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MONDAY, JANUARY 7, 2008

## Overview of Dominion Farms

DOMINION FARMS LIMITED

Agriculture in Kenya

In Kenya, most business and agriculture are synonymous. The agricultural sector is the dominant sector in the Kenyan economy, accounting for approximately 25% of the Gross Domestic Product. The sector is the largest contributor of foreign exchange through exports earnings from tea, coffee and horticulture and an estimated 75% of the population depends on it. What's wrong with this picture? Seventy-five percent of Kenyans depend on a failed industry that produces only 25% of the GDP. Any change in the sector, due to its dominance, translates to changes in the whole economy. Efforts to revive the economy and reduce poverty must begin with agriculture.

For the majority of Kenyans farming exists mainly for subsistence. The level and scale of crop production is geared towards meeting household requirements. Most of the cultivated land is under food crops such as maize, sorghum, beans, cassava, finger millet and sweet potatoes that are consumed by the farmers' family. Maize (field corn to Americans) is the main food crop in Kenya. The nation experiences an annual deficit in maize production as it is only able to meet about 65% of its requirement. This can be attributed to poor husbandry practices and low input use. Most plant inferior seed and fertilizer is considered too expensive for regular use. Weeding and use of chemicals is uncommon. The major commercial crops are sugarcane, coffee, tea, sisal and horticulture (cut flowers for European and Middle Eastern markets).

There is inadequate milk and beef production because 99% of total livestock is Zebu. Zebu cattle are indigenous to Africa and produce almost no milk, grow extremely slowly and produce extremely tough meat. These animals are used for trading purposes and for dowries – a longstanding African tradition. Goats, chickens and eggs are the generally recognized protein sources for the people; however their quality and quantity are both low. Fish is a common source of protein in the Lake Victoria region and on the Indian Ocean coast, but fish harvests are down over 50% in the past decade and no effective steps have been undertaken to reverse that trend.

Since independence in 1964, the agricultural sector in Kenya has heavily relied on the Government for its development. Yet the sector has recorded negative growth rates since the early nineties. The current Kibaki administration encourages and supports investment in the agricultural sector, but investment capital geared toward agriculture within Kenya is virtually nonexistent and foreign capital for agriculture (other than for horticulture) has been insignificant.

The agricultural sector is plagued by inadequate rural infrastructure, low investment and absence of developed markets. The most notable deficiencies are the pitiful road system, the lack of irrigation (only 4% of cropland is irrigated), lack of electricity and the obvious absence of modern agricultural practices and equipment. These problems are so extensive and the cures are so expensive that an attitude of hopelessness pervades the sector. Those with a global perspective can recognize that many areas of Kenya are the modern day equivalent of the Garden of Eden. Particularly in

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## Dominion Farms Rice Crop

Dominion Farms Rice Crop

the lakes region of western Kenya, water is plentiful, the climate is cool and the fields produce at least two crops per annum. Add the components of low-cost labor and reasonable land rentals and the area is very nearly the perfect farming scenario. The impact of two plus crops per annum cannot be overstated in a large-scale application. It is the financial equivalent of doubling the size of an American farm at zero added cost.

#### The Local Environment

When Calvin Burgess first visited the Yala Swamp in 2002, it was accessible only via all-terrain vehicle and many of its young people had never seen a white person. The swamp is located in western Kenya within the flood plain of the Yala River and about five miles east of Lake Victoria. The leased land covers a total area of 17,050 acres. The equator runs through the farm, as it lies between latitude 00° 02'N, 00° 02'S at longitude 34° 01'E, 7°S. It is contained within two local authority and administrative districts (Siaya and Bondo in Nyanza Province). According to the 1999 National Population Census Report, Siaya District had a population of 480,184 with a population density of 316 per square kilometer while Bondo District population was 238,780 with a population density of 242 per square km. Siaya is the birthplace of the father of Presidential hopeful Barack Obama and its grinding poverty contributed to the Senator being born a U.S. citizen.

Siaya and Bondo are among the poorest districts in Kenya, based on total expenditure on food and non-food requirements. The percentage of people living below the poverty level in Siaya district currently stands at 69% while Bondo is at 70% (Poverty Index 2006). However, since 2003 over 50,000 local residents have emerged from official poverty due to the circulation and turnover of new currency from the Dominion payroll of US\$1.6 million annually. Such relative prosperity is manifested in the proliferation of corrugated metal roofs on huts (to replace thatched grass roofs), new bicycles and a marked improvement in nutrition and general health.

