation is a short-term problem in many areas of the world since forest cover is rapidly decreasing, and increasing populations continue to depend on wood and newly cleared agricultural land for survival. Nearly 50 percent of populations in developing countries rely on subsistence agriculture and raising cattle for survival.[1] Unfortunately, the most common cultivation technique is slash-and-burn. A tract of land will remain fertile for a few years using this technique, but after continuous burning, the land soon becomes inert and useless and the farmer must clear more land. In addition, local people need fuelwood. Fuelwood consumption in developing countries is difficult to quantify since much of the supply is also salvaged from slash-and-burn agriculture. Nevertheless, research shows that 3 billion people or close to 80 percent of the population in developing countries rely on fuelwood as a primary source of energy for cooking and heating. In Africa, about 90 percent of extracted timber is for fuelwood supply, accounting for approximately 20 to 30 percent of household expenditures. There are sustainable methods to address fuelwood consumption, however slash-and-burn agriculture is at the root of the deforestation issue in developing countries. Conservation enterprise is one method of addressing deforestation. In the context of the developing world, conservation enterprise essentially involves creating small businesses that place a higher value on preserving natural resources rather than destroying them.

[1] Randall A. Kramer, Narendra Sharma, and Mohan M unasinghe, "Valuing Tropical Forests, Methodology and Case Study of Madagascar" (Washington D.C.: The World Bank, 1995).

The Commercial Agriculture Promotion Project (CAP)

As the town began to stir in the late afternoon, Seamus awoke from his reverie. He paid for his lunch and set out to accomplish his errands to prepare for his return to the U.S. in a few days. He looked for a taxi and found a familiar face, Arthur, in his beat up Peugeot, which was one of the few taxis in good enough condition to prevent exhaust from coming into the car. Arthur was one of the few taxi drivers who spoke a little English and he was always eager to converse. As Seamus got in, Arthur commented on the heat, asked where Seamus was going, and blew cigarette smoke out the window as he started driving. Seamus agreed it was terribly hot, and was thankful for the slight breeze coming through the open window as they turned onto the only paved street in the city where a car could accelerate to 30 mph. He asked Arthur to take him to the CAP office where he was meeting Madeleine, an American business advisor, who planned to take him to visit companies and organizations around Mahajanga that dried mangos. Madeleine was an American graduate student working as a business advisor with the USAID Commercial Agriculture Promotion (CAP) Project in Mahajanga. When Seamus developed an interest in commercializing mangos, he began working with Madeleine and followed her progress with the dried mango projects.

CAP's main office was in Tana and it had field offices in the provincial capitals of Fianarantsoa and Mahajanga, as designed and implemented by Chemonics International.[4] The project's five-year objective was to provide technical assistance to agribusinesses within each region by utilizing the technical expertise of its employees and by presenting business plans to funding organizations. CAP was also established to build rural roads to gain access to prime agricultural areas with potential for development. The funding for CAP initially fell under the USAID *economic growth and agriculture strategic objective*[5] but was later integrated into the *environmental strategic objective* which encompassed the additional goal of environmental conservation. The Mahajanga office provided technical assistance to approximately 50 producers and associations in various agricultural industries in the region. The primary projects were road construction, rice production, mango juice processing, dried fruit and, more recently, ecotourism. The majority of the CAP employees were Malagasy, with the exception of the Chief of Project, the Regional Directors, and the Finance and Engineering Directors, who were expatriates. The CAP office in Mahajanga was directed by an expatriate, and employed seven Malagasy office personnel specializing in agronomy, finance and community development.

Mangos

CAP had just begun to get involved in developing a dried fruit industry when Seamus arrived in Mahajanga a year ago. Its objective was to work with local clients to produce dried fruit and export it to the U.S., Europe and South African markets. Madeleine was working with several CAP clients and also researching export markets. Seamus knew that dried fruit, especially organic, was a growing market in the U.S. so he decided to learn more about the production of dried fruit in Madagascar and its potential for exporting to the U.S.

CAP planned first to focus on mangos since it already had experience working with the company Majunga[6] Food Processes (MFP) which had been drying mangos and other fruits for several years. In addition, the northwestern region of Madagascar, from Mahajanga to Antsiranana, was home to abundant natural groves of mango trees. There were many types of mango trees, but the three primary types were *Hieso*, *Diego,*[7] and *Rano* (*water* in Malagasy). True to their name, Rano mangos were mostly juice, so instead of trying to peel them, the custom was to poke a hole in the skin and suck out the juice. Green mangos of the other two types were either consumed fresh or shredded to make a type of coleslaw that was mixed with traditional spicy *sakai* made from crushed hot peppers. Approximately 80 percent of the mangos around Mahajanga and Ankarafantsika were either the Hieso or Diego variety, which were the best to eat fresh and, as MFP discovered, excellent for drying. The mango season normally ran from mid-October through January, with the last two months overlapping the rainy season. The price typically started at about 2,000 Fmg (Malagasy francs) ($0.38) per kilo and dropped to about 100 Fmg ($.01) per kilo during the height of the season. Consumption was local, and large 10-ton trucks also came from Tana to collect the harvest from villagers. Overall, the majority of the mangos went to waste because the supply during the harvest season was far greater than local demand.

CAP was also promoting dried mangos since MFP's experience and subsequent marketing research showed that it could be a very lucrative export. If producers furthermore obtained organic certification, they could expect selling prices 20 to 30 percent higher. Since drying fruit was not an unfamiliar concept to the Malagasy, dried mangos also had a domestic market since they would make a nutritious addition to local diets in the off-season.

The Dried Fruit Round Table

Seamus just happened to arrive in Mahajanga in time to be invited to the "dried fruit and vegetable round table" that CAP hosted the previous April. CAP invited MFP as well as several other organizations that had experience drying fruit and vegetables. Presentations were given on experiences drying fruit in Madagascar and other countries, on the various dryers and drying techniques available locally, and on marketing opportunities for dried fruit in Europe, the United States and South Africa.

