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Healing Arts, Healthy Economies? *Emerging Markets for Ayurvedic Goods and Services*

COLOMBO, Sri Lanka

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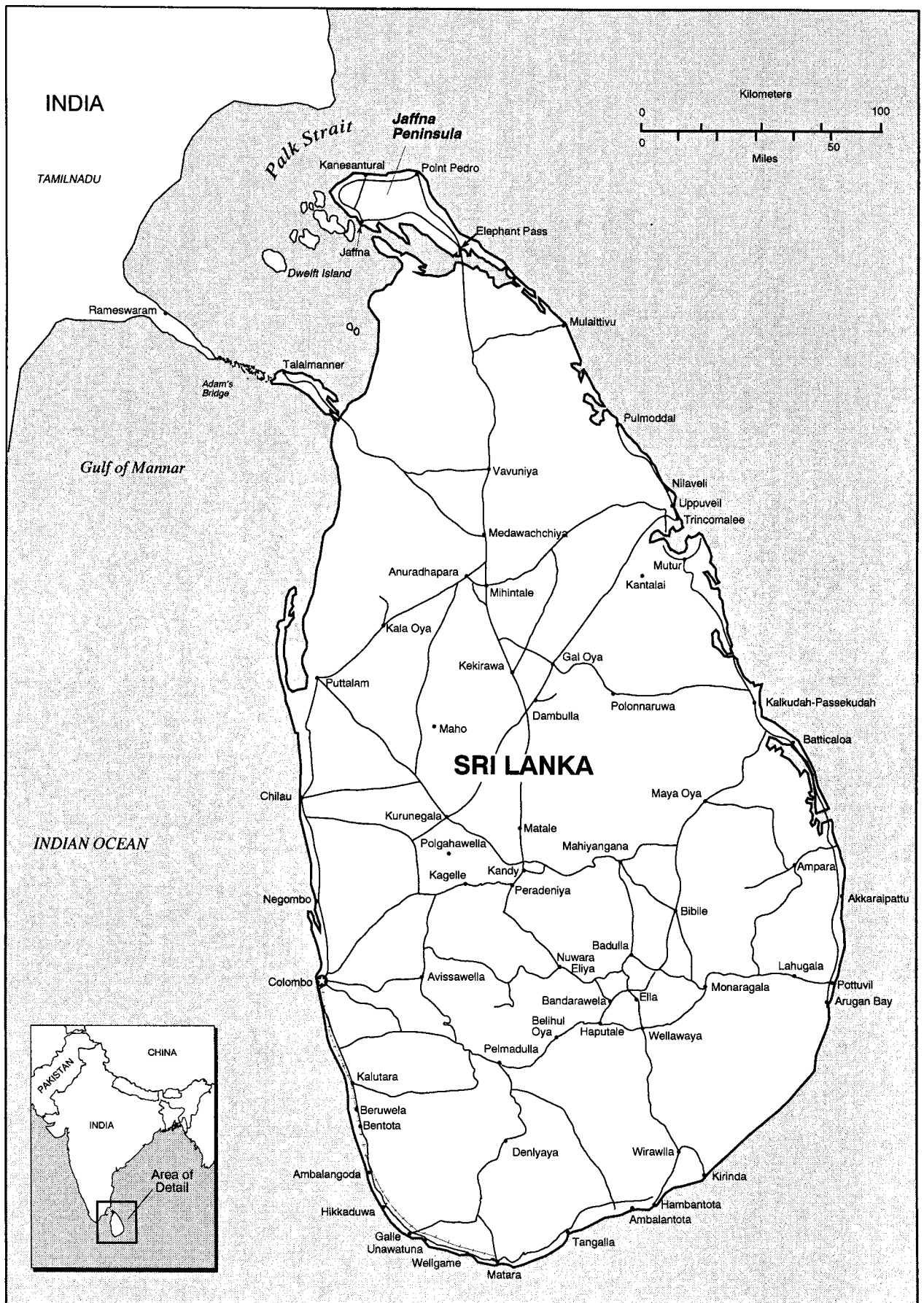
By Cynthia M. Caron

The tiny white pills and kaleidoscopic gelatin capsules of pharmaceutical companies like Glaxo and Smithkline Beecham are widely available in Sri Lanka. Yet Sri Lanka's ancient Ayurvedic tradition survives. According to the Minister of Indigenous Medicine, 35 percent of Sri Lankans continue to rely on Ayurveda. But Ayurveda is not the fashion — although 1990's Sri Lankan entrepreneurs would like to change that and nourish the Ayurvedic tradition with 20th-century consumerism in a way that the sages and physicians of old never could have imagined. Commercialize. Join the World Wide Web. Forgo the patient-physician relationship. Forget about diagnosis and treatment for free. It is time to inject Ayurveda with contemporary market forces.

Ayurveda is acknowledged as the oldest written medical system. Through the king of the gods, Indra, the knowledge of Ayurveda was passed on to the ancient sage, Bharadwaj, at the foothills of the Himalaya in India 3000 years before the birth of Christ. The first Ayurvedic text, titled *Attreya-samhita*, is the source book written 800 years before the birth of Christ. This original text claims that the spread of diseases into the body is due to an imbalance in gas, bile and phlegm, known as the *tridosh* principle. The second Ayurvedic text, written 200 years later, is *Susruta-samhita*. This volume highlights for the first time the assistance of surgery and minor operations to remedy problems during childbirth and for eye ailments and intestinal problems. Ayurvedic physicians traditionally take an oath that they will be on 24-hour call to serve any patient except criminals and anarchists.