Local schools lack proper educational facilities and there is a high dropout rate among primary school students, particularly among girls. Few qualify for secondary school and when they do, schools fees are often too high for the parents to pay. Schools lack such basics as running water, restrooms, electricity, doors, windows and floors, other than dirt or cow dung. Often children simply meet under a tree for their teaching session. Books are almost non-existent with most teaching by rote, where the students simply repeat what the teacher says. To excel under these conditions is difficult; however some do succeed even under the worst of conditions. Dominion has been able to help with construction of several classrooms at local schools and has provided teaching aids to many classrooms.

An important indicator of the health conditions in an area are infant mortality rates and distribution of health facilities. The infant mortality rate in these two districts and especially around Yala Swamp is high, at 102 per 1,000 during the first year and close to 20% by the age of five. This is due to the prevalence of malaria, pneumonia, diarrhea and deficiencies in protein. These factors notwithstanding, HIV/Aids related diseases are the highest contributors to infant mortality.

There is a shortage of health workers in the two districts - especially around the project area. The doctor/patient ratio in Siaya and Bondo Districts is 1 per 96,000 and 1 per 120,000, respectively. As a result, there are a number of rural health facilities that are understaffed with some clinics around Yala Swamp being served only by one nurse. Recently Dominion has supplied running water to the Ratuoro Health Center and electrical power is being extended to the facility from the farm's housing compound. In 2004 Dominion constructed a new laboratory building for the clinic and supplied medical equipment such as wheelchairs and walkers. Dominion has also

#### Land Levelling Operations

John Deere 9520 425hp Tractors atWork

#### Dominion Farms Combine

Harvesting Rice Crop

#### Dominion Farms Grain Drying and Storage

#### Dominion Farms Rice Mill

#### Dominion Farms Weir

#### About Me

supplied dental and x-ray equipment to local hospitals as such equipment has been given by U.S. donors.

The Yala River is the main source of water for local communities and their cattle (people and cattle bathe in it and drink from it). Provision of water to communities surrounding the swamp has proved to be difficult due to the absence of water in the geological formations within 1,000 feet of the surface. However, rainwater runoff has unlimited potential for exploitation through roof catchment and surface dams and ponds. Dominion is planning water distribution systems from the Yala River for the Kenya Youth Camp and the Dominion Community Farms program, including basic water treatment facilities. Dominion has drilled several water supply wells (boreholes) and built privacy shower stalls along the river near the farm compound. For the first time for many locals there are supplies of clean drinking water within short distances.

The most important source of energy in Siaya and Bondo Districts is fuel wood. Dominion has relied on diesel-powered generators for its electricity to date but has paid Kenya Power and Lighting Company to serve the farm and its environs from the national grid. In addition, an electrical generating turbine will be installed at the new dam to produce back-up electrical power. The company's generators will remain in place as back-up for the national grid, in those inevitable events of brownouts and power outages. A major steam powered plant for processing is planned for the rice drying, processing and packaging utilizing waste products from the rice production.

#### Origins of the Farm

Reclamation of Yala Swamp has been of interest to the government since the colonial days. In the early 1950's there was a proposal to reclaim the Yala Swamp and exploit it for agricultural purposes. In 1972 the Ministry of Agriculture commissioned a Dutch consulting firm to investigate the development options of the Yala swamp. The study proposed development of the swamp using a weir to be constructed on the Yala River and the construction of feeder canals. In 1982 a design for a pumped irrigation system for rice and maize was produced. A small pumping system was installed in the river but high pumping costs and vandalism rendered it non-operational. A detailed study commissioned by the Kenya government in 1986 and supported by the Netherlands government recommended construction of a weir and the improvement and conservation of Lake Kanyaboli by constructing a feeder canal. Ultimately, much donor money was wasted and a few hundred acres were cleared, drained and put under dry-land farming under the auspices of the Lake Basin Drainage Authority. LBDA oversaw limited production of cereals and horticultural crops for a few years until the cleared land was once again inundated when a dike was washed out and repair costs were not funded.

By the time Dominion came into the picture, the situation at the Yala Swamp had deteriorated to dangerous levels. The primitive dikes were eroded and broken by heavy rains, the dike across Lake Kanyaboli had completely washed away and the feeder canal to Kanyaboli had been completely silted in. Roads around the swamp were impassable, the improvements at the compound were in a deplorable shape with bats overtaking the buildings; there was no running water, no electricity; grass had grown to the rooftops and snakes were a menace to the local community. Locals who had worked for LBDA had not been paid and there was general despair within the community. Poverty was rampant with high crime levels and prostitution was a principal source of survival for many families.