With respect to drying mangos and other fruits in and around Mahajanga, three types of dryers were discussed: solar, propane gas, and electric or diesel. MFP's experiences in solar drying had proven risky since the end of mango season fell during the rainy season. Even though it rained only intermittently, it was necessary to shelter the dryers from moisture and ideally to rainproof them. However, solar dryers were the least expensive and the most flexible type. The idea of a gas-powered dryer came from a project in Burkina Faso where several women's associations were drying mangos with the assistance of a French NGO, CEAS (Centre Ecologique Albert Schweitzer). CEAS had an office in Tana and it manufactured a moderately low-cost, propane gas-solar hybrid dryer housed in a specially designed building suitable for a village environment. CEAS also worked with Fair Trade Organizations[8] in Europe that provided marketing services for producers in developing countries. They helped the Burkina Faso associations export their products. The electric-powered dryer was designed for large-scale industrial operations and required a significant investment. With these three models in mind, CAP decided to support several courses of action at the conclusion of the round table:

- To promote the dried fruit industry overall by researching export markets for dried mangos and other fruits and vegetables
- To build three experimental solar dryers to be tested by CAP clients
- To enter into a joint project with Conservation International and the Vonona Women's Association to pilot test the CEAS gas-solar hybrid dryer and a building design to house it
- To work with a local Belgian entrepreneur to seek funding for an industrial scale electric-powered dryer

Majunga Food Processes (MFP) – Experiments in Solar Drying[9]

As the taxi neared the CAP office, Arthur suddenly hit the breaks. A chameleon was slowly inching across the road. It is bad luck to kill a chameleon in Madagascar, so cars go to great lengths to avoid hitting them. (Unfortunately, Seamus found that dogs did not carry the same clout.) Seamus paid Arthur 2500 Fmg ($0.50) for the taxi fare and got out. Madeleine was just preparing for the visit to MFP to see how their mangos were turning out. She also hoped to collect some samples from CAP's experimental solar dryers to send to prospective importers. Seamus joined her in her car and they headed out to MFP's office and residence in Amborovy.

MFP was a Malagasy company owned and managed by two business partners from Holland and South Africa, Michael Herckenrath and Andrew Whittingdale. Michael and Andrew established MFP in 1991 and they have solar dried several different types of tropical fruit such as papayas, litchis, bananas and tomatoes. They specialized in mangos, however, of which more than 21 tons were exported to South Africa. They normally spent a large part of the year in Madagascar producing dried mangos and woven raffia mats, and the remainder of the year on their farm in South Africa a few hours outside Cape Town.

1998 Production

In 1998 MFP produced and exported 7 tons (one 20-foot ocean container) of solar-dried mangos to South Africa to fill an order for the South African Dried Fruit Corporation (SAD). The SAD was one of the largest importers and exporters of dried fruit in South Africa and was very impressed with the taste and quality of the samples of dried mangos from Madagascar. The SAD opened a letter of credit, and after three months of production, MFP shipped the container from Mahajanga to Cape Town. However, the random sample taken from the shipment purportedly exceeded the SAD's maximum level of grit (dust or sand particles) permitted, and for that reason, the consignment was refused. The mangos did fall under the maximum level of vermin permitted and met other criteria, e.g. humidity, color, size. MFP challenged the SAD's claim that the mangos exceeded the permitted grit level. The SAD did not release payment on the letter of credit, but did reach a compromise with MFP to avoid further legal and financial costs, by agreeing to store the mangos free of charge. MFP then proceeded to market and sell the mangos independently in South Africa for a wholesale price equivalent to $5.00 to $6.00 per kilo. These mangos then sold on the retail market for approximately $10.00 to $12.00 per kilo.

As Seamus learned from Michael and Andrew over the past year, producing export-quality dried mangos in Madagascar was not an easy task. They began by setting up several drying stations, then announcing to the villagers by word of mouth and on the radio that they needed to collect mangos. They specified that the mangos must be hand picked, unbruised and *soma*, a Malagasy word meaning that the mango was physiologically mature but still required a few days to fully ripen. It was difficult to ascertain exactly how the mangos were when they were picked, and since they arrived primarily via ox cart many were badly bruised and could not be used for drying. (Bruises became black spots when dried.) In addition, since so many mangos arrived all at once, it was difficult to sort and inspect them to ensure the best quality. When there were too many mangos to process, they could be stored for just a short time before they became too ripe to cut and dry. It was also unrealistic to tell villagers, who had typically traveled a full day by ox cart, that their mangos did not meet quality standards. Consequently, Andrew and Michael were stuck with a lot of mangos they could not use. Nevertheless, MFP hired villagers to prepare and dry the mangos for each drying station, and they managed to produce seven tons to fill the SAD order. They packaged the dried product into 2.5 kg plastic bags and packed them for export in reinforced cardboard cartons.

The MFP Village Model

In 1999 MFP decided to pilot test a slightly different approach to producing dried fruit. They still wanted to continue solar drying since the cost, size and mobility of their dryers made for a flexible and less expensive production process. Solar dryers were also more eco-friendly and could still produce export-quality output. Michael and Andrew felt that any type of industrial-sized, central drying operation that required other fuel would invite the same raw material transport problems they encountered in 1998, and pose an accompanying set of logistical problems to ensure a supply of gas or diesel fuel. Thus, they envisioned a decentralized village model. The idea was to station portable dryers around Mahajanga with villagers owning mango trees. The villagers would be trained to prepare the mangos and use the dryers. Michael and Andrew would then go to each site to inspect, purchase and collect the dried mangos, which they would then package at their central site into bags and cartons for shipment.

Exhibit 1

MFP Village Model Cash Flow

MFP Village model using 100 solar dryers						
Costs in FMG [5,500 FMG = 1 USD]						
Villagers' Production Costs and profit – 7 tons of dried mango (one container)	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Raw Materials - 14.7 kg Fresh = 1 kg Dry						
Price/kg fresh	150	150	150	150	150	150
Quantity required for 7 tons dried (kg)	102,900	102,900	102,900	102,900	102,900	102,900
Total raw materials	**15,435,000**	**15,435,000**	**15,435,000**	**15,435,000**	**15,435,000**	**15,435,000**
Supplies and Equipment						
Metabisulfite or Citric Acid	7,000	7,000	7,000	7,000	7,000	7,000
Equipment (knives, cutting boards, buckets, cleaning agents, soap, gloves)	2,500,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Total supplies and equipment	**2,507,000**	**1,007,000**	**1,007,000**	**1,007,000**	**1,007,000**	**1,007,000**
Total Production Costs per container	**17,942,000**	**16,442,000**	**16,442,000**	**16,442,000**	**16,442,000**	**16,442,000**
Total production costs per kilo	**2,563**	**2,349**	**2,349**	**2,349**	**2,349**	**2,349**
Sales Revenue Villagers						
Unit price per kilo	10,000	10,000	10,000	10,000	10,000	10,000
Total sales for 7 tons	**70,000,000**	**70,000,000**	**70,000,000**	**70,000,000**	**70,000,000**	**70,000,000**
Earnings before tax – villagers						
Net working capital per kilo	7,437	7,651	7,651	7,651	7,651	7,651
Networking capital Per Container	52,058,000	53,558,000	53,558,000	53,558,000	53,558,000	53,558,000
Accumulated Working Capital per Container	**52,058,000**	**105,616,000**	**159,174,000**	**212,732,000**	**266,290,000**	**319,848,000**
MFP operations costs and profit per 7 ton container	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Purchase of Dried Mangos from villagers	70,000,000	70,000,000	70,000,000	70,000,000	70,000,000	70,000,000
Packaging - materials, labor and electricity	13,230,000	13,230,000	13,230,000	13,230,000	13,230,000	13,230,000
Fuel	2,040,000	2,040,000	2,040,000	2,040,000	2,040,000	2,040,000
Sample testing	2,750,000	2,750,000	2,750,000	2,750,000	2,750,000	2,750,000
Depreciation	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000
Miscellaneous	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Total	**91,320,000**	**91,320,000**	**91,320,000**	**91,320,000**	**91,320,000**	**91,320,000**

