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## Untangling Food Insecurity in Southern Africa

### **Introduction:**

It was extremely mind boggling, and profoundly confusing to read the words, “For the past century world food production has been outstripping population growth” while carrying out research for a paper on the search for food and nutrition security (Earle 2). Echoes of modern economists' praises and exaltations of the globalization movement and its positive impact on the world's living standards rang through my ears. How could so many human beings be vulnerable to so much starvation in a world where other countries are drowning within their own food supplies? It is obvious that globalization single handedly is and will not be the answer to all our international dilemmas and catastrophes, and may even at times be reason for their agitation.

Hence it is up to *globally conscious* individuals to embark on a journey to find a “Sustainable Path Toward Food and Nutrition Security” and not leave it up to globalization or any other self-correcting theory for that matter. This is the approach that must be taken to stabilize socio-economically developing nations. This does not mean globalization is not a positive international change, but it simply needs globally conscious and concerned individuals to harness the positive results to benefit impoverished countries that are in need of it, otherwise the effects could be counterproductive.

Southern Africa is a region that is commonly classified as “delicate” in several sectors in relevancy to the international scale. A study in 1998 conducted by Turton revealed the vulnerability of this region declaring it a “central belt of scarcity” (Earle 8). The drought of 2002 which left around 13 million, by the end of the year, in a state of starvation was a great display of the inability of the region to effectively cope with the scarcity of some natural resources (Stephen 1).

Southern Africa is home to many problems that play off of each other in making matters worse. Often in cooperation with each other these problems form a cycle which is very difficult to stop. Most times these problems are incubated on a local level and grown to macro- national ones, and occasionally regional. Problems of this nature specific to southern Africa consist of AIDS/HIV, drought, water scarcity, and social instability. Since problems of the like do not recognize national boundaries I will address them from a regional perspective.

International perplexities are also determinants on how well the region may be able to survive. Trade barriers, terms of trade, and global commodity prices are all crucial to any nations economic health. But for southern Africa it could be the difference between a small farmer being able to sell enough for their family to survive or not being able to sell any products at all.

This paper will evaluate the situation from both macro and micro levels and the effects on a typical farmers perspective, while taking into account all of the preceding factors. Observing from such a proximal distance enables me to identify causes, and effects of problems on a grassroots level more effectively. Subsistence farmers in the region of southern Africa are very

suitable candidates in the evaluation of how macro external determinants effect the individual, since the individual farmer and the government are deeply intertwined.

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### **The Typical Subsistence Farm:**

In southern Africa it is not uncommon to hear of rural citizens surviving off of what are small personal farms adjacent to their homes. In fact sometimes they are so prevalent that they demonstrate most of a countries economic activity, as in Lesotho which on a scale of 0 to 1 had the highest rating of (93%) of farming activity in Southern Africa according to the Afrobarometer study (Davids et al 25).

Surpluses on these types of farms are a rarity as production is limited to providing a marginal livelihood for the household. The temperature, arid environment, and high cost of inputs discourage a farmer from growing any more than what is needed. Thus risk is a typical mindset and disincentive for a subsistence farmers in the area to produce enough to participate in the market economy, leaving no opportunity for cash activity. Relying on these farms can then be unstable and insecure during events of drought when no other alternative ways of purchasing or obtaining food are available.

Rural households in Southern Africa are often overcrowded as many encompass several distant family members. Traditionally fathers are the head of the household and “decision makers at all societal levels”, however there is a frequency of scenarios of father deprived families due to the pandemic of aids(O' Regan 1). Women are the typical caregivers and tend to have lower education rates. Subsistence families do not have many children because of high infant and maternal mortality rates.

When it comes to the environment, most of Southern Africa is considered arid or semi arid because of very low levels of rainfall (Earle 12). South Africa and Zimbabwe have levels of rainfall around 451 mm and 652 mm per year respectively and have a *Water Stressed* status (Earle 12). Small farmers are thus mandated by the lack of rainfall to employ techniques appropriate for their conditions. Irrigation is a technique subsistence farmers have used profusely in areas where rain-fed agriculture is not possible.

Staple crops by necessity are the only produce grown on the small plots of land. They usually consist of maize, sorghum, or wheat and are also very water intensive. Because of this the farmer's diet is unvaried and is void of important fruits and vegetables.

