The Potential of Permaculture: Addressing Subsistence Farming and Food Security in Malawi

Abigail Conrad

Oral Paper Presentation
Society for Applied Anthropology Annual Meeting
Merida, Mexico
March 26, 2010

Introduction

Malawi's Global Hunger Index rating is "alarming" with widespread malnutrition that causes stunting in 56 percent of all children under 5. The life expectancy at birth is 40 years, and the HIV prevalence is 14 percent. Malawi is one of the poorest countries in the world with 52 percent of the population living below the poverty line which is set at "32 US cents a day" (United Nations 2006). The economy relies on agriculture for over 90 percent of its export revenue, and overall, agriculture supports 90 percent of the population. The population is predominately rural, and about nine million people out of a population of 13 million are classified as subsistence farmers (GoM 2005:95). Malawians experience powerful structural constraints within their social, political, and economic system which creates high levels of poverty and causes large portions of the population to be continually vulnerable to food insecurity and disease. Malawi itself cannot improve the socioeconomic conditions of its population without solving the food insecurity of its rural smallholder farmers.

In this paper, I will discuss food insecurity among smallholder farmers in central Malawi and the alternative agricultural production method of permaculture as a potential solution for the food insecurity and the economic problems faced by smallholder farmers. Given the time constraints, I will briefly review the political and economic context. I will then discuss my ethnographic research, the agricultural practices of smallholder farmers, and their dependence on maize. Finally, I will discuss permaculture as an alternative agricultural strategy. This paper presents my preliminary research in this area, so I welcome any feedback you may have on this paper.

Political & Economic Context

While the global food crisis has recently pushed the number of food insecure individuals

worldwide to one billion, the failures of the global food system have long been evident in Malawi. As a labor reserve colony under British colonial rule (Amin 1972), Malawi witnessed the production of cash crops in the estate and peasant sectors focusing on tobacco and cotton, and the development of a subsistence sector embedded in market relations (Morris 1998:53). Food security emerged as a problem for rural Malawians in the late 1800s (Morris 1998:52-53), culminating with the famine of 1949. Independence was attained in 1964, after which Malawi was run for three decades by a dictator, named Dr. Hastings Kamuzu Banda who, through the coercive enforcement of restrictive laws, tried to modernize Malawi in the image of the West (Mitchell 2002:5). Banda claimed to be a strong proponent of capitalism, and declared that Malawi's economy would be based on smallholder family production (Davidson 1993:415). However, the economy, including the estate and smallholder sectors, was heavily regulated by the state, and Banda's true aim was to build a strong commercial cash crop sector (Hirschmann 1990:469). Malawi's economy rapidly declined in 1979, and by 1980, Malawi was no longer self-sufficient in food (Morris 1998:55). This decline prompted the involvement of the IMF and the World Bank in Malawi's economy beginning in 1981 (Hirschmann 1990:471).

Banda's rule ended in 1994 with the election of Mr. Bakili Muluzi whose party has a neoliberal platform (Englund 1999:148). The economy has since become increasingly liberalized, including the agricultural sector; however the state agricultural corporation still plays a substantial role in the sector (Øygard 2003:33). The current government has maintained a focus on food security and agricultural production under President Bingu Mutharika (Nyasulu 2008), but it is constrained by the neoliberal policies set by the IMF and the World Bank. Through the expansion of global capitalism and the logic and governance of "Empire," Malawi has been at once incorporated into and selectively disconnected from the global economy (Hardt and Negri

2000:xii, 283; Ferguson 1999:238, 242).

In 2001-2002, Malawi experienced what De Waal and Whiteside have called a new variant famine, or a famine that resulted from the compounding effects of drought, malnutrition and the HIV/AIDS pandemic (De Waal and Whiteside 2003:3). Most recently, Malawi experienced a food crisis in 2005 (Menon 2007:7). By reinstating a fertilizer Input Subsidy Programme in 2005, Malawi has been hailed as a success for "ending famine" and "beating the global food crisis" (Dugger 2007; BBC 2008). However, the sustainability of the increased maize yields resulting from the program is questionable; indeed, these yields may largely be a result of good rains. In fact, at the beginning of 2010, President Mutharika announced that the country is still a "'success story,'" however, the government had to stock the strategic grain reserves with maize because of "the looming hunger [that] year" (Nyasa Times 2010).