#### Dominion's Objectives and Progress

This is a major agricultural project involving conversion of



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17,050 acres of swampland into a modern, irrigated farm capable of producing rice, rotation crops, tilapia fish and a number of byproducts inherent to those crops in a vertically-integrated, independent operation. The heavy lifting is over. The weir has been completed and the river has been diverted back into its original channel – creating a 1,100-acre reservoir behind the dam. Over ten kilometers of reinforced dikes downstream of the weir are now completed and dikes along the northern boundary of the farm are under construction. Main canals and their headwork have been built. Land leveling and construction of the irrigation system is underway at a pace of ten to fifteen acres per day. Typical rice fields are virtually flat with small dikes and surrounded by tertiary canals and roads. The average field contains from 60 to 80 acres.

Large-scale crop production began in 2004 with rain-fed crops and moved to irrigated agriculture in 2006 as the irrigation infrastructure was extended. As the irrigation system is completed and the fields are prepared, they are being planted with rice. Most of the operations involve heavy mechanized equipment for tilling, planting and harvesting. It is anticipated that rice fields totaling 2,000 acres will be completed and planted by the end of 2007. Some of the major improvements are described in greater detail as follows:

#### Weir and New Intake

When Dominion acquired the property it had a partial built weir located on the Yala River, which was completed, resulting in a new reservoir for flood control purposes, irrigation water supply and a fishing ground for the local people. The resultant water reservoir area is now the same size as originally contemplated by the Kenyan Government when they designed the original project.

The weir is a concrete structure with a 25 meter long weir crest at an elevation of 1,150 meters above sea level and featuring two sluice gates to allow the silt bed load to pass through. The structure is designed to carry the Yala River at a 100 year storm flow (over 300 cubic meters per second). Its purpose is to create a new consistent water level upstream of the structure which facilitates the diversion of the water into the feeder canal. The intake gates are designed to enable diversion of five cubic meters per second of water into the farm. The weir construction was completed in 2006, except for the installation of the turbine which is scheduled for delivery in 2008.

#### Spillway

With the current design, the height of water above the weir crest during a flow of 3003/sec is 3.63m. With a crest level of 1,150.60m the water level will be at 1,154.23 meters above sea level. The incorporation of a spillway is designed to take care of excess flow and will reduce the height of water above the crest. This has the following advantages:

- a) The height of the protection dyke upstream of the weir can be reduced, thus saving on fill material.
- b) The height of the weir wing walls can be reduced thus saving on reinforced concrete.
- c) The area submerged by water during floods can be reduced thus saving on land compensation.
- d) Forces on the weir structure and the dykes can be reduced ensuring more stability and durability.
- e) The negative environmental impacts are reduced due to less submerged area.

#### Diversion Canal and Protection Dike

Original efforts to build a diversion canal and protection dyke along the south edge of the farm resulted in deterioration due to improper design, construction and maintenance. The canal was heavily silted and overgrown downstream impeding the flow of water. Though the dike was designed to protect the farm from the high waters of the Yala River, it was heavily eroded and broken in several sections. These conditions contributed to the flow of water into the reclaimed area thus submerging and reverting some of the area back into swamp. The canal has now been cleared and the dike rebuilt to new

design standards.

Upstream of the new intake, a 3.5 Km protection dike has been built and acts not only as a dike but is incorporated into the dam to help restrain the water in the new irrigation reservoir. The construction of the canal and repairs to the dike now include the construction of silt traps. These ensure that heavy silt loads cannot travel downstream or into the diversion canal to block or clog the waterways and cause a hazard in the paddy fields and downstream of the project.

#### Feeder Canal

The purpose of this 8.8 Km feeder canal is to supply water to Lake Kanyaboli, which prior to the reclamation was fed by the Yala River through the swamp. Earlier efforts had produced a semblance of a canal, but the old intake was high and the river water could enter only during high flows. The invert level of the old intake was at 1,148.9 meters above sea level. During normal flows, the water level in Yala River falls below 1,148.7 m.a.s.l., meaning no water could flow through the canal. The flow capacity was estimated at 1.145 m<sup>3</sup> per second. The largest monthly water deficit of Lake Kanyaboli was calculated at 1.83 x 10<sup>6</sup>m<sup>3</sup>, which is 0.69m<sup>3</sup>/s. The feeder canal has been redesigned and constructed to accommodate a flow of 5m<sup>3</sup>/s, ensuring that the flow of water is gentle and erosion is minimized. The system now is complete, including over 12 Km of canals, control gates, watering areas for cattle, sedimentation ponds and local clean water sources for the local population. A revitalized lake is the result, and clean water supply for the locals is now available, including the domestic water for Dominion Farms.

