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Practicing Ergonomic Balance in Order to Avoid the Inevitable Addiction to Cheap Labor: The Case of Greenway Farms

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Abstract

Greenway Farms is a family business owned by two families located 80km northwest of Johannesburg. It was started by Vincent Sequeira in 1988, as a typical mixed crop market garden. Today, Greenway Farms supplies 40% of Southern Africa's fresh carrots, and is marketed under the Rugani Carrot brand.

This is a case study of a typical emerging farming initiative that transformed itself into a highly productive modern agricultural enterprise. The journey of transformation was extremely challenging as the owners had to embrace concepts that were foreign to them. Quantum leaps in practice will challenge the mind-set of any small farmer immersed in an undeveloped agricultural world. The most difficult concept to rise above was the myth that labor is cheap. An abundance of labor means low wages, but low wages does not mean cheap labor.

Keywords: labor policy, mechanization, development, Africa

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Company Background

In 1988 Greenway Farms was a 20Ha mixed produce farm. They grew a variety of fresh produce destined for the city of Johannesburg. In 1993 Vito Rugani, who also had a small neighboring farm, joined Vincent. Together they employed around 80 people who manually completed all tasks. By 1995 the partners realized that something was wrong. They worked an 18 hour day, made no profit, paid a horrendous wage bill, and were in essence going bankrupt. The root of the problem was a conundrum, how labor costs could be onerous when wages are low.

Both men realized that they were doing something wrong, but what? They needed to expand their minds, explore alternatives ways to produce vegetables, and truly understand the madness of their current business practices. They headed to Australia because the climate and markets were similar, yet Australian vegetable producers are some of the most efficient in the world. There they learned about equipment, mechanized processes, and a completely different human resource paradigm.

This case study attempts to expose the journey of understanding that they undertook. On returning from abroad they implemented a vision to bring ergonomic balance, the marrying of operator and machine, into their business. For indeed it turned out that the traditional developing country notion of competitive advantage through the use of cheap and abundant labor was their folly.

They had no capital resources when initiating their vision to achieve ergonomic balance. They knew they needed to raise the capital to mechanize and transform their business model, for to continue status quo meant sure death for the business. Bank finance was not an option due to their negative free cash flow. The pitch to the investor was anything but mechanization. Mechanization is anathema in any low-wage high-unemployment economy. Raising capital and mechanizing the business offered them a chance. Therefore there was only one way out, they sold 40% of the equity in their business to a silent partner in order to "kick-start" their vision. The deal was sweetened by offering a 10% equity stake to the labor force, and this had "political credibility" value for the investor. The labor force still holds this 10% stake in the enterprise, which has turned out well allowing the employees to share in the success of the company. Five years later they bought out that silent partner and doubled his original investment. By 2003 the farm had grown to 100Ha of irrigated land. The business continued to gain momentum, and by 2013 the enterprise had 2,200Ha under irrigation, producing 1,000 ton of carrots a week, 52 weeks of the year off two production bases located 280km apart.

There were a number of challenging paradigms that had to be overcome:

- Conventional wisdom says that machines destroy jobs. In the case of Greenway mechanization makes people efficient and therefore better paid.
- Conventional wisdom believes that labor is cheap, and imported machines are too expensive. In the case of Greenway, imported equipment leads to greater labor productivity, overall operational efficiency, and a higher quality product.
- Conventional wisdom believes your ground must work and that idling ground is an inefficient use of capital. Mechanization calls for specialization. Specialization calls for a three-year cropping cycle where land is left fallow for two years. In the case of Greenway ground must be rested to ensure the sustainability of soil health.

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The decision to mechanize was immediate upon seeing an alternative way forward and knowing the consequences of not changing, but organization transformation was hard and slow in coming. Mechanization has to be piecemeal, mainly due to financial constraints, and enterprise adaptability. The process of mechanization dictates that you can only move as fast as your legs can carry you. There are aspects to mechanization that escape the casual glance that sees only the simplicity of a machine operating. The more manual an operation, the flatter the learning curve, as management and employees have few reference points on which to draw upon. The systems to manage mechanization from service and maintenance through to operator training all had to be built from the ground up. There was lots of trial and error as the wrong equipment was purchased, or there was a poor understanding of proper usage.

After purchasing the shares back from the initial investor, Greenway sold them on to an Australian carrot farmer, with the sole motive of having good counsel available for the future mechanization choices. This allowed the management team to avoid the "school fees" associated with mechanization. Upon exhausting the benefits of counsel Greenway bought the Australian investor out. It was a win-win arrangement; the Australian firm made money and Greenway gained knowledge–or at least avoided making bad mechanization decisions.