In its traditional Sri Lankan form, Ayurveda draws upon 2,600 individual plant species, minerals and animal parts. The most common prescriptions regularly utilize 150 individual species. Ayurvedic doctors are addressed as *Vedamahatthmaya*, meaning 'yurveda sir.' For hundreds of years Ayurvedic treatment was, and in some rural areas still is, given as a free service. During those early days providing a service was an esteemed obligation, the highest good anyone could perform for society. The current generation of Ayurvedic doctors who are following the profession of their ancestors mostly adhere to this notion of service and do not charge for their advice and diagnosis — only for prescribed medicinal treatment.

Illness, says the *tridosh* principle, arises from an imbalance of gas, bile and phlegm. With the stomach held responsible for all types of ailments, the properties of and the mix and amount of food consumed is paramount in both disease diagnosis and treatment. Sweet foods are said to help produce blood, flesh, fat and bones. Sour substances increase digestive functions; while salty foods remove gas and produce mucus. Gas or air assists in cleansing the body of toxic elements,



moving food from the mouth to the stomach and aiding in the pursuit of all physical activities. Bile maintains the temperature of the body, eyesight, skin color and function of liver and kidneys. Mucus maintains the body's humidity and provides energy for digestion, blood circulation, memory, appetite and the muscles of the hands and feet. Exercise, yoga and massage, meditation, diet and Ayurvedic formulations control the body's imbalances. As one producer of Ayurvedic health foods told me, "Ayurveda treats the internal imbalance that causes the illness. Western medicine only treats the illness."

New Directions

Sri Lanka now adds Ayurveda health-care resorts to the list of its popular tourist destinations. While the independent traveler may check in for a herbal bath and full-body massage, these resorts cater to special health-conscious groups from France, Italy and German-speaking Europe. During a three-day to three-week period, participants practice yoga, limbering dance movements and meditation exercises, enjoy herbal baths and oil massages, and dine on special meals prepared with the human body's constitution in mind.

At the Kalawathie Meditation Care, Natural Environment Holiday and Health Resort in Ratnapura, the owner's wife teaches a herbal cooking class where students learn to make herbal teas, porridges and massage oils. In 1982 Sri Bhadra Marapana introduced oil-bath therapy to Kalawathie. This oil-bath treatment is one segment of every Ayurvedic session.

Sri Marapana admits that the terrorist attacks on Colombo this past Fall have sprung a flood of group cancellations. The guest house is often empty, as it was the weekend I visited. In the absence of big tour groups, the oil bath therapy has become the house special for overnight guests. The treatment includes the application of a special herb oil with a light massage, followed by an one-hour meditation session with soothing sitar music and incense burning in the background. One continues to unwind with a cup of herbal tea. Next comes a gargle with a herbal mouthwash followed by a gum massage with a 21-herbal-variety tooth powder, fermentation of the face with boiled pomegranate leaves, a head massage with dill seeds and lime juice, and a 15-minute medicinal smoke of smoldering coriander, citrus leaves and margosa oil. This final step is especially good for clearing the sinuses. The treatment ends with a vegetarian rice and curry lunch. It is probably worth its \$24.50 price.

I settled for a massage and a few cups of tea. The

treatment lost its appeal to me somewhere near the incense-burning.

In the hill country near Bandarawela, a German partnership has purchased and renovated a bungalow that they have converted into a health-care resort. They cater exclusively to Germans and have a special arrangement with German healthcare consultants and travel agencies. Sonia Klinner, who manages the resort part-time, is a friend. Groups come and stay for a mandatory three weeks. The treatment is rigorous. "That's why we had to add an additional German staff member, a counselor," Sonia says.

The Ayurvedic approach is serious. The participants, most of whom attend yoga classes and health clubs regularly in Germany fill out an extensive health form that is forwarded to an Ayurvedic group-practice in Colombo. After the participants land at Katunayake International Airport, the first full-day in Colombo is spent in physician consultations and introducing each individual to his or her personal course of treatment.

"For the first week at the center no one is fed more than thin herbal broths and tea. This is meant to help detoxify the body," Sonia says. "They have a variety of oils massaged into their hair and cannot rinse them out for a week. Everyone walks about with towels wrapped round their heads. The food, or rather the lack of it, is what starts emotional problems for some people. Some clients have a series of nightmares and others finally release anxiety built up in past year.

The detoxification period affects everyone differently. Once we saw the reaction after the first two sessions, we arranged for a counselor to accompany the group in addition to the yoga instructor."

Views from the bungalow are excellent. The nine monsoon-free months in Bandarawela are fully booked months in advance. Sonia wraps it all up by saying, "Our clients tell us it is difficult. But they feel completely energized afterwards. Facial wrinkles disappear or smooth out. Nagging aches and pains go away. Everyone has lost a few kilos and feels better about their appearance and physical stamina." Clients usually purchase a three-month supply of treatment formulations before leaving Sri Lanka.

Sonia agrees that since the Ayurvedic tradition revolves around a particular type of lifestyle, it seems unlikely that a few massages, herbal concoctions and a yoga class or two are going to have any lasting physical or mental effects on an individual. Most resorts in Sri Lanka offer a place to unwind. Beneficial treatment has to follow a lengthy rigorous course. But in time,

"Ayurveda treats the internal imbalance that causes the illness. Western medicine only treats the illness."

such resorts might make a significant contribution to the tourism industry.

At an exhibition coordinated for the Fourth International Conference on Global Health through Ayurveda recently held at Colombo's BMICH (Bandaranaike Memorial International Conference Hall), the Ministry of Indigenous Medicine and the Department of Ayurveda assembled several displays on the role of Ayurveda in contemporary society. A poster display entitled "Cultivate medicinal plants and be a contributor to the prosperity of the nation" demonstrated the lucrative benefits that can potentially accrue to farmers who cultivate medicinal plants. A banner overhanging the display booth pronounced, "High return in three months with low investment and less labor."