Fixed Asset Costs						
Dryers	20,000,000					
Heat Sealer	600,000					
Total	**20,600,000**					
Sales Revenue in South Africa						
Quantity (kg)	7,000	7,000	7,000	7,000	7,000	7,000
Unit Price	35,000	35,000	35,000	35,000	35,000	35,000
Total Sales Revenue	**245,000,000**	**245,000,000**	**245,000,000**	**245,000,000**	**245,000,000**	**245,000,000**
Earnings before tax - MFP	**133,080,000**	**153,680,000**	**153,680,000**	**153,680,000**	**153,680,000**	**153,680,000**
Cash in-flow	134,880,000	155,480,000	155,480,000	155,480,000	155,480,000	155,480,000
Net Working Capital per Container	134,880,000	155,480,000	155,480,000	155,480,000	155,480,000	155,480,000
Accumulated Net Working Capital per Container	**134,880,000**	**290,360,000**	**445,840,000**	**601,320,000**	**756,800,000**	**912,280,000**

With the village model in mind, MFP's Engineer, Geoff Boulderson, designed new inexpensive portable solar dryers made specifically for the local conditions of Mahajanga. All of the materials were available locally, and there were no tools required for assembly. The dryer was basically a steel frame made of reinforcing rods covered with a plastic tray and side ventilators made of black netting. The cover was made of infrared plastic which simply unrolled over the frame. The dryer also stood about one meter above the ground to prohibit any dust or mud from contaminating the fruit. The dryer parts weighed only 15 lbs, could be stacked for transport, and then assembled in minutes at the site. The unit cost per dryer was 200,000 Fmg ($40.00), and the output for dried mangos was approximately 20 kilos per month per dryer. Therefore, with 100 dryers, MFP could produce approximately two tons per month, or between six and seven tons per season.

CAP Solar Dryers

Eager to experiment, Michael and Andrew tried three new ways of using CAP's experimental solar dryers as well: the Shell and the Brace (which came to be known as the flying saucer and the coffin) and the NRI (designed by the Natural Resource Institute in Great Britain).

Unfortunately, neither the Shell nor the Brace functioned as hoped. The Shell had low output because it was not rainproof and did not allow for enough air ventilation. The mangos seemed to be cooking and turning black instead of drying. The Brace allowed for sufficient air circulation, and produced a good quality product, but it was not rainproof and its output was limited. Furthermore, both of these were more expensive to build and less easily transported than the MFP dryer. The NRI was a different class of dryer altogether; it was significantly larger and not designed to be moved at all. Its output was greater but it was also much more expensive. It proved to be rainproof and produced an export-quality product. Exhibit 2 Solar Dryer Capacity" compares the costs and output of each style of dryer.

When Seamus and Madeleine arrived that afternoon, Michael and Andrew had just finished a few test runs. The MFP mangos came out beautifully, however the others were mediocre. Based on this experiment, MFP decided to stick with their dryers and they planned to produce a larger quantity next year. Exhibit 1 shows pro forma cash flow projections for exporting mangos for the next several years using MFP's Village approach.

Vonona Women's Association – Propane Gas Dryer[10]

The next day Madeleine and Seamus went to visit the Vonona Women's Association which had began producing dried mangos using the CEAS gas dryer. Vonona means "ready" in Malagasy and the association was formed in

1992 by 30 women living in the small, quiet village of Andranofasika. The village was located along the national road to Tana and on the edge of the Ankarafantsika Reserve. The women all had various jobs such as making embroidered clothing and linens, cultivating rice, and one owned a small *hotely* — not a hotel, but a small restaurant serving local food, which was very popular since it was the only restaurant in the area with a refrigerator!

During the dried fruit conference, the Conservation International representative proposed the idea of financing a pilot of the CEAS gas-powered dryer for Vonona, if CAP would provide technical assistance in the form of marketing, engineering, and business management training. CI was interested in the project since drying fruit could provide an alternative livelihood for villagers around the forest who relied on unsustainable slash-and-burn agriculture for survival. In addition, CI envisioned Vonona's dried mango operation as part of future ecotourism activities.

Exhibit 2

Solar Dryer Capacity

Dryer	Drying Cycle	Capacity per Cycle	Maximum Seasonal (4 months) Output per Dryer	Unit Cost (dollars)	Number of Dryers for 7 tons Production per Season (1 container)	Total Unit Cost (dollars)
MFP	3 days	2 kilos	80 kilos	40	88	3,520
Shell	3 days	1.2 kilos	48 kilos	100	146	14,600
Brace	3 days	1.2 kilos	48 kilos	114	146	16,644
NRI	3 days	8.1 kilos	324 kilos	350	22	7,700

This was an excellent project for CAP since it fit the USAID objective of conservation enterprise.

The First Season

CI approached Vonona with the idea in May, and from the beginning the women were very motivated and excited about the project. They were extremely committed to producing an excellent product and were proud that their business would serve as a role model for others in their community. The goal for the first season was to produce and export 700 kilos of dried mangos, and 2 tons per season in the future, which was the maximum capacity of the CEAS dryer.

CI committed the use of equipment and staff, and committed up to approximately 41,150,500 Fmg ($8,100) to Vonona for the purchase of land, the dryer, and equipment, and construction of the building. The loan was repayable over five years with a one-year grace period. After all costs were accounted for, the loan came out to 41,150,500 Fmg (See the Vonona Six-Year Plan in the table below.) CAP assumed the responsibility of finding a market for the dried fruit and for providing business management training. CAP also hired a consultant who would remain on site in Andranofasika to assist with the construction logistics.