Managerial Accounting and Ergonomic Balance

The conventional way that both banks and farmers consider the viability of the farming enterprise is as follows:

Table 1. Conventional accounting approach to determine business viability

Income		All revenue generated from product sales
	Less variable costs	All costs involved in the production of the crop
Gross Margin		
	Less overhead	Excluding interest and capital payments
Net Farm Income		An indicator of the fundamental viability of the enterprise
	Less interest	
Net Farm Profit		An indication of gearing
	Less capital expenses	
Cash Flow		An indication of business sustainability

Typically farmers and bankers view the enterprise based on debt levels, managerial capacity for expansion, and profitability. The conventional view provides many valuable insights into the performance and viability of the farm business. But standard accounting measures provide little understanding of the Ergonomic Balance in the enterprise.

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This conventional approach does not indicate how well labor "marries machinery". Critical for ergonomic balance is understanding that labor costs are a percentage of income. In fact the cost of labor is fragmented across the management accounts in terms of being both a fixed and variable cost. It is important to understand the change in the percentage cost of labor over time when achieving ergonomic balance in the firm. Another critical component is worker per capita contribution to income over time. Finally, the relationship between wages and cost of maintenance of machinery for the enterprise are examined, which is an explicit measure of the relationship between man and machine.

Farmers conventionally see labor costs simply as a function of market ruled wage levels. A farmer mechanizes if wages are high or labor is unavailable. There is however another dynamic at play in developing country business settings; the addiction to cheap labor. We argue the cheap labor myth and policy hold communities, both farmer and worker, on a course of mutual self-destruction and misery.

Consider the following alternative managerial accounting approach (Table 2):

Table 2. An Alternative Managerial Accounting Approach to determine business viability

Income		All revenue generated from product sales
	Less variable costs	All costs involved in production of crop
Gross Margin		What income is left after growing the crop
	Cost of labor	All remuneration of both salaries and wages
	Plus cost of maintenance	Not the capital cost of machinery, just the maintenance thereof
	Operational Costs	Handling the crop – both human and machine
	Less Operational Costs	
Farm Surplus		Income left after the crop has been grown and handled
	Cost of interest	
	Equipment replacement	
	New land and equipment for expansion	
	Dividend pay-outs	
	Obligatory capital repayments on bonds or lease agreements	
Cash Flow		The portion of this surplus is retained in the bank

The farm surplus, simply put, is what is left to reinvest into the enterprise to ensure long-term sustainability and growth. If an enterprise is to grow, and thrive, it must produce a surplus.

Variable Costs, Operational Costs and Farm Surplus are interrelated and must be kept in balance for the long run viability of the enterprise. The area of the circle in Figure 1 is the revenue of the enterprise. Exogenous ruling market prices and endogenous yield determine the revenue of an enterprise. Producers are price takers in the case of perishable products where supply is inelastic and demand is elastic. The only real control the producer has over the area of the circle is to increase yields. In carrot production the variable cost segment will range between 43 -50% of revenue, depending primarily on crop yield. Higher yields shrink variable costs as a percentage of revenue. If yields dip, the variable cost area grows and farm surplus contracts.

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Very few producers can identify the ideal size the Operational segment because of the way they view management accounts. Clearly the association between these three segments is enterprise specific, but for carrot production we have found the ideal operational cost is 25% of income.