Preventive measures have been taken to guard against future damage to the feeder canal. These include cut-off drains to prevent surface run-off from entering the feeder canal and provision of watering points both for human and for animal use. At certain intervals, siphons will be constructed to direct the water from the cut-off drain into the drainage system of the farm. The entire length of the feeder canal has now been fenced to protect the local population and animals from inadvertent drowning.

#### Lake Kanyaboli Retention Dike

The Lake Kanyaboli retention dyke (2.3km) runs from Gendro village to Kombo beach. It was built decades ago but was severely eroded and washed out for almost its entire length. A large portion of the swamp became submerged by Lake Kanyaboli waters. The retention dike has been reconstructed, now connecting the two communities together. In addition to flood control the dike provides access for the local population as they travel between work areas, schools, clinics, churches, etc., and their homes. Prior to the completion of this dike the locals had to travel approximately sixteen kilometers or pay for a boat ride across the flooded area to reach the same destination. When this piece was reconnected, the local population had a celebration and feast on the dike to celebrate the event which means so much to their daily lives. This dike has allowed the water level of Lake Kanyaboli to be raised by approximately 3 meters, providing a reservoir for irrigation purposes and increased quality of the water. The outflow of Lake Kanyaboli now is controlled by an outflow structure which can be utilized to control the level of the lake water.

#### Hwiro River Diversion Canal

The Hwiro River is a seasonal river that enters the swamp from the north. It flows for about 2 to 4 months per year with a peak discharge of 5m<sup>3</sup>/s. In order to reclaim the center section of the swamp, this river will be drained through a defined course along the northern boundary of the swamp. The water will then be safely discharged into the un-reclaimed part of the swamp through the main drains. The length of the diversion will depend on the area to be reclaimed, however it appears to be a total of around 13 km, with about 1 km now complete. This new river canal will also be utilized to circulate water through

Lake Kanyaboli to assure water quality. Local communities along the new channel will have access to quality water for both domestic and irrigation purposes.

#### Other Construction Activities

These include land leveling and irrigation infrastructure, building and maintenance of infrastructure such as access roads, storage facilities, drying facilities, warehouses, and rehabilitation of canals, repairs of staff houses and the construction of an airstrip, among others. Much of this work is now complete and future emphasis will be on construction of the fish farm, fish food processing facilities, fish processing plant, and additional staff housing.

#### Electrical Power

The project area is not yet served with electricity from the national grid, although the \$165,000 extension costs have been advanced by Dominion to the power company and poles have recently been erected. Upon connection with the national grid in late 2007, power will be supplied to the neighborhood health clinic and to other local facilities. The farm will also produce its own electricity to serve the grain silos, fish hatchery and processing plants during power outages and to reduce utility costs. Approximately .3 MW can be generated at the irrigation dam.

#### PRODUCTION AND PROCESSING

The farm produces rice under irrigation, rotated with other crops. Other crops will be included in rotation such as cotton, sunflower, *Artemisia annua*, sorghum, soybean maize and duckweed. Most of these crops are targeted towards fulfilling food security of the country. Upon completion, the farm will be capable of producing 100,000 tons of rice annually. Dominion also encourages smallholders in the area to earn extra income by providing raw material that will go into our fish food. To supplement the food grown by Dominion, local farmers will be contracted to produce additional crops. This provides tremendous self-empowerment for local farmers and will be a major source of income for elimination of the rampant poverty in the area. Dominion, through its Community Farms initiative will provide the capital for the local farmers, technical training, and will make the market for crops produced by these co-operatives.

Fish will be produced at the farm on a commercial basis, processed and sold in both local and export markets. Selection of tilapia breeding stock commenced in 2004 and Dominion scientists expect to have a commercially viable fish in 2008. In addition to producing fish for the fish farm, the hatchery has the capacity to produce an excess that can be used to restock local lakes and rivers to benefit the local population. It is anticipated that the fish farm will have an initial capacity of 10,000 tons per year, increasing to 20,000 tons annually in approximately 5 years. Fish will be marketed locally by women to help stem the "sex for fish" trade now prevalent in the area. Initially the fish will be processed by existing processing plants, but as the program exceeds their capacity a fish processing plant will be built adjacent to the production facility.