Exhibit 3

CEAS Propane Dryer Capacity

Dryer	Drying Cycle	Capacity per Cycle	Maximum Seasonal (4 months) Output per Dryer	Unit Cost (dollars)	Number of Dryers for 7 tons Production per Season (1 container)	Total Unit Cost (dollars)
CEAS	24 hours	17 kilos	2000 kilos	3,086	4	12,345

Exhibit 4

Vonona 6-Year Loan Repayment Plan

CEAS dryer production for 2 tons of dried mango						
Costs in FMG [5,500 FMG = 1 USD]						
Production Costs	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Price per kg	150	150	150	150	150	150
Total kg requirement	29400	29400	29400	29400	29400	29400
Raw Materials	4,410,000	4,410,000	4,410,000	4,410,000	4,410,000	4,410,000
Propane Gas	6,836,308	6,836,308	6,836,308	6,836,308	6,836,308	6,836,308
Packaging	3,024,000	3,024,000	3,024,000	3,024,000	3,024,000	3,024,000
Labor	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000
Total	**20,270,308**	**20,270,308**	**20,270,308**	**20,270,308**	**20,270,308**	**20,270,308**
Maintenance	1,260,000	1,260,000	1,260,000	1,260,000	1,260,000	1,260,000
Guard salary	1,260,000	1,260,000	1,260,000	1,260,000	1,260,000	1,260,000
Miscellaneous Costs	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Depreciation	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Total	**10,520,000**	**10,520,000**	**10,520,000**	**10,520,000**	**10,520,000**	**10,520,000**
Total Production Costs	**30,790,308**	**30,790,308**	**30,790,308**	**30,790,308**	**30,790,308**	**30,790,308**

Fixed Asset Costs						
Construction	16,643,278					
Land	1,000,000					
Dryer	15,740,000					
Equipment	6,665,925					
Total	**40,049,203**					
Transport						
Transport from factory to Mahajanga	174,720	174,720	174,720	174,720	174,720	174,720
Forwarder Fees	500,000	500,000	500,000	500,000	500,000	500,000
Freight charges to South Africa CIF	7,650,000	7,650,000	7,650,000	7,650,000	7,650,000	7,650,000
Total transport	**8,324,720**	**8,324,720**	**8,324,720**	**8,324,720**	**8,324,720**	**8,324,720**
Sales Revenue from Dried Mangos						
Quantity (kg)	2,000	2,000	2,000	2,000	2,000	2,000
Unit Price/kg South Africa	25,000	25,000	25,000	25,000	25,000	25,000
Total Receipts	**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**	**50,000,000**
Earnings (Before Tax)	-29,164,231	10,884,972	10,884,972	10,884,972	10,884,972	10,884,972
Cash in-flow	-25,164,231	14,884,972	14,884,972	14,884,972	14,884,972	14,884,972
Total Earnings	-25,164,231	14,884,972	14,884,972	14,884,972	14,884,972	14,884,972
Loan	41,150,500					
Total Capital	**15,986,269**	**14,884,972**	**14,884,972**	**14,884,972**	**14,884,972**	**14,884,972**

Loan Payment		10,287,625	10,287,625	10,287,625	10,287,625	0
Total Loan Expenses	**0**	**10,287,625**	**10,287,625**	**10,287,625**	**10,287,625**	**0**

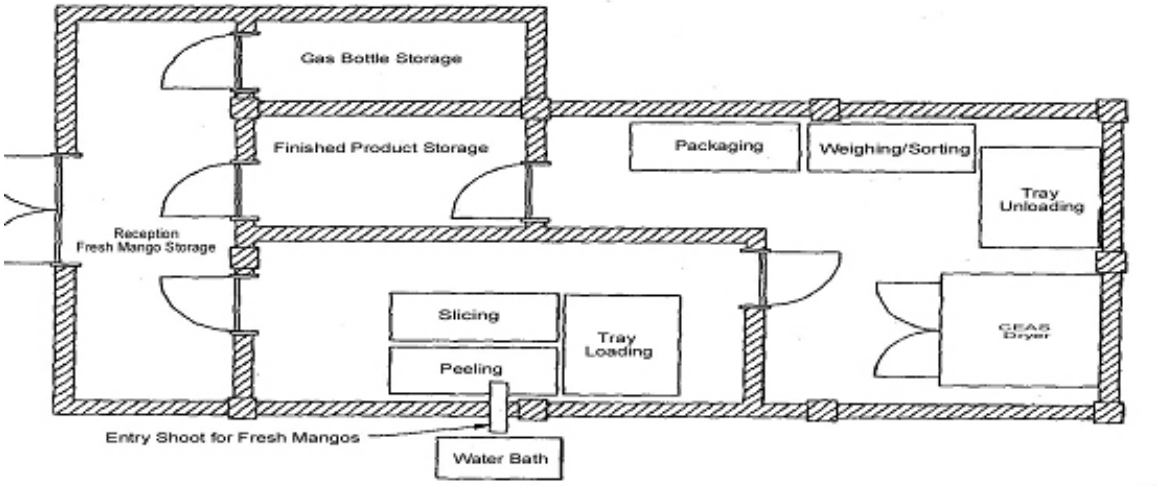
Net Working Capital	**15,986,269**	**4,597,347**	**4,597,347**	**4,597,347**	**4,597,347**	**14,884,972**
Accumulated Net Working Capital	**15,986,269**	**20,583,616**	**25,180,963**	**29,778,310**	**34,375,657**	**49,260,629**

Soon after the dried fruit conference in April, CAP's engineer, Sean White, began working with CEAS and obtaining the plans for the building and the dryer. The building was specifically designed for drying fruits and was divided into two

zones: a humid area where the mangos were prepared, and a dry area where the dryer was installed and where the dried mangos were finally packaged. The few windows in the building were all screened to prevent any insects from entering and contaminating the fruit.

Exhibit 5

Floor Plan for CEAS Dryer Building



The completion of the building and dryer installation was originally planned for September 1st, 1999, which would have allowed enough time for Vonona to receive training and produce samples during the beginning of the mango season. However, village politics caused a few delays. When the project was proposed to Vonona, the Mayor of Andranofasika was supportive and even promised to donate a plot of land to the women. The mayor's wife then decided to create her own association, which she felt should also be part of the business and a recipient of the loan. The Mayor then backed out of his promise to Vonona, saying that he would not allow Vonona to even purchase the land unless both associations could benefit from the project. After several meetings over the following months, the Mayor agreed that Vonona could purchase the land and own the drying operation as long as his wife's association was responsible for collecting the fresh mangos and selling them to Vonona. Once the dispute was settled, Vonona arranged a small inauguration celebration in September so that construction could begin. The inauguration celebration was a part of Malagasy tradition, where in order to bring good luck to the project, a *zebu* (African cattle) is traditionally sacrificed before beginning construction. Vonona did not have the funds for a zebu, and chose the alternative ritual, which entails pouring rum along the perimeter of the building foundation. Following the ritual there were speeches by Vonona President Raholiarinelina, the Mayor of Andranofasika, and representatives from CAP and CI endorsing the project.