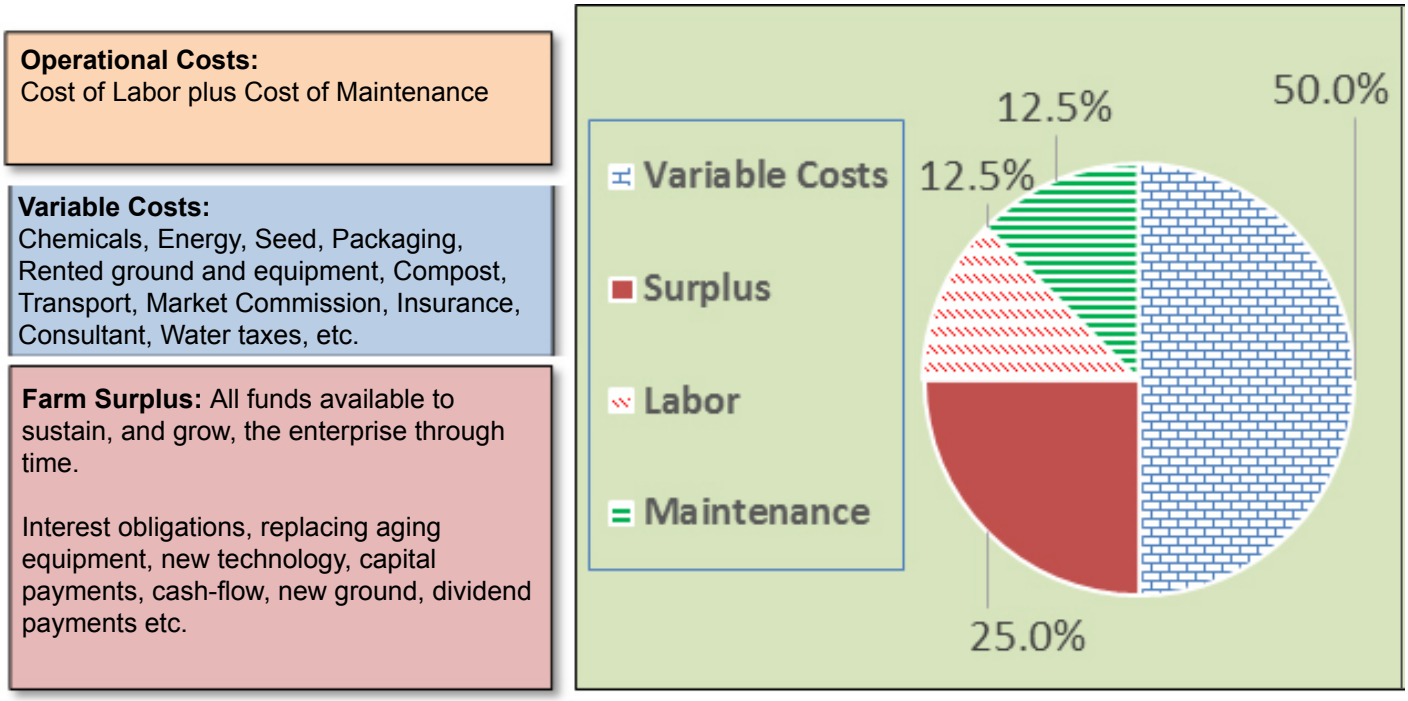

Figure 1. The Managerial Accounting Approach to Understanding Ergonomic Balance

The key is however not the aggregate 25%, but rather the balance between the cost of labor and the cost of maintenance; Ergonomic Balance. Labor could go as high as 20% in a highly labor intensive operation or enterprise, and that would leave a mere 5% for maintenance. In a highly mechanized enterprise the allocation might be equal at around 12.5% labor and 12.5 % maintenance.

Assume 50% of income is the variables costs to grow the crop. A Farm Surplus cannot be less than 25% if interest, capital expenditures, and dividends require resources. Therefore, Operational costs cannot exceed 25% of revenue. This implies that even in a labor intensive environment (countries with cheap labor), an enterprise cannot devote more than 20% of its total income to labor. If the enterprise is mechanized, then only 12-13% of its income can be devoted to labor, as maintenance becomes more demanding. Without ergonomic balance the Operational segment grows and consumes Farm Surplus.

Greenway Farms

In 1995 when the partners went abroad to see what they were doing wrong, their Ergonomic Balance had 45% Variable costs, 50% Operational costs (35% labor and 15% maintenance) and 5% surplus (Figure 2).

The farm functioned well from an agronomic perspective with excellent yields and high product quality. As a result Variable costs were only 45% of revenue. The problem though was the cost of labor to company, not the price of labor. The enterprise paid poor wages common in the industry. Low wages painted the illusion that labor was cheap. Workers labored long hours and work was arduous. Labor turnover was 35% per year,

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adding additional Operational costs. The high labor bill meant low productivity per worker. Low levels of Farm Surplus constrained the company's ability to purchase new equipment or leverage any scale economies. Greenway was addicted to cheap labor. At the same time labor had no opportunity to become more efficient and garner higher wages. Thus both the firm and its employees faced a "lose-lose" dilemma. With Farm Surplus consistently below 25% Greenway Farms was doomed.