An additional benefit of the fish program is the production of high-value organic fertilizers from fish feces. It is estimated that enough natural fish fertilizer will be produced to grow approximately 7,000 acres of organic crops annually.

Fish byproducts include both oil and fish meal. Fish oil makes excellent feedstock for biodiesel to offset the rising cost of fuel and help in the reduction of CO<sub>2</sub> emissions. Fishmeal will be utilized in the manufacture of animal feeds for chickens, dairy, and beef cattle operations in the local community.

## Rice Production and Milling

Irrigation water for the farm emanates from the Yala River, of which flow Dominion has been allocated 70% of volume under a 45-year lease with the local councils. Paddy fields are constructed to an average size of approximately 60 acres each. These fields are constructed utilizing straight levies to minimize water consumption. Production will be staggered to ensure sustained rice milling throughout the year. Initial crops indicate that between 2 and 2.3 crops will be possible on each acre of land annually. Rice and other grains will be dried at the farm in drying silos, already constructed and now being utilized. Large-scale production with exceptional economics of scale will ensure reasonably priced rice in the market to compete and lessen the dependence on importation of poor quality rice into the country.

The milling, processing and packaging of rice is accomplished in the newly constructed rice mill located next to the grain drying/storage facilities. Storage facilities for approximately 5,000 tons are now complete. Rice milling capacity is now at 4.5 tons per hour and will increase to 9 tons per hour early next year.

Byproducts of rice include rice bran, broken rice, rice hulls, and rice straw. All of these products have a commercial purpose and will provide much needed raw materials for the Kenyan economy.

Rice bran is sometimes described as the perfect food, rich in essential nutrients, and a good source of protein. Bran will be used in the production of nutrient supplements for the local population and for fish food production. Approximately 6,000 tons of bran will be available when the farm reaches maturity. Rice brokens account for approximately 10% of the content of milled rice. Nutritionally the product is the same as whole rice; however it is not the visually-preferred product for human consumption. It makes high-value animal feed and therefore will be used in the production of both fish feed and chicken feed for the local population.

Rice hulls have traditionally been a disposal problem in rice growing areas. Recent developments have changed this by converting the product to a viable energy source through gasification and conversion to heat energy, or by direct burning of the product as a substitute for fossil fuels. After the rice is harvested it is transported to the drying and storage silos. Commercial drying is accomplished by the use of large fans blowing hot air thru perforates grating to remove the excess moisture from the paddy rice. This process consumes large quantities of energy in the form of both electricity and fossil fuels. Utilizing conventional methods, upon reaching full production Dominion would consume approximately \$5 million dollars worth of these products on an annual basis, however thru the use of innovative technology Dominion is in the design stage, and will soon begin construction of a facility to eliminate these needs. Dominion will build a steam powered turbine to produce the electrical power to operate the entire rice drying and processing facility. The residual heat from the turbine will then be utilized in the grain drying process, totally eliminating the need for fossil fuels in the process, and reducing the carbon emissions. The fuel for the process is the rice hulls commonly burned in piles to dispose of them. A byproduct of this process is the ash which can be utilized as a cement replacement, insulator or as a very good fertilizer.

Rice straw has traditionally been burned in the fields as a means of disposal. Dominion will utilize the product in other ways. The straw will be cut and dried in the fields, then baled with a high compaction baler. The bales will be gathered and transported to a holding area and then incorporated into structural components for construction of affordable housing. Highly compacted rice straw is structurally sound for use as a wall building material, which is then plastered on both sides to provide a load bearing wall with exceptional insulation properties.

## Rice Breeding

Dominion Farms is registered by Kenya Plant Health Services (KEPHIS) as a seed merchant and for rice seed production and processing. To build up the gene bank, several germplasm were taken from KARI and LBDA and other rice growing zones of Kenya. Some varieties are sourced through IRRI from various parts of the world. These varieties came through KEPHIS where they were inspected before being released to Dominion Farm's quarantine station for further testing and are being used strictly for breeding purposes. The rice gene bank at Dominion Farms is comprised mainly of several NERICA (New Rice for African) varieties from KARI and LBDA and also from aromatic varieties (Basmati and Pishori) from Mwea and Ahero, Kenya. The company has grown several varieties from the Philippines and Brazil. These varieties produce higher yields, higher milling percentage, better taste and earliness than others which Dominion evaluated. The breeding program incorporates these desirable traits in new varieties produced by Dominion Farms. The new varieties are then coded and tested in different ecological zones and agronomic conditions before being recommended for large scale production. This is done in line with the proposed material transfer agreement for plant genetics resources (MTA) that governs the use of such materials.