The building and dryer installation were completed in mid-November; however the solar cells were not included due to technical difficulties and time constraints. Further inauguration festivities were held November 21st, and training and production began the following day. Unfortunately, due to modest yields of the 1999 mango season, there were very few mangos. The price remained high at 2,000 Fmg per kg ($0.40 per kg.) as compared to an average season, where the price of mangos typically dropped to approximately 100 Fmg per kg. ($.01 per kg). In addition, once the dryer was installed, Vonona experienced some problems with the initial batches processed, which required adjustments to the dryer temperature and air circulation. Consequently, Vonona was unable to start production as originally planned, but was nonetheless able to produce a sufficient number of samples for Madeleine to send to potential importers in the U.S. and Europe.

Exhibit 6

Vonona Village Mango Processing

Women of the Vonona Village in conference

Women slicing mangos in preparation for drying

CEAS propane gas dryer in the Vonona Village

Logistics

After collecting the samples, Seamus and Madeleine sat under the tall teak trees at the CI forest station eating fried fish with spicy sakai, watching a group of Sifaka lemurs traveling through the trees. It was amazing how they moved, each leaping and landing with precision on the same spot on each branch. What a peaceful place, and how sad that slash-and-burn agriculture and charcoal production were quickly destroying this natural habitat. They decided to take a short hike around Lac Ravelobe ("Lake of many crocodiles") hopefully to see some wildlife including crocodiles, snakes, and the large variety of birds, lizards, and chameleons. They both could have done without the spiders, but they were impossible to avoid. As Seamus and Madeleine ended their hike passing through rice paddies, the buzzing of mosquitoes reminded them that it was time to head back to Mahajanga. On the way back they admired Vonona's beautifully dried mangos and discussed some of the logistical challenges that still lay ahead for the women.

First, there was no gas station in Andranofasika. Therefore, propane bottles had to be transported either from the village of Marovoay, one hour away by car, or from Mahajanga, about a two-hour drive. In addition, supplying enough bottles for the whole season (about 60) was impossible since *Solima*, the national gas company, simply did not have enough extra bottles. The women did not own a vehicle so they relied on either CAP or CI to exchange and deliver new bottles on a weekly basis. This was not a problem while CAP and CI were working in the area but it was not a sustainable solution. A reliable supply of gas could also be a problem because gas shortages lasting several weeks were frequent in Mahajanga and Marovoay during the rainy season. Secondly, Vonona needed electricity to power the heat sealer for the bags, and so they relied on the generator in the CI forest station. Again, this was not a long-term sustainable solution. Finally, if Vonona's objective was to export, then communication was a problem in terms of language and technology. The women spoke only Malagasy and had no telephone service. Therefore, it was clear that an intermediate agent was needed in Mahajanga to play key roles in exporting the product.

Transmad – Industrial Diesel Dryer

It was time for dinner when Seamus and Madeleine arrived back in Mahajanga, so they decided to eat at the local pizzeria owned by Daniel DuPrez and his wife. Daniel was originally from France, and before coming to Madagascar and getting married, he was a bush pilot in northern Canada. In addition to the pizzeria, Daniel owned an outback touring company called Transmad. Despite the absence of mozzarella cheese in Mahajanga, Daniel made excellent pizzas, and he was always full of fun stories about landing planes on ice, touring caves outside Mahajanga, taking tourists through the bush, etc. It was also "mandatory" to have some of his homemade vanilla rum after dinner, and Seamus knew that if he declined, his coffee was sure to be flavored!

Following the dried fruit round table, Daniel planned to sell his pizzeria and approached CAP for technical assistance in starting a dried fruit business. Daniel was interested in an industrial-scale French electric dryer called the Cartier. Working with CAP and GERES, a French NGO specializing in dried fruit and vegetable production and marketing, Daniel decided to install a diesel-powered Cartier dryer.

The Cartier had a much greater production capacity and could function completely independent of adverse weather conditions, thereby reducing the overall risk of producing export-quality mangos. However, the Cartier required an investment of approximately $30,000 so it was clearly not an option for any Malagasy villager.

Exhibit 7

Cartier Production Capacity

Dryer	Drying Cycle	Capacity per Cycle	Maximum Season (4 months) Output per Dryer	Unit Cost (dollars)	Number of Dryers for 7 tons Production per Season (1 container)	Total Unit Cost (dollars)
Cartir	12 hours	42 Kilos	10,080	30,392	1	30,392

The Cartier was designed to be electric-powered, but electricity was prohibitively expensive and unreliable during the rainy season. Diesel was more practical, but also required extensive modifications to the dryer. In addition, although some of the dryer parts were locally manufactured, the majority had to be imported from France. Daniel originally planned to have the dryer installed by the 1999 mango season so he would have samples to send to importers. Due to manufacturing and importation delays, however, the dryer was not completed in time, so unfortunately there were no samples to send. However, Transmad planned to continue with other fruits throughout the year and would be ready for the 2000 mango season. In subsequent seasons, Transmad planned to produce and export to France approximately 28 tons of dried fruit, including mangos as well as bananas, pineapple and possibly paprika.

Organic Certification

After dinner, Madeleine, Seamus and Daniel discussed the issue of organic certification. They all agreed that as environmental and health issues were becoming more mainstream, organic production was becoming increasingly popular worldwide. Medallion's research and contact with importers throughout the year also showed that organic foods were becoming commonplace in specialty shops as well as in supermarkets in the U.S., Europe and South Africa, and that consumers were willing to pay approximately 30% more for organic products than for those produced conventionally. Organic awareness in the U.S. was widespread, but as regulations still remained a state policy, products were still sold in some states as "all natural" or even "organic" without actually being certified. However, new organic food laws were being passed, especially in Europe and in the western states of the U.S. (namely California), and certification regulations would soon be required.

Generally, for dried fruit, "organic" means that no pesticides were used to treat the soil where the trees were growing within the past three years, and no preservatives such as sulfur dioxide (metabisulphite) were used in the drying process.[11] Regulations did allow citric acid to be used as a preservative. With regard to producing organic dried fruits, Madagascar was a step ahead. The only crops that required pesticides were tobacco, tomatoes, and cotton, which left the majority of the country naturally "organic." However, Madagascar did face logistical challenges. Despite the fact that virtually every fruit tree was technically organic, regulations required that a certain area or specific fruit trees within that area be officially inspected to obtain organic certification. To come up with an estimate for Vonona, Madeleine had previously gone out and talked to villagers and counted the mango trees in the immediate vicinity around Andranofasika. However, the mango supply came from trees scattered throughout the region, with only a few plantations around Mahajanga. Producers could purchase raw materials directly from villagers to ensure that they came from specific trees, but by and large raw materials were purchased from collectors, roadside stands or from local markets. Thus, it was nearly impossible to be sure of the origin of the mangos used in drying. In addition, EcoCert, a European based certification organization, was the only company with representation in Madagascar. Although EcoCert did collaborate with other organizations worldwide, it had a virtual monopoly on organic certification in Madagascar. During meetings with EcoCert, CAP and its clients drying fruit estimated that organic certification for mangos alone would have added approximately $0.50 per kg per year to the cost of production. This was still feasible, assuming the finished product could be sold as "organic" at a 30 percent higher price. However, EcoCert charged the same amount to certify *each* type of fruit, regardless of whether the trees were growing on the same plot of land. Therefore, if bananas and papaya were eventually added, an additional $1.50 per kg would be added to the production costs, rendering the project uneconomical.