Ethnographic Research & Food Insecurity

I completed ethnographic research for this paper during the summers of 2006 and 2008 in a rural catchment area of a central district in Malawi. Most households in the area are engaged in agricultural production that rarely results in levels of subsistence. Full-time wage employment, which requires a tertiary level of education, is necessary to access enough material resources to adequately provide for families. Residents in the catchment area are structurally vulnerable due to their dependence on conducting strenuous physical labor in the environment to meet their food, water, and energy needs. Levels of vulnerability are dependent upon factors such as gender, age, health, and social standing, all of which can strengthen or weaken capabilities to freely act. Fundamentally, they all face the enormous challenge of providing for the survival of their families, which can be made virtually impossible with the occurrence of even small disturbances and crises. They share experiences of disease, food insecurity, a lack of physical

and social mobility, and ultimately, a lack of agency that structures their experiences as a dichotomy between having enough or not.

Land is a key source of livelihood, but smallholders' access to land is not secure because of increasing population density and increases in the amount of privately held land (Peters 2002:159; GoM 2002:18; Amanor 2008:91). Land and population pressure cause soil erosion, soil infertility, deforestation, and a lowering water table, that in conjunction with weather instability, increasingly make the "land prone to drought and flooding," which the staple crop maize is quite susceptible to (Thornton 2008:2). In addition, agricultural production is heavily dependent upon the weather, as the majority of food production takes place during the rainy season. Only around 30 percent of farmers have access to some form of irrigation that enables them to cultivate crops during dry season (GoM 2005:99). As a result, small weather shocks or variation in the timing and amount of rain fall precipitates a food crisis, which occurred at least 40 times between 1970 and 2006 (Menon 2007:2).

The agricultural practices of smallholder farmers often require market bought resources like fertilizer and seeds. Despite a fertilizer subsidy program, poorer smallholder farmers cannot afford to purchase enough fertilizer, to which they directly attribute low agricultural yields. This need for cash necessitates engagement in wage labor which decreases the time and energy that individuals spend cultivating their small farms or gardens (Davison 1993:420). Women who serve as household heads or whose husbands migrate for work are further constrained as they supply most of the family farm labor and engage in wage labor themselves (Davison 1993:416).

Smallholder agricultural practices are labor intensive, from the production, to the processing, and to the cooking of food. These practices are predominately carried out by women, and require a certain level of physical health to perform, rendering sick individuals

unable to farm. In the production cycle, all seeds are first planted by hand with the rains in December, and the fields must be continually weeded (Nordin 2008; Carr 1991:17). Most households will buy chemical fertilizer if they can afford it, believing it to be stronger than organic varieties, and because their hybrid seeds or depleted soil require it (Levy 2003:2). Malawi was most impacted by the green revolution from 1988 when Cargill took control of the National Seed Company of Malawi (NSCM) (Smale 2003:24), but "local" varieties of maize are still predominately grown. Only about 30 percent of farmers grow hybrid varieties, usually in conjunction with local varieties, due to their prohibitive cost (GOM 2000:1; Davidson 1993:416; Smale 2003:40, 47). Hybrid seed sales have stagnated since Monsanto bought the controlling share of NSCM in 1998 and discontinued the hybrid seeds Malawians preferred in favor of their proprietary materials (Smale 2003:41; Bezner Kerr 2005: 178, 193).

Once matured, crops are harvested and then stored and processed by each family. Fields are often slashed and burned before being left fallow until the next rainy season (Nordin 2008). Food storage is an important component of the production process because households must survive on one harvest for most of the year (Carr 1991:4). Women process maize by hand, or increasingly, take it to a maize mill to make it into flour. Maize is dried, and then kernels must be removed from the cobs, and undergo several rounds of being pounded, soaked, washed, and dried in the sun (Smale 2003:15). This process, transforms the maize into the valued, fine, white flour used to make a stiff porridge called *nsima*, which is the principal food consumed by Malawians.