While only one of the examples demonstrates economic returns in three months (See Figure 1), all of the promoted miracle plants provide a better income than the dominant crop planted by the farmers with whom I work with in Deniyaya. There, an acre of tea grosses a monthly income ranging between Rs.500-Rs.1000 (U.S.\$1.00=SL.Rs.53.00). For several years agricultural extension agents and rural-development workers have been looking for ways to help tea small-holder cultivators improve their yields and diversify their livelihood strategy.

Promotion of medicinal plants cultivation is a scheme favored by both groups in the reclamation of degraded land resources and as an economic activity for landless citizens. The International Irrigation Man-

agement Institute (IIMI) promoted gardening of medicinal herbs on the bunds retaining paddy waters and publicly-owned degraded lands in their Deniyaya project area. In Kataragama, local residents hired by the Forest Department have planted 22 acres of a 57-acre green-belt project with Ayurvedic herbal plants.

Dr. Upali Pilapitiya, director of the Bandaranaike Memorial Ayurvedic Research Institute in Maharagama, says that unless the industry takes measures to conserve medicinal plant genetic material the result will be similar to the chopping off of one's own hands. Approximately 60 percent of the raw materials used to manufacture Ayurvedic medicine in Sri Lanka are imported from India. In 1990 alone the Research Institute spent over 3.5 million rupees to purchase the dried parts of only *four* different plant species from India. For that same year the import of *Acorus calamus* rhizomes (Figure 1) totaled Rs.543,575.00 (U.S.\$10,256.00) for 16,000 kilograms (U.S.\$0.64 per Kg).

If you ever wondered whether environmental alarmists were crying wolf when they claimed that plants could be harvested into extinction, think again. Ten medicinal plants that once flourished in the jungles of Sri Lanka are now and will continue to be imported from India until the plant material has been successfully propagated in the Research Institute's five herbal gardens and outplanted. Dr. Pilapitiya insists that the sources were over-harvested, not that the land was converted to other land-use practices. (My sources in the private sector claim that the dearth of raw material is due to real estate and industrial development. I tend to agree with them.)

FIGURE 1: Financial benefits of cultivating medicinal herbs as calculated by the Department of Ayurveda

	Dry zone or during dry season	Mid- and low- country wet zone	Marshy lands
Scientific name:	<i>Cassia angustifolia</i>	<i>Plumbago indica</i>	<i>Acorus calamus</i>
Local name:	Senna	Rath Nitol	Wadakaha
Soil:	Humus mixed with sandy soil	Humus mixed with sand	Similar to paddy field
Planting distance:	3 ft. x 3 ft.	3 ft. x 3 ft.	3 ft. x 3 ft.
Harvest:	After three months	After 12 to 15 months	After 12 months
Crop:	Leaves and pods	Root	Rhizomes
Cost:	Rs.10,000 per acre (U.S.\$192.00 per acre)	Rs.20,000 per acre (U.S.\$384.00 per acre)	Rs.15,000 per acre (U.S.\$288.00 per acre)
Profit:	Rs.50,000 per acre (U.S.\$961.00 per acre)	Rs.75,000 per acre (U.S.\$1442.00 per acre)	Rs.45,000 per acre (U.S.\$865.00 per acre)

Despite the fact that the Department of Ayurveda has its own extension agents to encourage and to instruct farmers in the cultivation of medicinal herbs, it is not easy to procure genetic material from rural areas. Labor costs are high. Hearty seed material is difficult to procure. Marketing infrastructure such as transport and information throughout the island is weak. When the Research Institute needs material, for instance, they advertise for tenders for dry and fresh plant materials in the local daily newspapers. Even with the farmer extension program, a secure direct link between supplier and buyer has yet to be established.

The Bandaranaike Institute has a clinic with a 58-bed hospital — two 25-bed wards apiece for men and women and an eight-bed ward for clergy. The Bandaranaike laboratory conducts analytical studies to determine scientifically the active properties of plants in the treatment of disease. The treatment is free and the government-funded clinic is conducting intensive clinical testing on 14 diseases including rheumatoid arthritis, bronchial asthma, skin rashes, psoriasis, encephalitis, epilepsy, diabetes, paralysis, meningitis and drug addiction. Over 65 percent of the cases are rheumatoid arthritis.

On the day of my visit, I arrived just after lunch. All of the women were sitting straight up with their legs outstretched on their beds. Some propped themselves up with pillows and were wearing thin, faded, government-issued cotton gowns. There is no privacy. A thin young woman in her late teens showed me the burn marks on her legs that are part of the rheumatoid arthritis treatment. The dime-sized welts on and around her knees will never fade away. Her knees look painfully swollen. Then, with the assistance of her hands, she slowly bent her right knee to a 45-degree angle. The other patients in the women's ward suffered from skin rashes and psoriasis.

Drug addiction patients are normally male and heroin users. Since the beginning of the program, the clinical staff have "cured" 158 addicts using a combination of oils, herbal drinks and acupuncture. I stood close by as an acupuncturist slowly inserted needles into a 24-year-old male's elbows, shoulders and neck. Recently the World Health Organization (WHO) expressed interest in documenting this course of treatment.

New trends

Ayurvedic pharmaceuticals and herbal health foods are finding a niche in Sri Lanka's home market. One of the striking differences between private Ayurvedic pharmaceutical production and traditional

pharmaceutical manufacturing in the West is the price of information. The formulas are free. Just open to any page of the *Pharmacopeia* and the ingredients are laid out before you. Unless a new formula is discovered, patents are not necessary. Competition and all of the costs and risks associated with developing a new drug, such as prospecting for new active ingredients in the jungles of Costa Rica, laboratory equipment and years of trial and error, are nonexistent. While developing new drugs through testing new combinations of herbs, animal parts and minerals is possible, private-sector industrialists I interviewed are not in a position to undertake lengthy and capital-intensive research and development programs. Instead, private firms offer tried and true ancient formulas to the general public in an attempt to wean lost souls off Panadol and Pepto Bismol.