Exporting

After dinner Seamus took a taxi to his room at the Zaha Hotel in Amborovy. Tonight he traveled in "the carpet taxi" driven by Jean. Jean's taxi was the typical old Renault 4 but he had covered the entire interior with red and pink carpet. Like many taxi drivers, Jean always had a story. Tonight he told Seamus that the Zaha Hotel had been built by an upper class Indian family and many Malagasy considered its design and landscape very unattractive. The hotel was also disliked because a sacred tamarind tree was cut down for the construction. Cutting a tamarind tree was *fady* or taboo for the Malagasy, and it meant very bad luck. Sure enough, a kitchen fire caused the hotel to burn down in its first year. It was then rebuilt, and despite the expensive rates by Malagasy standards ($40.00 per night), it was still in business.

Seamus spent the evening in his bungalow on the ocean, listening to the surf, and reading over the exporting and marketing information that Madeleine had provided. Despite its close proximity to South Africa and connections in Europe (primarily France), Madagascar still had limited shipping options. There were only two major

airlines servicing the country, Air Madagascar and Air France, both of which charged exorbitant rates for airfreight. In addition there were only two ocean freight companies, Mediterranean Shipping Lines and a local company called SCAC, servicing the major ports. Fortunately, Mahajanga was serviced by both of these companies and ground transportation to another port was unnecessary. The flat price per container regardless of weight or contents was between $3,000.00 and $3,500.00 to the U.S., $2,000.00 to European ports and $1,500.00 to South Africa, adding between $0.30 and $0.50 per kilo to the FOB price. Despite the high shipping charges, CAP's clients remained competitive on the export market. However, one difficulty for Vonona was producing a large enough quantity. In order to profit from exporting to the U.S., Europe or South Africa, the product had to be shipped by the container load, which was equivalent to seven tons of dried mango. This was not a problem for MFP or Transmad, but Vonona's maximum production was only two tons. Therefore, the women had to either store the mangos and other dried fruits until a container load was produced, sell the product to either MFP or Transmad, or share a container with another exporter. This complication only reinforced Vonona's need for a third party to help them export.

Marketing

Traditional Markets

Much of CAP's research was conducted using the newly installed Internet connection in Mahajanga and Tana. Since it was extremely expensive to call or travel to Madagascar, and mail to Europe and the U.S. could take between three to five weeks, Internet capability could potentially open up the world to a town as isolated as Mahajanga. Madagascar was ahead in telecommunications technology compared to much of Africa. However, access was available to a limited number of companies and individuals who could afford telephone service and a computer. Fortunately, CAP was able to provide this service to its clients.

According to the information and responses Madeleine had already received from importers in the U.S. and Europe, exporting looked promising. (See Appendix 2 for a description of U.S. importers.) There was a variety of interested importers proposing to sell mangos on consignment or start purchasing a smaller quantity. Two companies in the U.S., Trader Joe's and Kariba Farms, were especially interested in buying a container of Vonona's mangos and so was a German importer, BioHerb. BioHerb was very impressed with the samples they received and wanted to place an order for the following season.

In addition to mango slices, dried mangos were sold in trail mixes, cake mixes and ice creams, and could also be ground into a powder and sold as flavoring. The majority of dried mangos came from Thailand and the Philippines, however supply coming from Mexico and Central America to the U.S. market was increasing. CAP's research showed that product imported from the Far East, though cheap, was normally treated with sugar and preservatives, whereas demand was increasing for organic or "all natural" products. This is where products from Madagascar could be competitive. The wholesale price obtained per kilo varied in each country. Prices in the U.S. and Europe ranged from $2.90 per kilo for traditional product to $8.00 per kilo for organic product. Prices obtained by MFP in South Africa were approximately $5.00 to $6.00 per kilo for traditional product.

Fair Trade Associations

Fair Trade Associations were non-profit organizations formed to help producers and farmers in developing countries profit more for their products and to guarantee that products were bought under fair trade conditions. The idea dated back to the 1960's when a few Alternative Trading Organizations started promoting traditionally manufactured handicrafts and textiles. However, the Max Havelaar Foundation[12] in The Netherlands, which was involved in marketing coffee, honey, cocoa and bananas, more recently promoted the idea in 1988. Since then, many other organizations have emerged throughout the U.S., Europe and Africa. The organizations served as a marketing resource for the developing world and helped establish direct relations between producers and buyers. This direct relationship guaranteed a higher market price for producers by eliminating the large distributors that drove the FOB price down. The widespread slogan of Fair Trade Associations – "trade not aid" – accurately described their objective of establishing independent sustainable business relationships between the North and South, which focus on fair business relationships, not aid packages. In order for a product to receive the Fair Trade stamp of approval, the relationship between the producer and buyer had to meet certain conditions:[13]

- The product was purchased directly from farmers in developing countries and registered as such with the Free Trade Association.
- The price was derived directly from the world market price, and often set a little higher to promote independent economic development.
- There was a guaranteed minimum price.

- Both parties had to be interested in a long-term business relationship.
- Labor conditions
    - Freedom of trade union membership
    - Anti-discrimination and equal pay
    - No forced labor or child labor
    - Safe and healthy working conditions
- Environmental conditions
    - Protection of wooded and wildlife areas
    - Prevention of water pollution
    - Reduced pesticide usage
    - Reduced artificial fertilizer usage
    - Composting waste
- The quality of the products had to comply with standards set by the consumer market.

Fair Trade Associations were a potential resource for Vonona and possibly MFP's village model since the villagers were producing the mangos and have autonomy over their business. Transmad did not qualify since Daniel would only be paying wages to the local Malagasy. Madeleine contacted many of these marketing organizations all around Europe, but at the time there was very little demand for dried mangos. Nevertheless, this was still considered a viable option for future seasons.

Going Home

The next day Seamus boarded the plane to Tana en route to Seattle. He decided to go home, follow up with U.S. contacts and put together a plan invest in Madagascar. He chuckled to think that Air Madagascar's 747 was the oldest flying 747 in the world, and it accounted for much of the country's national debt. Despite "Air Mad"'s excellent reputation, though, he chose to fly on to Paris via Air France. As the plane took off and circled over the water, he thought about the three different drying operations available for his venture, maintaining a special interest in the Vonona approach.