Dominion's rice enjoys cool temperatures due to its elevation and perfect photosynthesis due to the equatorial sun, this coupled with the services of the best rice breeders. This has enabled the company to combine and select the desired traits within a relatively short period of time.

## Rice Processing

Dominion Farms has completed the first phase of its rice milling plant at the farm. The capacity of the mill is currently 4 1/2 tons per shift hour and will increase to 18 tons per hour as the farm is developed. It will run two shifts at full operation. The finished product, approximately 100,000 tones of rice per annum, will be sold in local markets to reduce a nationwide production deficiency of 220,000 tons per annum. The rice mill will also be employed in the milling and packaging of other cereal grains produced from the project. Drying, packaging and shipping capabilities are already installed to handle the projected volume of production.

The rice mill is considered to be a food processing facility and therefore is operated as a clean environment. All persons entering this area must wear approved clothing, hairnets and appropriate footwear.

## Aquaculture Development

The contribution of the fisheries sub-sector to the GDP is about 5%. This sub-sector employs over 60,000 people directly and over 1 million people are dependent on the fish industry indirectly. Local fish catches depend on small boats and fish nets. Today there are 6,229 active boats in Lake Victoria. About 3% are motorized while the rest are propelled manually. Lake Victoria produces over 90% of the fish in Kenya and earns over Ksh. 7 billion in exports alone.

Historically tilapia was the dominant fish in the lake; however around 1960 Nile perch were introduced into the lake and are now the dominant species. This species now accounts for over 60% of the total catch by weight. Unfortunately, Nile perch thrive on tilapia and therefore tilapia are being depleted. This is having a serious effect on the ecology of the lake. Tilapias are filter feeders which consume vast quantities of algae. Lake Victoria is a tropical lake which grows algae profusely. Because of the elimination of tilapia, the lake is becoming overcome by algae and water hyacinth. Additionally, due to over fishing, the fish catch in Lake Victoria has been reduced to historically low levels for all types of fish. It is now necessary to find other ways of producing fish.

Aquaculture will be the farm's second most important product line. It will initially produce about 10 million kilograms of tilapia fish per annum for local consumption and for export, increasing to 20 million kilograms when the food and other resources become available. Main inputs to aquaculture include large quantities of water, feed (32% crude protein), and electricity for intensive farming. The water will re-circulate through the fish ponds and then be utilized as irrigation water, thus taking advantage of the high ammonia content for fertilization of crops.

The production of fish in intensive systems consumes large amounts of electrical energy. For a partial contribution to that demand, Dominion has added hydro electrical capability to its dam on the Yala River and driven by pressure from its storage reservoir. Additional power generation from both hydro and burning of rice hulls and other renewable waste products will be incorporated as necessary.

As the fish production reaches the range of 10,000 tones of whole fish annually, a modern fish processing plant will be built on site. This plant will feature energy efficient materials and its electrical power will be produced from renewable resources from a second steam turbine. The waste heat from the turbine will fuel an absorber to produce chilled water and assist in the making of high volumes of ice.

A byproduct of a fish processing plant is the oil that may be separated and recovered from the first press liquor. The result is dried to produce a fish meal containing substantially all of the solids originally present in the fish, minus the water. Such processing requires large amounts of heat, which again will be the residual product from the turbine. Approximately 10% of this off-fall is fish oil which will be collected and utilized as food a valuable product and as a fuel oil. As the fish farm and rice farm mature, it may be possible to completely eliminate the need to purchase fossil fuels, except for use as lubricants.

#### Processing facilities

Dominion Farms has completed the construction of the fish hatchery and it is now operational. Dominion intends to construct various facilities for the fish farm; including a fish food feed mill and a fish processing plant. The processing facilities are expected to add value to the raw material produced on the farm and to process some of the by-products as inputs for other enterprises hence an efficient ecological disposal of same. They will also enhance the market entry for the products from the farm for export and local consumption. Whole tilapia will be sold mainly to the domestic market.

#### Fish Feed Mill and Hatchery

Other structures associated with aquaculture include feed mill (with the capacity to produce 10 tons of feed per hour), and the now completed hatchery that is capable of producing 21/2 million fry monthly when full production is reached. Fish processing off-all will be dried and made into fishmeal which will be sold to other fish farmers. Fishmeal from tilapia will form feed component for high protein animal feeds. The major component of fish feed will be duckweed, rice, rice bran, and algae, with minor components constituted by cotton seed cake, mineral and vitamin premixes.