A large range of herbal health foods produced by Maharagama-based Environmental Laboratories Ltd. is available in local super-markets and pharmacies. Ms. Roberta Kaluarachchy, the corporation's technical director and a trained chemist, is looking for ways to bring the company's products to a larger market. Environmental Laboratories Ltd started 15 years ago,

"A thin young women in her late teens showed me the burn marks on her legs that are part of the rheumatoid arthritis treatment."

not as a health food manufacturer but as a firm specializing in wastewater treatment and the manufacture of water-pollution-control chemicals. The Tamil insurrections of 1983 destabilized the Sri Lankan economy and discouraged investment in capital-intensive industries like wastewater treatment. Suddenly it was time for the laboratory to look for alternative employment opportunities for and diversify the

talents of their large staff of engineers, chemists, microbiologists and lab technicians. Their objective was to use the country's natural-resource base to create a value-added product.

In 1985 testing began on gotukola (*Centella asiatica*) and karawila (*Momordica charantia*) extracts. The products entered the market in October 1986 under the label, *Naturelle Herbal Health Foods*. Two years later the company entered the local market once again with the natural cosmetics line, *Mystique* — an array of sandalwood, aloe vera and cucumber-derived facial and body scrubs, astringents and moisturizers for the young female professional.

Mystique prices are deliberately designed to produce a low profit margin. The earnings of a typical Sri Lankan secretary, clerk or retail salesperson are less than Rs.5,000 (U.S.\$95.00) per month leaving little "pocket" money after meeting subsistence expenses. By keeping their prices below Rs.150 (U.S.\$2.75) per product, Environmental Labs is hoping to hook the working-class consumer and woo her away from imported *Swiss Formula St. Ives*, the Indian line *Shahnaz*

Husain's Bio Originals, and other Sri Lankan brands that have entered the market.

"We are not a drug manufacturing corporation," Ms. Kaluarachchy explained to me. "We are using natural vegetation to produce health-care products with increased nutritional value. We want to offer the consumer the health benefits of the ancient Ayurvedic prescriptions in a convenient form."

The case of *karawila* (English name: bitter gourd) is a perfect example. Just looking at a bowl of *karawila* curry makes me grimace. The taste, even when cooked properly, is downright awful. I cannot imagine feeling obliged to drink the juice of two fresh fruits, each the size of a small cucumber, every morning. This is the Ayurvedic prescription for preventing diabetes and controlling blood-sugar levels.

The *Naturelle* system allows the health-conscious individual who does not have the time to grind fruits every morning or is turned off by the vegetable's taste to enjoy the same benefits in a more palatable form. Each *karawila* capsule contains the equivalent of 10 grams of pure *karawila* juice extract. One capsule should be taken twice a day after meals. It is that easy. The *Naturelle* system has found quite a following among the residents of Colombo, Kandy and Kurunegalle. In other areas of the country rural folk themselves prepare early-morning decoctions such as *kola kenda* (leaf porridge) or a *gotukola sambol* (salad) with the noon-time rice and curry. At Rs.120 (U.S.\$2.26) for a 60-capsule bottle, the packaged tablets are a luxury item.

The laboratory does not advertise its bids for raw materials nor does it import plant substances. It contacts regular suppliers in the areas of the Mahaweli hydro-electricity scheme and Dambulla, purchasing by the ton. Cultivating personal contacts keeps the raw-material price lower than the price on the open market. By careful planning they intend to keep local the supply of *karawila*, *karapincha* (*Murraya koenigii*), *gotukola*, *welpenela* (*Cardiospermum microcarpum*) for their *Naturelle* capsule of the same name — an extract of the dried leaves and flowers believed to an aphrodisiac and invigorator) — and the nine natural ingredients used in the Pitawakka Plus capsule, an Ayurvedic composition to assist the liver in recuperating from hepatic infections and alcohol abuse. While information is free, the lab seeks advice from experienced companies abroad. "We did a great deal of correspondence with Ayurvedic corporations in India," says Ms. Kaluarachchy, "especially looking to the Himalaya Drug Company as a model. They have a product called Liv 52 that cures jaundice. We tried to match and combine effective formulas with locally

available material for our Pitawakka Plus capsule."

After delivery of the plant material, the entire manufacturing process is done under one roof. First, vegetables or leaves are sorted, cleaned and chopped. Then without altering the plant's chemical nature the nutritional composition is extracted, dried (using low temperature vacuum-drying) and concentrated. There are no additives or synthetics. In the end the capsule contains only pure vegetable extract and is not considered a drug. Environmental Laboratories was the first private corporation to develop these products in Sri Lanka. The newest *Naturelle* product is a *karapincha* and garlic capsule. Recent studies have shown that *karapincha* leaf, when consumed with garlic on a regular basis, lowers serum cholesterol and triglyceride levels without any adverse side effects.

Ms. Kaluarachchy readily admits that if *Naturelle* and *Mystique* exports began, demand in the local market would increase since the urban-Sri Lankan consumer favors products that are exported. There are two information hurdles to overcome, however, before entertaining the notion of entering foreign markets: information on regulations, and information about

"There are no additives or synthetics. In the end the capsule only contains pure vegetable extract and is not considered a drug."

markets. Sri Lanka, unlike many foreign nations, does not have a regulatory system for health-care products, and this includes both cosmetics and herbal health foods. The *Mystique* cosmetics are on the market without ever having had to undergo clinical trials or meet any government standards. Before launching a product, Environmental Laboratories approached several government institutions about regulatory standards.

The Standards Institute has no standards for cosmetics. The Ayurveda Department does not deal with cosmetics. The Ministry of Health has only synthetics under its purview. The staff ran clinical tests on themselves: no rashes or irritations resulted. So far there have been no consumer complaints.