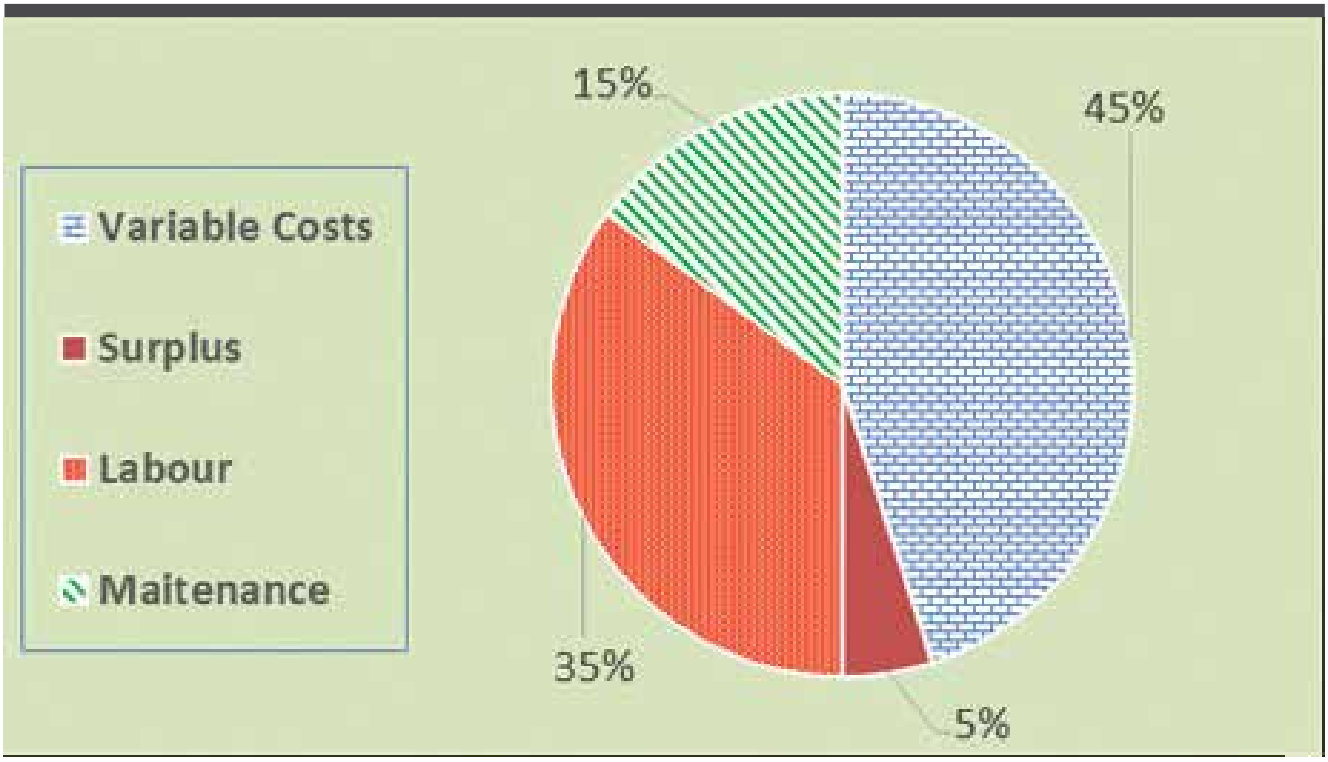

Figure 2. Ergonomic Balance Greenway Farms 1995

The situation required a radical step to get out of the cheap labor trap. They sold 40% of their equity with the explicit purpose of instituting Ergonomic Balance into their enterprise. Within three years the surplus had grown to 25% and the operational costs were down to 25% of revenue. Vincent and Vito repurchased their shares paying their silent partner a 100% profit after only five years.

Today, Greenway Farms pays four times the national minimum wage to its lowest paid staff members. Wage levels and work day length are often better than commercial and industrial levels, thus staff turnover is less than 3% per annum. The majority of the employees have now been with Greenway for more than ten years. Company policy prohibits laying off workers due to mechanization, and the annual labor force growth rate has been 5% per year since 1997. A worker now produces 35 times more revenue, and earns 15 times more salary than he did in 1995. The Farm has maintained a surplus between 25% and 32% since 2001, and has grown from 20Ha to 2,200Ha.

Clearly employment is a key policy issue for South Africa as every other developing or emergent economy. The South African government appreciates that Greenway has continued to expand its level of employment and provide annual wage increases in excess of inflation. The fact that expansion was only due to the success and the growth of the firm was missed by the government stakeholders. The employees understood though. The

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covenant to not reduce the work force caused labor to embrace mechanization as their hope of getting out of poverty, and they never saw mechanization as the demon that would starve them.

But unfortunately Greenway would never have got anything right if we had not deliberately 'flown-below-the-radar'. The government has a natural mistrust of the entrepreneur. The toughest challenge to an entrepreneur in a developing nation is how to limit government meddling. For example, the government would have blocked all plans to import machinery had they become privy to Greenway's plan. The government also rejected all applications for financial assistance, forcing Greenway to rely solely on silent partner and private bank funding.

Conclusion

The key factor for success was not to believe the myths. It is very easy for both worker and employer to take the "moral high-ground" when an enterprise is addicted to cheap labor. The laborer claims that his wage is inhumane, and that the system has failed. The employer claims that s/he "cannot" pay more for fear of bankruptcy, and he is not a criminal as he "feeds" the nation and is a "good" citizen. The Greenway case teaches that it is the responsibility of the worker to "do an honest day's work", but it is the responsibility of the employer to ensure that worker does a productive day's work. Clearly a policy challenge exists for high unemployment countries common in Africa. The exigencies of poverty reduction motivate full employment mandates, but such mandates create labor use inefficacies that hold down wages and promote labor turnover.

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