Clearly there were many factors to consider when starting a business in a developing country. It was not just about targeting the largest profit margin. Which model was really the best for the Malagasy? Which model was sustainable? Which model was the best approach to creating a conservation enterprise?

Appendix 1

Madagascar Country Background[14]

Madagascar is the fourth largest island in the world, located approximately 400 kilometers due east of Mozambique. It is geographically considered part of Africa; however, its original tribe and culture, the Merina, was originally of Indo-Malaysian decent. This influence is visually apparent primarily in the people's appearance, their square hut village structures as opposed to the round African huts, and in their terraced rice cultivation techniques. Today there are 18 different tribes with varying influences from continental Africa, Europe and Asia. The Malagasy language is a reflection of its diverse population, with a structure and grammar founded in the Malayo/Polynesian language group, and other influences from Bantu, Arabic, French, English and Sanskrit.

Democratization in Madagascar was similar to that of other African countries. It differed only in that there was comparatively little bloodshed, and ties with France remained strong for some time after independence in 1960. Despite continuing support from France, the isolationist and elitist policies of the socialist dictatorship in power until the first competitive elections in the early 1990s drove the economy into a fourth world state where it remains today. It has GDP per person of $800. Ironically, during the 1997 election, the former dictator, Didier Ratsirake, was reelected as the reformed democratic president.

According to recent population census, the population of Madagascar is approximately 18 million people. It doubled since 1966, and is expected to double again by 2020. Approximately 80 percent of the population lives in rural areas and 85 percent work in agriculture, fishing, and forestry.[15] Main export crops are coffee, vanilla, sugarcane, cloves, cocoa, rice, cassava (tapioca), beans, bananas and peanuts. The staple food in Madagascar is rice. Surprisingly, the Malagasy consume more rice per person than any other country on earth! The nation has gone from being an exporter of rice during the French colonial period to a net importer today. A typical meal for a rural Malagasy is rice two or three times a day, spicy red pepper sauce, and maybe some chicken, beef or fish once per day. Many communities also have the benefit of tropical fruit to supplement their diet. With an average per capita income of $230, Madagascar remains one of the poorest countries in the world.[16]

Since Madagascar is an island, the isolationist polices of the dictatorship period were exacerbated. The French language ceased to be taught in schools, and in rural areas only the few elderly villagers speak French today. Consequently, the majority of the people only communicate in Malagasy. Education remains poor, but the Malagasy are very eager to learn and they maintain a strong faith and commitment to improving their livelihood.

Environment

Madagascar's isolated location has also allowed for the development of unique flora and fauna. Approximately 75 percent of the plants and animals, namely lemurs, hundreds of butterflies, chameleons, medicinal plants and baobob trees, exist nowhere else on earth. This uniqueness has placed Madagascar among the megadiversity countries, and thus a high priority for receiving foreign environmental aid and biodiversity conservation group assistance. Until the 1960s, much of Madagascar's unique forest remained intact. However, over the last thirty years, over 80 percent of the forests have been destroyed or severely degraded as a result of timber exports, slash-and burn agriculture and fuelwood extraction. Some environmentalists estimate that if deforestation continues at its current rate, Madagascar only has 50 years of remaining forest resources to look forward to![17] In addition to loss of unique biodiversity, Madagascar is losing already fragile soil due to accelerated erosion, called *lavakas*, or extreme gully formation with erosion rates seven times the global average. From an aerial view, the central highlands appear to have been repeatedly slashed, exposing the red clay. *Lavakas* are a natural occurrence, but it can also be easily triggered by wheel or cattle tracks. Over time, the gullies have created entire valley systems, resulting in a network of wide tributaries descending primarily to the west and "bleeding" into the ocean. It is unclear if the highlands were originally forested; however, the low lands definitely were, and now they have no protection from the heavy runoff of rainwater.[18]

Deforestation, resulting in erosion and flooding also render it difficult to maintain passable roads, and consequently many remote areas of country are inaccessible during the rainy season. The roads built during the French colonial period are in extremely poor condition, with few exceptions. Transportation in general throughout the year is unreliable, making it very difficult for people to travel as well as to transport goods. The transportation time and treacherous roads also pose a quality control problem for goods being sold either for export or in other regions. For example, it takes approximately 12 hours to travel 600 km by car weaving in and out of crevices, avoiding pot holes, and sometimes

driving off the road completely, from the town of Mahajanga to the town of Ansohihy, a distance that would normally be covered in just few hours on average roads.

Despite poverty and deforestation, Madagascar remains astoundingly beautiful, and has been called the "Rainbow Island" because of its distinct geographic regions and enormous biodiversity. The Malagasy are a very proud and unique people, and they are aware of the complex interdependence of development and environmental degradation.

MAP of MADAGASCAR

Appendix 2

U.S. Importers

Company	Ann's House of Nuts	Ambrosia	De Choi Specialty Foods
Contact	Dan Zinke	John Willsie	Henry Kaplan
Address	8375 Patuxent Range Rd Jessup, MD 20794-9620	2893 Coral Way Punta Gorda, FL 33951	58-25 52md Ave Woodside, NY 11377-7402
Telephone	+ 1-301-523-8194	+ 1-941-639-2850	+ 1-718-507-8080
Fax	+ 1-301-317-6248	+ 1-941-639-5048	+ 1-718-335-9150
Email		ambrosia@sunline.net	
Possible order for 1997	Little	All 7 tons	Not sure
Future demand	More little by little	More little by little	Not sure
Other fruits imported	All tropical fruits	Papaya and pineapple	Apricots and raisons
Samples requested	Three 2-kilo bags	One 1-kilo bag	No preference
Pretreatment required	1 bag treated with SO2, 1 with citric acid, and 1 without treatment	SO2	None
Estimated importer price	Need to see samples	Need to see samples	Need to see samples
Port of arrival	Baltimore	Miami	New York
Terms	Probably CIF	CIF	CIF
Payment method	Open account	Open account	To be negotiated
Packaging	Bulk	50-60-kilo boxes	50-60-kilo boxes
Other	See note 2 below	Organic certification very important	See note 3 below

1. Product must be of same quality they are currently purchasing
2. They have not been pleased with products from Madagascar in the past
3. They would take a whole container on consignment

Company	Hadley Fruit Orchards	Indo-Med Commodities	Kariba Farms
Contact	Eldon Patrick	Elizabeth Wisell	David Am
Address	25850 South 652 Loop Grove, OK 74344	350 Junius St. Brooklyn, NY 11212	14 Ridgedale Ave, #110 Cedar Knolls, NJ 07927
Telephone	+ 1-909 849-4668	+ 1 718-922-6896	+ 1-973-292-3600
Fax	+ 1-909-849-1663	+ 1-718-922-1680	+ 1-201-292-4999
Email	hadley@aol.com		
Possible order for 1997	Possibly 1 ton	All production	About 1 ton depending on price
Future demand	Demand could increase	Large quantities	Several tons
Other fruits imported	All dried fruit	Papaya and bananas	All fruits
Samples requested	1 kilo	Between 1 and 2 kilos	1/2 kilo
Pretreatment required	SO2	None	None