HIV/AIDS a rampant disease has become one of the most serious impediments to progress of food security in the region disrespecting of all national and natural boundaries. With the numbers going as high as an estimated 5.3 million infected in South Africa, to the common rural household it is recognized as the destroyer of families and the cause of generational orphaning (McClure 1).

Because of HIV/AIDS being so wide spread among rural farming communities, many have had a majority of their active adult population killed off which “increases the dependency ratios and

the number of orphans, and decreases earning capacity and the availability of farm labour” (UK Department of International Development 23). As a result critical technical information on managing natural resources are not passed on and the next generation is left helpless (UK Department of International Development 23).

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These detrimental effects do not come to a halt there, yet still it germinates a cycle with long term roots. Many times when the male the main breadwinner in the family dies the rest of the family members have to find alternate sources for their food or income to buy it. More times than not the mother and children will sadly resort to the sex trade, and make themselves susceptible to the very disease that killed the father (UK Department of International Development 23). The fact that “women in areas of southern Africa are three to six more time more likely to become HIV-infected than men” provides good reason to believe that the women that are driven to prostitution will be infected and pass on the disease to her children (O' Regan 1).

From the nutritional security viewpoint HIV is nutrient leeching, because of symptoms like higher nutritional requirements and poor nutrient absorption. Therefore one can see how complex and costly the disease can be to food and nutrition security and a massive barrier to any improvement in both the short and long run. In the long run, if this pattern continues, southern Africa could see a significant decrease in human capital, available laborers, and costly medical patients.

Another barrier to development of food and nutrition security on a subsistence farm level is the plot size that is being utilized to farm. With the current sizes of subsistence farms their harvests are inefficient in comparison to larger commercial farms. And in the specific nation of Zimbabwe it's “land redistribution policies had reduced the amount of commercial farmland growing maize, compounding and exacerbating the food security problem” (Stephen 1). The reasoning behind this is that the economies of scale in large commercial farms are not present in small subsistence farms and so the bonus supply that could be harvested if that small farmland was added to a larger one would be much greater than if that subsistence farm persisted independently.

These two barriers to improvement in Southern Africa of inefficient plot sizes, and HIV/AIDS have been attacking subsistence farms for so long a period of time that, they have become inseparable part of the subsistence farm identity. Now that a typical subsistence farm and its characteristics have been identified examine the economic factors impacting the region.

### **Economic Factors:**

Currently, most of Africa tends to have many economic difficulties but the problems present in southern region tend to distinguish themselves quite a bit from the rest. The ones I will be focusing on are access and optimal use of water resources, marketing infrastructure, and globalization and trade policies for subsistence farmers.

Water as stated previously is a “key developmental problem”, and a highly scarce resource. As of the year 2000 South Africa and Zimbabwe were classified as *Water Stressed* (third worst condition), and Botswana and Namibia were *Mid-European* (fourth worst condition) on the Water Barrier Scale (Earle 12). The reasons why southern Africa has such pressing water conditions is due in most part to the minimal rainfall and soil moisture (also called *green water*) that is “negatively affected by very high rates of evapotranspiration in the area” (Earle 13).

Even though Namibia and Botswana are in slightly better conditions than South Africa it is only

because of the large rivers that they possess (Zambezi, Okavango, & Kuene), which are very difficult to utilize because of the large area of the two countries.

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During the 1980's southern Africa implemented *self-sufficiency* in providing itself with staple crops mostly composed of wheat. If this wheat was obtained through irrigation methods, costs are likely to be around US \$18,300 per hectare, in comparison to the expected income of US\$ 610 per hectare (Earle 14). In Zimbabwe alone the government subsidizes irrigation projects for US\$ 42 million annually (Johnson 20).

Clearly the water is not being allocated efficiently in respect to where it could achieve higher returns. It is understandable that the leaders of these nations are simply trying to secure a food supply for their citizens but this is not the most beneficial way of going about it, especially if the process is extremely water consuming in a water scarce region. To continue about "business as usual" in the long run will lead to depletion of the natural resource than eventually a Malthusian Catastrophe (population exerts much greater demand on resources in an unsustainable manner) (Earle 16).