Farmers' continual inability to produce enough food to last all year has resulted in an annual hungry season from December to March during the rainy season, right before the harvest (Mandala 2005:77). In a typical year, at least three quarters of Malawians run out of their food

stocks, causing market prices to rapidly rise, preventing the poorer segments of the population from buying food on the market (Levy 2003:7). In addition to seasonal food insecurity, less privileged members of society face constant food scarcity. This is most evident in the daily sharing of the side dishes, called *ndiwo* that accompany *nsima*. Women and children do not have equal entitlement to the small portions of *ndiwo* which comprise the meal's main source of minerals, protein and calories (Mandala 2005:14; Morris 1998:190).

Widespread malnutrition resulting from this food insecurity causes stunting in 56 percent of all children under 5, and 41 percent for the richest 20 percent of children under 5 (GoM 2005:10). As is evidenced by the high levels of stunting even in the wealthiest households, the quantity of food available is not the only cause of malnutrition. Malawian's maize *nsima* diet is calorie deficient and leads to micronutrient deficiencies due to maize processing methods and overconsumption of maize (Yeudall 2005:827, 833). Malawian's are the highest per capita consumers of maize in the world (Thornton 2008:5), and indeed, Malawians describe maize as their "favorite" food. It is grown by 97 percent of the population, and only 44 percent of the population grows other crops in addition to maize (GoM 2005:95). Meals are synonymous with eating *nsima*, as is expressed when Malawians say that it is time for *nsima* at meal time. Malawians believe they have not properly eaten if they have not had *nsima*, the "hard" and incredibly filling portion of the meal (Morris 1998:187).

Maize was first brought to Malawi by the Portuguese around the 1550s as a part of the Columbian Exchange (Morris 1998:285; McCann 2001:250). Malawians' preference for white over yellow maize began during the early 1900s due to the bias for white maize in the British starch market; however it did not become the dominant crop until "60-70 years ago" (Smale 2003:10-11, 15; Smale 1995:352). It may have been promoted by the former dictator, who

contributed to local foods becoming stigmatized as backwards (Nordin 2008). Malawians have a proverb stating *chimanga ndi moyo*, meaning "'maize is life'" which also connotes health and well-being in Chichewa (Smale 1995:352-353; Morris 1998:211). Children are educated about maize production and consumption both at home and in school. Additionally, maize has been a key component of the government's social contract with its people, and the basis of the definition of food security since colonial rule (Smale 2003:17; Thornton 2008:18). Interestingly, in the Chewa symbolic system, in making *nsima*, "the womb is like a cooking pot, sex is like stoking the fire beneath it, and the infant that forms in the womb is like the porridge that forms in the pot" (Kaspin 1996:569). Through making *nsima*, women enact and embody the symbolic homological oppositions and processes which produce and ensure the production and regeneration of life.

As has been shown, Malawians are structurally vulnerable and constrained in their ability to attain food and economic security as a result of multiple historical, social, political, economic, and environmental factors.

Permaculture

Permaculture has the potential to improve Malawian food security, autonomy, and socioeconomic conditions. Little academic research exists on permaculture, so the majority of my information comes from its practitioners. The term permaculture is a contraction of permanent agriculture and draws on modern and indigenous ecological knowledge to produce a consciously and "rationally-designed, integrated, self-reliant system that combines water management, food production, energy supply, shelter, and wild space" (Goering 1993:94). Permaculture is an extreme form of low external-input agriculture that aims to increase biodiversity, reduce energy inputs and to recycle resources within the system (Madeley 2002:43).

Permaculture is implemented through the design concepts of zones and guilds. Zones refer to the spatial function of land and space that correspond with particular agricultural activities in order to optimize energy and resource usage (Nordin 2005:1). Guild systems are a means of organizing the crops within each zone. Ideally, each guild will have crops that perform seven functions to maximize resource use (Nordin 2007:7). For instance, a variety of tree can serve six functions at once by providing edible fruit, fixing nitrogen for the soil, being a climber, supporting other climbers, being digger, and acting as a protector in part of a live fence. An entire garden, planned in such a systematic way, can create an efficient, self-regulating system that functions with nature to produce both the food and natural materials necessary for human survival.