"We are not a drug company and we will continue to maintain this," asserts Ms. Kaluarachchy. "However we face a real problem in finding out the details about regulatory processes abroad. For instance, we know enough about the United States Food and Drug Administration to know that every single one of our products would have to pass certain standards set by their commission. How do we find out about these standards and the standards of other nations?"

The problem of regulatory standards does not stop there. "Once we know the review criteria of regulatory authorities, we are going to have to establish proof by performing clinical tests and following standardization procedures that are expensive and time-consuming. The only way we will ever be capable of competing at the international or even the regional level is with foreign

investment. We cannot make further investments in equipment by ourselves. We recently had to discontinue production of a throat lozenge. It is hygroscopic and cannot be bottled. We cannot afford to purchase a blister-packing machine. Business has picked up in the past two years, and I have begun inquiries with USAID and CIDA (Canadian International Development Authority) to see if they allocate funds to expanding business enterprises."

Educating Western consumers about the health benefits of the Ayurvedic system is bound to be an expensive endeavor. The established, yet fair-weather and trendy experimental health-conscious clique may not be large enough to justify an overseas campaign. There is little information on what the American, Australian, or European consumer wants, how much he or she is willing to spend on a product, what type of advertisement captures attention, or how the product fits into and enhances one's lifestyle. These questions deserve thoughtful attention, but market research costs money that the laboratory does not have to spend.

Dr. Nugewella, a former chemistry professor at the University of Peradeniya, is a co-founder of Link Natural Products (Pvt.) Ltd. Much like Environmental Laboratories, Link entered the Ayurveda market after the steadily-falling price of essential oils (such as cinnamon and cardamom) on the world market forced them to diversify. The company's factory is located one hour east of downtown Colombo on a 5-acre plot. With over 250 formulations on the market the company has become one of Sri Lanka's largest manufacturers of Ayurvedic pharmaceuticals. Their newest line of herbal consumer-products, including herbal health foods, are available without a prescription. These include three hair oils, a caffeine-free herbal tea, gotukola capsules, a muscle-massaging balm, a water-soluble powder taken at the onset of cold symptoms and two "tonics" — Ayurvedic formulations belonging to the category of "*Arishta*," meaning "ten roots." The extracts of ten roots are the main constituents of each decoction, with supplements of 14 to 25 additional herbal plants. Tonics are taken daily before meals to aid in digestion, treat diminished appetite and aid as a nutrition supplement. Link's next product is an after-dinner digestive tablet that dissolves lingering tastes of salt, sweet, bitter and sour on the tongue.

Mr. Sunil Tennekoon, Link's managing director, attended Australia's FineFoods '95 exposition in September. The typical Australian consumer may not be ready for Link products. "They had a particular way of rolling the product between their two hands and wanting to know every last detail about the ingredients," he said, summarizing his experience. "The challenge here is that Australians are unfamiliar with botanical spe-

cies and the Ayurvedic system." However, Australia's significant Sri Lankan expatriate population provides the best entering wedge for any foreign market anywhere. The greatest emigration of Sri Lankans occurred in the late 1970's and early 1980's. Sri Lankans with purchasing power abroad are now middle-aged and still familiar with the use and benefits of Ayurveda. Tennekoon captured the interest of one Sri Lankan tea and fruit importer based in Australia. After introduction of his products the campaign will rely heavily on word-of-mouth.

"Frankly, without government regulations the Sri Lankan industry will go nowhere," said Dr. Nugewella. Nugewella's desire for standards goes far deeper than the effect they will have on export opportunities, and focuses on the enormous benefits standards will have for the domestic market. Today most Ayurvedic physicians do not prepare their own decoctions for their patients as they did 20 years ago. This unique characteristic of the traditional system is succumbing quickly to the competition for raw materials, especially those with limited seasonality. Furthermore the physician cannot maintain identical standards of quality without proper ingredients and as long as medicines are produced in intermittent small batches.

If patients select a pharmaceutical by price alone the probability that they end up with a substandard product is high.

Today the common practice is for a patient to receive an Ayurvedic diagnosis and a prescription from an Ayurvedic physician and purchase the necessary remedy from an Ayurvedic pharmacy. At the pharmacy there may be 20 different brands of Ayurvedic pharmaceuticals ranging from those manufac-

tured in someone's kitchen to "top-shelf" varieties such as those produced in an controlled environment like Link's sterilized factory. For obvious reasons the technology, expertise and quality control associated with Link products increases their price over the competition. If patients select a pharmaceutical by price alone the probability that they end up with a substandard product is high.

"In such cases after the patient does not receive positive results, they are easily turned-off Ayurveda and seek out Western medicine," Nugewella said. "My primary concern is that Ayurveda's reputation suffers and loses clients in the process from substandard products on the market. Without regulations these people can continue their business." Lack of regulations also hurts the Sri Lankan consumer. There is no respected, authoritative body entrusted with protecting the buyer from mediocre products. It is the moral responsibility of the producer to offer a quality product.

Three months ago, the Minister of Ayurveda visited the Link factory in rural Hangwella. Dr. Nugewella

discussed with him at length the problems of the private manufacturer and submitted a detailed proposal outlining an appropriate regulatory procedure and guidelines. The Minister left that day with a vote of confidence — and no contact since. “Ayurvedic products must be treated as foods or pharmaceuticals,” contends Dr. Nugewella over a cup of this company’s FiveHerbs tea. “Unless there are standards that are enforced with proper warnings and penalties, the market will saturate itself in Sri Lanka. There is ample opportunity abroad but this now is in the hands of politicians.” The World Health Organization recognizes Ayurvedic formulations and has published a text declaring thousands of formulations to be proven safe and effective for centuries. Exploration of foreign markets has uncovered some useful information. Many countries want documentation of a toxicity test for formulas containing more than five herbs. Dr. Nugewella finds this acceptable, since the six-month to year-long procedure is relatively inexpensive.