Thus the farms that are producing these staple crops are in essence creating net negatives, only which the government covers but most likely will be unable to continue in the future. The very same quantity of water could have been implemented in another sector and provided that same subsistence farmer a much higher profit. Not only is it economically wasteful, but the large irrigation process also poses a great threat of salinization of the land, making it even more infertile.

The way countries react to the scarcity is dependent on *social adaptive capacity* "within the social entity concerned, which will allow for a society to follow through with a new water demand management strategy" (Johnson 16). When the nation or region reaches this point it has realized that it is living unsustainably and that an alteration must happen.

This point was certainly reached by South Africa and Botswana, both of which have restricted their agricultural water use. South Africa attained this through the National Water Act (1998) (Earle 17). Then both nations began to shrink the amount of locally produced wheat. The question comes then, why were these two nations able to stop this environmentally degrading and economically inefficient agricultural practice while others were not?

This is explained by Ohlsson's theory of diversification through *second order resources* or (social resources). Ohlsson's theory is applicable to situations where the *first order resources* or (natural resources) are in extreme scarcity, and the high level of *second order resources* are then able to step up and fill in, this phenomena is called *virtual water* (Earle 17). Virtual water is defined as a situation : where water is an extremely scarce first order resource and can be utilized in other sectors (i.e. second order resources like industry) to bring in more profit than in domestic agriculture. In return this profit could buy much larger quantity of food than possibly produced at home. So in essence the nation or region has brought in more water contained within the food imports, than the water that would end up in domestic crops by simply allocating the same quantity of water to a sector that provides higher returns. Hence, when a nation accomplishes this it has achieved virtual water within its economy.

Normally this would be the industrial sector of the economy that will fill in the shoes of the first order. Advancing the industrial sector by efficiently allocating more water to it, the country will

be capable of producing more with much less water and be able to sell the product for a much more competitive price in the international market than the wheat. The country should then hypothetically be able to purchase much more wheat with its newly earned foreign currency and salvage its water resources. 4

South Africa has begun to adopt virtual water, though by allocating the water efficiently within the industry and in the agricultural sectors to the farming of crops with higher returns per unit of water. For South Africa vineyards were where the water seemed to bring in larger a proportion of income (Jobson 25). Zimbabwe on the other hand has chosen to be non-competitive in the global market and to fervently stick to self sufficiency policies, when it also has a prime opportunity to adopt virtual water by allocating water to the highly efficient rose exporting industry (Jobson 21). If Zimbabwe continues with its trends soon we may Fallenmarks's WBS predicts that Zimbabwe will face chronic scarcity by the year 2025 (Jobson 18 ).

Virtual water demonstrates that food security in special cases can be economically maximized by importing food supplies with currency from other sectors. Despite virtual water being a perfectly viable answer for southern African region subsistence farming will have to be phased out slowly as to not create any political or economic shock. Until then these farmers will have to find reasonable methods to market their crops when they have finally reached the level of production in which they can meet their own needs and still have a surplus to sell. When farmers reach this level often isolation is the first obstacle they face.

Isolation from the market is actually a very critical issue to deal with in respect to sustainable growth for an individual family farm. Many farmers are completely isolated from their markets as a result of poor infrastructure development in rail transport, road, postal and telecommunications. As a result many farmers end up either selling their crops at unprofitably low prices or keep the surplus until it rots.

The highest infrastructure developed nation in southern Africa, South Africa has 44% developed roads, 24% live enumerator to a postal office, and 15% have access to rail transport (Davids et al 23). Lesotho the worst infrastructurally developed nation has 4% pavements and 1% transport (Davids et al 23). Improvement is happening constantly in South Africa, as it already has the lead in all sectors. Yet still it needs to accelerate much quicker, therefore wireless communications may be an answer. They are much cheaper to construct and are more reliable, enabling the average farmer access to the market and knowledge of market prices, trends and potential costumers.

Globalization has connected the advanced world to developing nations in countless ways. It has connected the region to the international market of cheap food products. Through globalization Southern Africa can buy cheap food products it could not before, at the same time the developed world also has entry into southern Africa's economy. At times this could be positive and times it can spontaneously create new problems to deal with. For instance Foreign Aid on a continued long term basis can smother the local subsistence farming community by increasing supply and sharply decreasing the price.