#### RECENT HUMANITARIAN INITIATIVES

##### Kenya Youth Camp

On the south bank of the Yala River, construction will soon commence on a year-round camp for Kenyan children and youth. It is designed for 2,500 campers and 500 counselors, although the first phase will be limited to 1,000 beds. The

camp's principal sponsor is the EagleSky Foundation of Oklahoma City, which has committed to fund the construction costs and a significant percentage of initial operating costs. Kenya Youth Camp will operate eleven months per year under a schedule of three weeks per session with one week off between sessions. The off week will allow for long-distance transportation of campers and R&R for counselors and staff. Unlike most camp scenarios, Kenya Youth Camp will encourage attendance by entire schools and their teachers for the full three-week session. This will provide a more comfortable and familiar setting for young kids and will qualify for full educational credits from the Ministry of Education. The curriculum will introduce the campers to the modern world with the intent of causing them to be more proactive in the affairs of their families and communities. High among the priorities will be sex education and counseling with a focus on curbing the transmission of sexual diseases. Venues will include modern agricultural operations and practices, including chicken and egg production, dairy production, and farm equipment operation, and general introductions to all phases of the Dominion Farm. The camp will include those traditional features of swimming pools, athletic fields, challenge courses and entertainment - all currently beyond the access of the attendees. It is the intent of Eagle Sky Foundation that campers will return to their homes with a new vision of the world and with determination to make their lives more secure, healthier and happier.

#### Dominion Community Farms

In 2008, Dominion will select from 1 to 2 groups of small landholders in close proximity of the Yala Swamp to participate in a new initiative. Through the formation and operation of co-operative organizations, ten or more families per co-operative will combine their land, demolish their huts and hedgerows and commence medium-scale farming with modern equipment, inputs and practices. Dominion will provide all funding, seed, fertilizers, equipment and technical supervision and will contract to purchase the crops at prevailing market rates. The company will also loan funds for construction of new homes under intermediate-term mortgage notes. All land ownership will stay with the current land owners in accordance with the Co-operative Societies Act of Kenya. Land ownership WILL NOT be by Dominion for the Community Farms Program. This program is strictly voluntary by the land owners, and their surrounding neighbors.

The intent of this program is to move smallholders from their inefficient 1 to 5 acre parcels with no equipment and no modern practices into 100 to 500-acre commercial farms using state-of-art agricultural methods and equipment. It is anticipated that these co-operatives will be fully independent within six to eight years. As additional co-operatives are identified and prepared for operation, Dominion will solicit help from other organizations to fund and help monitor this important work.

Dominion believes that thru the community farm program true wealth will become available to the local land owners, bringing prosperity to otherwise desperate people. It will require hard work, dedication, co-operation, and honesty for these to prosper. We have numerous anxious people ready to join the program and better their lives and those of their children. Thru the education of the camp and the demonstration of the Community Farms Program we believe there is a very bright future for the next generations.

Posted by [Calvin Burgess](#) at [Monday, January 07, 2008](#)



#### 8 comments:

**Anonymous said...**

Great to hear about the on-going progress of this project. I

have been concerned that the current political unrest might impact the project.

You have obviously done a lot of work on expanding the integration with other crops and other community-building activities.

My your continued success encourage other such endeavors around the world.

Jon Lusk

[January 9, 2008 at 6:32 PM](#) □

**Anonymous said...**

Wow!

Dear Calvin,

As I was curiously researching the history of the Dominion House (since my fiancée and I will be having our wedding there in months to come) I originally had just a simple feeling of comfort and familiarity with the beautiful renovation project resulting from an earlier construction/remodeling tour given to me years back by a friend, Kevin Close. As I researched further and had the opportunity to read your online blog, I stand in awe, and am completely amazed and enlightened at what truly lies beneath the surface and of what I (embarrassingly) had no prior knowledge was taking place. The amount of knowledge, ongoing research, uphill planning, degree of ingenuity, and most importantly spiritual awakening that has been immersed in Kenya, for the Kenyan people by the Dominion Group is mind boggling. Although I partake on annual mission trips (one of which was to Kumasi within the Ashanti Region of Ghana for work on dormitory housing in 2006) I now sit here humbly replying almost with a feeling of complete inadequacy of my self appropriations in comparison to the magnitude and the force in which the Dominion Group has taken action and accountability for such an incomprehensible degree of social, economic, and spiritual change and future building within Kenya (and all since 2002!?). What a difference you are all making and may God continue blessing you and keeping you all safe during your generous passage! (What a talent!...What a gift!)