After our discussion Mr. Tennekoon took me through the factory and the manufacturing process. The raw-materials store room is filled with polyethylene and jute sacks containing newly-received dried plant materials. The materials will be sorted and stored in large wooden crates. Next the materials for each formulation are carefully weighed and separately bagged. The system of accountability begins with the staff member responsible for weighing out each required material, tagging and bagging it. The formula and raw materials are double-checked and signed off on by one of the in-house Ayurvedic physicians.

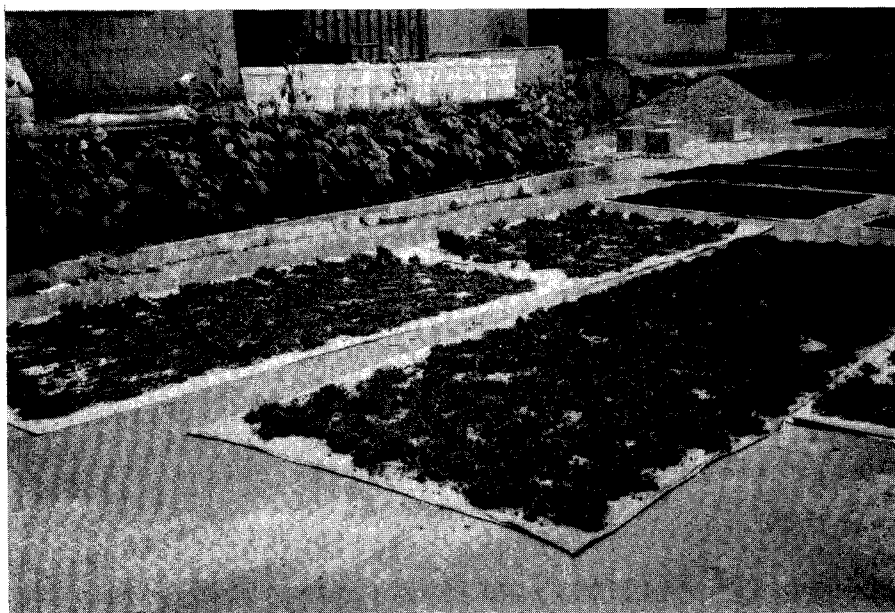
On the eastern side of the store room are seven rows of stainless steel vats for producing distillations. Most of the necessary raw materials are placed inside the vat for 40 days in a slow-treatment process of manufacturing an extract. Afterwards the extract is boiled down. Other additives like bee’s honey, raw cane

sugar and the dried red flowers of *Woodfordia fruticosa* might be added (the latter promotes and controls a desired level of fermentation) before the distillation is filtered, sterilized, bottled and packaged.

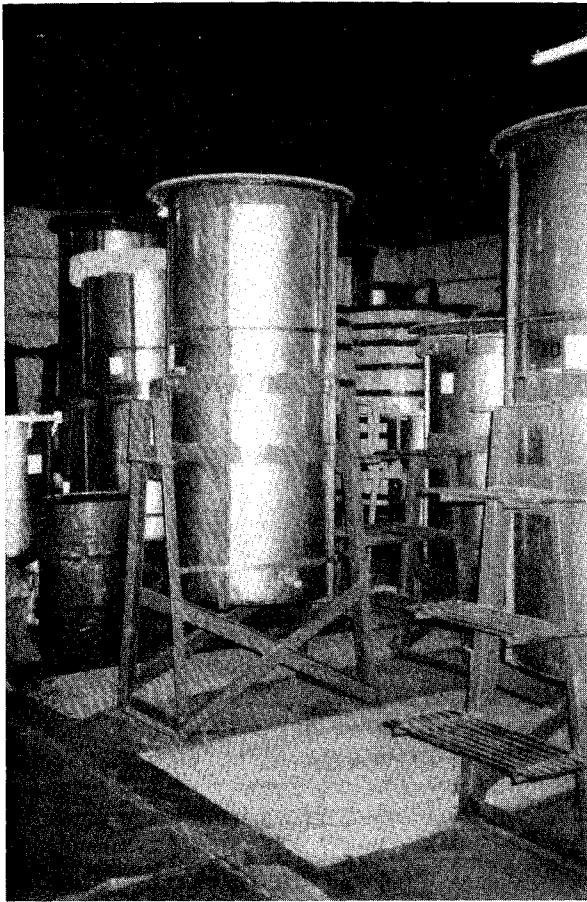
Behind the plant is a small nursery established six months ago. Link tries to keep raw-material procurement local. They have a regular list of suppliers throughout the island and import only genetic material that is not available in Sri Lanka, primarily from the Himalayan region of India and Afghanistan. The company intends to outplant seedlings on a 14-acre tract of land it recently acquired. Link also plans to give cuttings to villagers to plant in home gardens. “Anything from a quarter to half of an acre can be profitable,” Tennekoon remarked. “From this part of the project we do not intend to make a profit. We will supply the material and then buy it back. In recent months we have had to procure material on the open market. While price fluctuates, it is always expensive. If we can guarantee our own supply that will be enough.”

How much profit can the company reap from a Rs.3 (U.S.\$0.06) packet of water-soluble herbal cough powder? The newest Link product to enter the market is Instant Peyava that when dissolved in hot water, is a drink similar to America’s Thera-Flu cold remedy. Retailers keep 15 percent of the product price. Since Instant Peyava is an herbal over-the-counter as opposed to a pharmaceutical it is retailed through a distributor. This intermediary takes a cut. The product’s production cost is approximately Rs.1.75 (U.S.\$0.03). Once Instant Peyava becomes a fast mover the retailer’s profit will be slashed. Unilever, for example, gives its retailers a seven to eight percent profit margin on fast moving items like Sunlight laundry soap and the Lux beauty bar.