Permaculture offers several key benefits that can help solve the food insecurity of smallholder Malawian farmers. It can efficiently and effectively utilize very small pieces of land and it has the potential to restore the health of the land. It can also produce a diverse variety of foods, including over 600 indigenous edible plants (Thornton 2008:41). Crop diversification would broaden an individual's diet, providing other nutrients and calories that are needed for a healthy diet, thereby preventing malnutrition and stunting. Increased nutritional intake is especially vital for individuals with AIDS, and because malnutrition hastens the progression of HIV to AIDS (Singer 2008:12; Rollins 2007:1576), and "increases susceptibility to the disease among non-infected people" (Himmelgreen and Romero-Daza 2008:13). Second, permaculture would take advantage of Malawi's climate which should allow for a 12 month growing season, by producing a variety of crops throughout the entire year so that food supply is frequently replenished.

After the first few years of permaculture, which require significant physical labor to

rejuvenate the land, the human labor required would decrease and food production could continue to increase, as the system begins to function and reproduce itself (Nordin 2008). Formal planting is not done in ridges. Rather, plants are placed together in a managed system that requires minimal replanting and weeding. In a permaculture system, labor intensive activities are more convenient because they take place close to home. Permaculture also does not require cash income to buy seeds or fertilizer. By improving food security, health, and making more time and money available in smallholder farming households, members of the family and women in particular, gain more flexibility to pursue other activities. The family should be able to increase its economic position once it implements a food secure, low-input system that helps to provide for basic needs.

At this point however, little is known about the adoption of permaculture practices in Malawi. Knowledge of permaculture is growing in Malawi, but it is still not widely practiced. Thornton's Master's thesis on permaculture in Malawi points to several potential barriers to adoption. Land security is seen as necessary, and it is the size of one's land holdings, not an individuals' wealth, that seems to encourage adoption (Thornton 2008:35).

The main barriers to adoption are most likely socio-cultural and knowledge based. For one, permaculture requires a specific knowledge set of traditional practices that many Malawians have now lost. It also requires a particular kind of planning and design, with its own logic and order. One must learn those skills to successfully implement permaculture practices. Another cultural barrier lies in the practice of women sweeping the ground around their house every day, compacting the dirt and preventing plants from being able to grow (Nordin 2006:8). Sweeping is seen as clean, orderly, and hygienic (Thornton 2008:42). By implementing permaculture, and thereby filling one's yard with plants, a household begins to look unclean, as if the family is

hiding something, crazy, or even "a 'devil worshipper'" (Thornton 2008:37).

In addition, permaculture entails cultivating foods indigenous to the environment, categorized as "bush foods," which are seen as not needing to be cultivated, and as "poor people's plants" that one would be ashamed of and ridiculed for eating (Thornton 2008:41). Finally, during colonialism, coercion, criminal sanctions, and jail sentences were used to control smallholder farmers' agricultural practices (Ng'ong'ola 1986:256; Bezner Kerr 2005:170). Historically, farmers were not free to produce what crops they wanted in the manner they saw fit, and these historical circumstances may discourage trying new agricultural practices today. Due to these different socio-cultural, knowledge and disciplinary barriers to permaculture adoption, one may need to possess enough social capital to be willing to go against legitimate and intelligible practices (Bourdieu 1977:179, 183), to exert their agency and try these strategies in the "*interval* between the obligatory moments" (Bourdieu 1977:15). While there may be many obstacles to total permaculture adoption, gradual adoption of some of the permaculture strategies can be beneficial while not obviously or immediately defying societal norms.

Conclusion

Permaculture, while an unconventional strategy, has the potential to cause positive change in Malawi. It is capable of increasing food security for smallholder farmers, and improving their health and socioeconomic conditions. As a comprehensive strategy that radically alters agricultural methods, it restructures the situation in which Malawian farmers produce food, the practices they engage in, and the results of their labor. It is a potential way to transfer sovereignty to smallholder farmers to choose what they produce and how, by further disconnecting them from the global and local market economy and giving them more flexibility in dealing with environmental problems. Permaculture can create the foundation for greater

social, political, and economic mobility and agency for Malawi's smallholder farmers, and thereby Malawi's population as a whole.