Southern Africa should reap the benefits of globalization and purchase competitively cheap food. While at the same time it should be wary of chronic food aid, and attempt to personalize aid

programs so as to fit the best needs of the people.

## 5

With the access to new markets comes access to new trade barriers. Like most other developing regions southern Africa is struggling to build up their export industry which majority of it is composed of agriculture. With barriers on agriculture, that include tariffs sometimes upwards of 100% and unjustifiably high food standards it will be extremely difficult to grow the national exports (UK Department of International Development 28). Subsistence farmers whom are linked into the market, and attempt to sell into the international market will have to face the wrath of subsidies given to OECD farmers amounting up to \$327 billion in 2000 (UK Department of International Development 28).

The only solution to the problem is to have OECDs ease their tariffs and their high food standards, and relax their massive subsidies. Other than that, still developing countries do not have a chance in growing, because they are not economically powerful enough to competitively resist. Even though the most recent convention of the Doha Round of the World Trade Organization has recently failed in trying to lower the subsidies, this is where globally conscious individuals play their role in pressuring their governments to have mercy on developing nations and to lower their subsidies.

### **Conclusion:**

Southern Africa indeed is a home to many dilemmas that have very deep roots in each other. Many of the problems can not be solved at all without untangling them from their complex twists. At the center of the tangled ball lies food and nutrition insecurity, rapidly and continuously multiplying inside. In some parts it has slowed down and shown small peaks, where others cease to get tighter. South Africa and Botswana seem to be providing some guidance and light to the region. Zimbabwe with its governmental policies seem to commit itself to the treading of water, and maybe drowning.

The developed world is on its toes waiting eagerly to see what will come of every new advancement, but that is precisely the problem. Technology and new economic phases don't automatically fix problems globally. Other good willed countries will attempt to do something beneficial but will be flawed, because of irrational thought that sporadic throwing of money, or large shipments of food at the problem should solve the equation.

It is also hard to help nations that do not want to be helped. Such as Zimbabwe which had chosen to maintain GM free status and not accept emergency aid, over the lives of millions of citizens (Hall 1).

This however, does not signify that we should give up all hope and stop all efforts. There are still nations such as Lesotho where 47% of people go often without food and 27% of the time without water (Davids et al 11).

Southern Africa needs to wake up and be aware that if it wants any sustainable food or nutrition security, they will have to cooperate as a region. Even though they may envision themselves as completely independent countries, the reality is the rest of the developed world sees only

southern Africa and will treat it as such. So if one country is economically unstable, investment to the whole area will be affected. In order to be free of the tangles of food insecurity southern Africa will have to be like one nation with the backing of first world governments, and *globally conscious individuals*.

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## Bibliography

“Achieving Food Security.” id21insights 61 (Apr. 2006).

Earle, Anton. “The Role of Virtual Water in Food Security in Southern Africa.”

Occasional Paper No 33 (Sept. 2001).

Hall, Tony P. “A Green Famine In Africa.” Economic Perspectives No 3 ser. (Sept. 2003).

International Development Dept., UK. “Strategy for Achieving the Millennium Development Goal on Hunger.” Eliminating Hunger (2002).

Jobson, Suki. “Water Stressed Regions: The Middle East and Southern Africa Global Solutions.” Occasional Paper No 16 (Apr. 1999).

Kapp, Clare. “Health and Hunger in Zimbabwe.” The Lancet 30 Oct. 2004: 1-6.

Mattes, Robert, Michael Bratton, and Yul Derek Davids. “Poverty, Survival and Democracy in Southern Africa .” Center for Social Science Research CSSR Working Paper No. 27 (2002).

McClure, Laura. “South Africa’s Struggle with Aids.” Current Events 11 Feb. 2005: 1-3.

Nevin, Tom, and Dominic Dhilwayo. "The Zimbabwe Factor: South Africa Watches and Waits ." African Business 1 May 2000: 1-4.

O'Regan, Davin. "Men Should be Targeted in Aids Fight, Botswana Health Minister Says." AllAfrica.com 31 Jan. 2006. 18 Sept. 2006 <<http://allafrica.com>>.

Williams, Stephen. "Drought-- a Looming Tragedy ." African Business 1 July