If the Indian market sets any example for Sri Lanka’s, it is that Ayurvedic products are getting ready for suc-



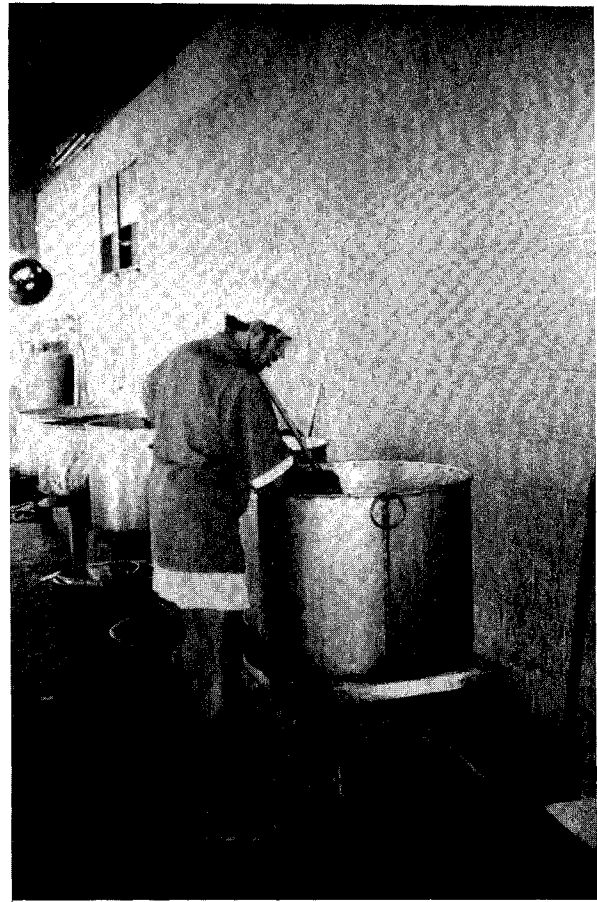
Plant material is dried outside and sorted for quality before entering the factory stores.



Stainless-steel vats in the storeroom of Link's Hangwella plant.

cess in the market place. Sales are up, conglomerates are entering the market, demand exists. There are of course several differences: the population of India is tens of millions larger than Sri Lanka's. Aside from the Enron scandal, the Indian investment environment is far more stable (the downtown-Colombo bombing of the Central Bank attests to that). Several Indian drug manufacturers are large enough to initiate their own joint ventures abroad (in Tanzania and South Africa) or already have long-established joint ventures with Western pharmaceutical corporations. The Himalaya Drug Corporation has successfully placed 22 Ayurvedic formulations on the market since 1930. For 1994 their recorded growth rate achieved 16 percent with a turnover of Rs.82 crore (One crore=100 million rupees). Bangalore-based Karnataka Antibiotics and Pharmaceuticals Ltd, which has 26 products including diagnostic kits and animal health products in addition to pharmaceuticals, began Ayurveda manufacture and marketing last year. They are among the bigger of the new entries, having doubled their production in the past four years. After-tax profit soared from Rs.46 crore in 1991-92 to Rs.167 crore in 1994-95. This corporation has ample resources to invest.

India and Sri Lanka share two marketing obstacles. What is the rich knowledge of their respective Ayurveda systems worth in their own countries and abroad? How can an undetermined value leverage itself against and compete with the bells and whistles of



After spending up to 40 days in the distillation vat, the extract is boiled down. The decoction for Dashamoolarishta (brand name: Dekatone), an herbal tonic taken before meals for digestion, boils for 14 continuous hours and is reduced from 200 liters to 50 liters.

Smithkline Beecham and other international conglomerates? The answer lies in matching the ancient Ayurveda formulations to their equivalent in Western medicine and judging them under the exact same criteria. The true worth of Ayurveda can be established only when placed in a contemporary context and given equal standing to allopathy. Again, regulations play a prominent role. Ayurvedic products must undergo the rigors of "modern" scientific testing (clinical evaluation by animal testing and human volunteers) and standardization procedures from which they are now exempt.

The director of research and development at Himalaya Drug Company (HDC) told a reporter that in Ayurveda "there is very little proper scientific safety data. With the growing awareness of the harmful effects of chemicals, both environmental and administered, we must establish the safety and efficacy of Ayurveda" (Menon, 1996). Unlike Environmental Laboratories on Colombo's outskirts, HDC has the financial resources to invest Rs.65.37 lakhs (One lakh=100,000 Indian rupees; U.S.\$1.00=Rs.35.00) in state-of-the-art laboratory equipment. This investment comes at a time when the Indian Government is

*Inserting Instant
Peyava sachets into
12-sachet strips that
will be distributed to
the smallest of retail-
ers. All factory em-
ployees are required
to wear elasticized
hair-coverings.*



seriously considering setting industry standards.

My interest in the emerging Ayurveda market originated from my concern for the farmers and tea smallholders that I work with in the southern area of the country. Rural development projects try to assist these low-income, natural-resource-dependent groups to diversify their household incomes. In recent years the conservation of genetic plant material and growing of medicinal herbs has been a popular income supplement. The approach earns respect because of its desire to protect biodiversity and indigenous medicinal knowledge and wins a quick vote of confidence from a brief look at demand for the product and its potential international growth.