Wayne Sadeghy

[February 5, 2008 at 1:58 AM](#) □

**Anonymous said...**

Dear Calvin, Staff and all Employees of Dominion Farms..

I am so inspired by Dominion's vision mission and practical application of modern farming methods in Kenya. During the past few days I have been able to catch up on the varied news via the internet, and it is with a heavy heart that I have learnt about your struggles.

I do not know which is the best way forward, suffice to say that I pray that whatever the forthcoming events, that you all remain safe and protected in the fold of Jesus Christ.

I would so love to help, but am seemingly powerless to do so, having only recently arrived in Bondo, I am an experienced sugar cane farmer and forester with Warm water intensive aquaculture experience, and will be in Bondo for another two weeks or so.

Perhaps in some small way I can help, even if it were only to lend an ear...and share a burden

[April 4, 2008 at 6:20 AM](#) □

**Anonymous said...**

The going is rough Calvin but do not quit. You are doing a good job. Sooner or later these people will realise that Dominion is for the betterment of the lives of their families.

I have not read all your blogs but will go through it tonight and will revert with a better advise.

Many thanks again for having identified that rich part of the country for improvement.

Kenyan from US

[April 8, 2008 at 3:21 PM](#) □

**Anonymous said...**

Dear Calvin,

Congratulations for all you have accomplished in just a few years and after so many obstacles on your way. God really is guiding your from the very beginning when you first dreamed about this phenomenal project, now a grand reality.

May He continue pouring blessings upon you and upon all your co-workers and the people in Kenya. You have changed their lives.

I hope we can see you sometime again in Mexico, whenever you have a free few days from this venture!!

May this year be really fruitful. I hope you had a blessed Christmas, as we did with Alejandra our daughter, and her husband Juan and our 3 precious grandsons.

I guess last time we saw you was at their wedding in Mexico City. We do not forget all you did to help Alejandra. Thank you!

Gob bless and hope to see you in the near future. Please give our kindest regards to your lovely wife. Elena, and Javier Quintero (Alejandra's parents) in Guadalajara, Mexico

[February 4, 2009 at 3:51 PM](#) □

**Igal said...**

Dear Calvin,

I would love to meet and discuss your experiences in Kenya, I am based in Naivasha. I am also from the states. I am involved in agro based ventures in Kenya. If you are interested in meeting, my email is [igal@theelfs.com](mailto:igal@theelfs.com) I have read your blog and it seems we have some common interests.

Igal

[February 5, 2009 at 8:10 PM](#) □

**Anonymous said...**

Dear Calvin,

I'm confident that your vision will transform this area into one of the 'seven wonders' of the world.

If the Jews still look for miracles, the people of Siaya have already seen one. This is a potentially agriculturally rich area that has either been mismanaged or neglected by the powers

that be since the independence of our beloved country Kenya.

The changes that have taken place in the area since you invested a fortune in the farm cannot be gainsaid. Interestingly these positive changes have taken place against a backdrop of many challenges ranging from political to traditional orientations.

Like Joshua, you've got to be strong and courageous and press on because Jehovah God is with you.

I'm fully aware that the challenges the farm is facing can be managed proactively by giving it a more structural approach. It is for this very reason that I'm dying to be part of the farm in order to engage my vast experience in the world of marketing/social research. I once submitted my proposal to the managing director Steve.

I have not given up because I want to be part and parcel of this very noble plan that will truly transform the lives of Kenyans in general and the locals in particular.

Benson Odote (son of the soil)

[March 30, 2009 at 5:52 AM](#) □

#### **Anonymous said...**

Your achievements are very inspiring. How I wish I will have the courage and knowledge to do such project in my country in the Philippines where poverty and corruption also abound.

I have seen Dominion Farms in an article at theTrumpet.com when I was researching for ideas on how to design wasteland such as landfill into a productive environment. Your fantastic and marvelous project strengthened my aspiration to conduct a thesis study for my master's degree in landscape architecture here at University of Texas at Austin. My objective will be to design wasteland into a productive landscape.

Your such a great inspiration. May the Lord God Almighty give you more strength, blessings, and good health.

Noel Ramirez  
knowell732003@yahoo.com

[May 31, 2009 at 5:27 PM](#) □

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