Estimated importer price	About $4.62/kilo	Did not want to specify, but probably very high	$8.25/kilo
Port of arrival	The least expensive for shipping to Oklahoma	Port Elizabeth	Port Newark
Terms	CIF	FOB	FOB
Payment method	Open account	To be negotiated	Net 30
Packaging	1 or 2 48-kilos bags per box	Bulk	2 48-kilo bags per box
Other	Mr. Patrick is very helpful	None	See Note 1 below

1. They buy mangos treated with SO2, all natural and organic certified

Company	**Red River Foods**	**Seawind International**	**Trader Joe's**	**Weaver Nut Co.**
Contact	David Rosenthal	Stephen Ward	Rachel Silver	E Paul Weaver III
Address	7400 Beaugore Springs Rd, Richmond, VA 23225-5517 - See note 1 below	5375 Avenida Encinas Suite A Carlsbad, CA 92008-4369	938 Highland Ave Needham Heights, MA 02194	1925 West Main St Ephrata, PA 17522
Telephone	+1-804-320-1800	+ 1-760-438-5600		+ 1-717-738-2735
Fax	+ 1-804-320-2896	+ 1-760-438-5677		+ 1-717-738-6999
Email				
Possible order for 1997	All production	Small quantity to start out	Small quantity to start out	Small quantity to start out
Future demand	Any quantity	Any quantity	Several tons per year	A few tons
Other fruits imported	Pineapple and papaya	All tropical fruits. See note 2 below	All fruits	Pineapple, papaya and ginger
Samples requested	1 kilo for each location	1 or 2 kilos	1 kilo	1/2 kilo
Pretreatment required	SO2	None	None	SO2
Estimated importer price	About $4.53/kilo	About $3.40/kilo	About $5.50/kilo	About $3.85/kilo
Port of arrival	Norfolk and Los Angeles	Los Angeles	Boston	Newark
Terms	C&F or CIF	CIF	CIF	CIF
Payment method	Letter of credit or payment upon inspection	Contract, payment upon delivery	Open account	Letter of credit or open account
Packaging	Bulk	4 24-kilo bags per box	Retail packaging	24 kilos per box
Other	Prefer machine dried	Would like organic certified	They would send labels	They would like a very orange color and slices between 30 and 40 centimeters.

1. Red River Foods, Richard Klein, 864 S Robertson Boulevard, Los Angeles, CA 90035; Tel: 310-652-2315; Fax: 310-652-0516
2. Appearance, taste, color and price must be unique.

ENDNOTES:

[1] This case was written by Madeleine Smith of Monterey Institute under the supervision of Professor Richard Linowes of the Kogod School of Business at American University in Washington, D.C. It was developed in conjunction with the Emerging Market Development Advisors Program (EMDAP) funded by the U.S. Agency of International Development (USAID) and administered by the Institute of International Education (IIE).

[2] Comoros is a group of islands between Mozambique and Madagascar with a population of about a half million people. ngton DC-based environmental INGO that is a donor organization that implements independent projects worldwide. CI was founded in 1987 by two former employees of the Nature Conservancy who set out to test innovative techniques in environmental and biodiversity conservation by enlisting community involvement in conservation efforts. Today CI employs over 350 people in 22 countries and partners with over 100 NGOs, 50 government institutions, and 40 indigenous groups. CI's mission is "to conserve the Earth's living natural heritage, our global biodiversity, and to demonstrate that human societies are able to live harmoniously with nature." CI's approach to pursuing these goals is rooted in the Biosphere Reserve Concept, which grew out of the UNESCO Conference on the Conservation and Rational Use of the Biosphere, and the resulting Man and the Biosphere Programme. The reserve concept views biodiversity conservation in terms of hotspot zones and the degree of economic development that should be allowed there as opposed to focusing solely on existing park reserves and the preservation of specific species. Source: Conservation International web site http://*www.conservation.org*.

[4] Chemonics International, founded in 1975, is one of the largest U.S. consulting firms providing expertise in developing and emerging-market countries around the world. Based in Washington, DC, it specializes in business solutions for agriculture, environmental services, private sector development, and law and governance. It also works with a wide variety of clients including African Development Bank, Asian Development Bank, Danish International Development Agency, Government of the Netherlands, Government of Egypt, Inter-American Development Bank, U.S. Trade and Development Agency, USAID, and the World Bank. Source: Chemonics International web site *www.chemonics.com*.

[5] USAID country missions are organized to pursue six strategic objectives: Economic Growth and Agriculture, Population and Health, Environment, Democracy, Human Capacity Development, and Humanitarian Assistance. The emphasis and funding for each objective depends on the country's need, its level of cooperation in promoting democracy, and its success at the project level. Much of the funding for Madagascar supported the environmental strategic objective, and more specifically, protecting biologically diverse ecosystems now under siege. Source: www.USAID.org.

[6] Former colonial spelling of "Mahajanga". This spelling more accurately reflects the actual pronunciation of the town's name, which swallows the "ha."

[7] Diego is the colonial name given to the town of Antsiranana located on the northern point of Madagascar.

[8] These are NGOs that assist producers in the developing world to export their products for a higher price and earn a larger share of the profit by establishing direct relations with foreign importers. Fair Trade Associations are discussed in further detail in the "Marketing" section below.

[9] Source: MFP company records.

[10] Commercial Agriculture Promotion Project, *Le Séchage des produits agricoles : l'expérience du Projet CAP.* Mahajanga, Madagascar, 1997.

[11] Source: EcoCert, Antananarivo, Madagascar. EcoCert was an organic certification company based in Germany with offices and partners throughout Europe and Africa

[12] Source: www.maxhavelaar.org

[13] Source: www.maxhavelaar.org

[14] Source: Mervyn Brown, "A History of Madagascar," (Great Britain: Ipswich Book Company, 1995)

[15] Direction de la demographie et des statistiques sociales, Institute national de la statistique, "Recensement général de la population et de l'habitat," (Antananarivo, Madagascar: 1996), p. 21

[16] Source:www.undp.org/hydro/98hdi3, *Human Development Index*

[17] Conservation International website, www.conservation.org

[18] Neil A. Wells and Benjamin R. Andriamihaja, “Extreme Gully Erosion in Madagascar and Its Natural and Anthropogenic Causes” from Natural Change and Human Impact in Madagascar, (Washington and London: Smithsonian Institution Press), p.44.