I, too, believe that a diverse livelihood strategy is the most profitable in the long term, especially in the Sri Lankan context where the tea industry is suffering from internal problems associated with the scheme to privatize state-owned estates, rising real estate prices and falling tea prices on the world market. As demonstrated in Figure 1, the Ayurveda Department has calculated the financial benefits associated with the cultivation of a limited number of medicinal plants. However, after talking with several industry experts, I found that the opportunities for growing medicinal herbs may not be what they appear (weak in-country infrastructure with respect to marketing, transport and information-exchange between supplier of and buyer of raw materials) nor is the industry realizing its full potential (lack of government-legislated industry standards). Demand might exist, but the market is ailing.

When environmental managers talk about policy constraints and government support for natural-resource conservation and development projects, the Ayurveda industry is a fair example of what they are

talking about. There are several well-intentioned groups and individuals devoting time and resources to poverty alleviation and environmental conservation. The Government announces far too often that it wants the benefits of economic investment and industrial development to reach the rural areas. In a



The corporation's newly-established nursery.

straightforward fashion farmers could be linked to industry if the two parties have information about each other. Alternatively a new class of traders and middlemen might spring up (Even though middlemen are stereotyped as exploiters, a professor in graduate school once reminded us during a lecture that they have families to feed, too). With industry standards, enforced regulations and a determined and well-coordinated effort by extension officers, the prosperity of Ayurveda could extend to both public and private corporations as well as to cultivators. The task of bringing all the appropriate groups to the table to analyze and to re-organize the Ayurveda market in an orderly fashion is awesome.

Investigating the Ayurveda industry with respect to rural development and conservation projects reminded me again that all conservation proposals and projects operate in different political spheres. Growing medicinal herbs might have proven successful in the vicinity of an Indonesian tropical-rain-forest reserve. Replication of the same type of project might not prove as successful in Sri Lanka's Sinharaja region. It is often the desire of international and

national development organizations to move into immediate action without investigating the wider economic, social and political context that in hindsight causes poverty-alleviation and natural-resource-conservation projects to fail. □

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Institute Fellows and their Activities

Hisham Ahmed. Born blind in the Palestinian Dheisheh Refugee Camp near Bethlehem, Hisham finished his A-levels with the fifth highest score out of 13,000 students throughout Israel. He received a B.A. in political science on a scholarship from Illinois State University and his M.A. and Ph.D. from the University of California in Santa Barbara. Back in East Jerusalem and still blind, Hisham plans to gather oral histories from a broad selection of Palestinians to produce a "Portrait of Palestine" at this crucial point in Middle Eastern history. [MID-EAST/N. AFRICA]

Adam Albion. A former research associate at the Institute for East-West Studies at Prague in the Czech Republic, Adam is spending two years studying and writing about Turkey's regional role and growing importance as an actor in the Balkans, the Middle East and the former Soviet bloc. A Harvard graduate (1988; History), Adam has completed the first year of a two-year M. Litt. degree in Russian/East European history and languages at Oxford University. [EUROPE/RUSSIA]

Cynthia Caron. With a Masters degree in Forest Science from the Yale School of Forestry and Environmental Studies, Cynthia is spending two years in South Asia as ICWA's first John Miller Musser Memorial Forest & Society Fellow. She is studying and writing about the impact of forest-preservation projects on the lives (and land-tenure) of indigenous peoples and local farmers who live on their fringes. Her fellowship includes stays in Bhutan, India and Sri Lanka. [SOUTH ASIA/Forest & Society]

William F. Foote. Formerly a financial analyst with Lehman Brothers' Emerging Markets Group, Willy Foote is examining the economic sub-structure of Mexico and the impact of free-market reforms on Mexico's people, society and politics. Willy holds a Bachelor's degree from Yale University (history), a Master's from the London School of Economics (Development Economics; Latin America) and studied Basque history in San Sebastian, Spain. He carried out intensive Spanish-language studies in Guatemala in 1990 and then worked as a copy editor and Reporter for the Buenos Aires Herald from 1990 to 1992. [THE AMERICAS]

Sharon Griffin. A feature writer and contributing columnist on African affairs at the *San Diego Union-Tribune*, Sharon is spending two years

in southern Africa studying Zulu and the KwaZulu kingdom and writing about the role of nongovernmental organizations as fulfillment centers for national needs in developing countries where governments are still feeling their way toward effective administration. She plans to travel and live in Namibia and Zimbabwe as well as South Africa. [sub-SAHARA]

John Harris. A would-be lawyer with an undergraduate degree in History from the University of Chicago, John reverted to international studies after a year of internship in the product-liability department of a Chicago law firm and took two years of postgraduate Russian at the University of Washington in Seattle. Based in Moscow during his fellowship, John is studying and writing about Russia's nascent political parties as they begin the difficult transition from identities based on the personalities of their leaders to positions based on national and international issues. [EUROPE/RUSSIA]

Pramila Jayapal. Born in India, Pramila left when she was four and went through primary and secondary education in Indonesia. She graduated from Georgetown University in 1986 and won an M.B.A. from the Kellogg School of Management in Evanston, Illinois in 1990. She has worked as a corporate analyst for PaineWebber and an accounts manager for the world's leading producer of cardiac defibrillators, but most recently managed a \$7 million developing-country revolving-loan fund for the Program for Appropriate Technology in Health (PATH) in Seattle. Pramila is spending two years in India tracing her roots and studying social issues involving religion, the status of women, population and AIDS. [SOUTH ASIA]

Teresa C. Yates. A former member of the American Civil Liberties Union's national task force on the workplace, Teresa is spending two years in South Africa observing and reporting on the efforts of the Mandela government to reform the national land-tenure system. A Vassar graduate with a *juris doctor* from the University of Cincinnati College of Law, Teresa had an internship at the Centre for Applied Legal Studies in Johannesburg in 1991 and 1992, studying the feasibility of including social and economic rights in the new South African constitution. While with the ACLU, she also conducted a Seminar on Women in the Law at Fordham Law School in New York. [sub-SAHARA]

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