Works Cited

Amanor, Sebastian, and Sam Moyo. 2008. *Land and Sustainable Development in Africa*. New York: Zed Books.

Amin, Samir. 1972. "Underdevelopment and Dependence in Black Africa: Historical Origin." *Journal of Peace Research* 9(2):105-120).

BBC. 2008. "Malawi: Beating the Global Food Crisis." BBC News Online, June 3.

Bezner Kerr, Rachel. 2005. *Food Security in Northern Malawi: Gender, Kinship Relations and Entitlements in Historical Context*. Journal of Southern African Studies 31(1):53-74.

Bourdieu, Pierre. 1977. *Outline of a Theory of Practice*. Cambridge: Cambridge Univ. Press.

Carr, Marilyn, ed. 1991. "Malawi." In *Women and Food Security: The experience of the SADCC countries*, ed. Marilyn Carr, 1-21.

Davidson, Jean. 1993. "Tenacious Women: Clinging to Banja Household Production in the Face of Changing Gender Relations in Malawi." *Journal of Southern African Studies* 19(3): 405-421.

De Waal, Alex, and Alan Whiteside. 2003. 'New Variant Famine': AIDS and Food Crisis in Southern Africa. *The Lancet* 362:1234-37.

Dugger, Celia W. 2007. "Ending Famine, Simply by Ignoring the Experts." New York Times, December 2.

Englund, Harri. 1999. "The Self in Self-Interest: Land, Labour and Temporalities in Malawi's Agrarian Change." *Africa: Journal of the African Institute* 69(1):139-159.

Ferguson, James. 1999. *Expectations of Modernity: Myths and Meanings of Urban Life on the Zambian Copperbelt.* Berkeley: University of California Press.

Goering, Peter, Helena Norberg-Hodge, and John Page. 1993. *From the Ground Up: Rethinking Industrial Agriculture*. London: Zed Books.

GoM. 2000. "The State of Malawi's Poor: Agriculture and making a living from the land." Malawi: Poverty Monitoring System, Government of the Republic of Malawi.

—. 2002. "Malawi National Land Policy."

—. 2005. Integrated Household Survey 2004-2005: Volume I, Household Socio-Economic Characteristics. Zomba: National Statistical Office.

Hardt, Michael, and Antonio Negri. 2000. *Empire*. Cambridge: Harvard Univ. Press.

Himmelgreen, David A., and Nancy Romero-Daza. 2008. Food Security and the Battle against HIV/AIDS. *Anthropology News* 49(7):13-14.

Hirschmann, David. 1990. "Malawi's 'Captured' Peasantry: An Empirical Analysis." *The Journal of Developing Areas* 24(4):467-488.

Kaspin, Deborah. 1996. A Chewa Cosmology of the Body. *American Ethnologist*. 23(3):561-578.

Levy, Sarah. 2003. "Starter Packs and Hunger Crises: A Briefing for Policymakers on Food Security in Malawi." UK: Department for International Development.

Madeley, John. 2002. *Food for All: The Need for a New Agriculture.* London: Zed Books.

Mandala, Elias. 2005. *The end of Chidyerano: a history of food and everyday life in Malawi, 1860-2004*. Ann Arbor: University of Michigan.

McCann, James C. 2005. *Maize and Grace: Africa's Encounter with a New World Crop, 1500-2000*. Cambridge: Harvard University Press.

Menon, Roshni. 2007. Famine in Malawi: Causes and Consequences. UNDP Human Development Report Office Occasional Paper.

Mitchell, Maura. 2002. "'Living Our Faith': The Lenten Pastoral Letter of the Bishops of Malawi and the Shift to Multiparty Democracy, 1992-1993." *Journal for the Scientific Study of Religion*. 41(1):5-18.

Morris, Brian. 1998. *The Power of Animals: An Ethnography*. Oxford: Berg.

Ng'ong'ola, Clement. 1986. Malawi's Agricultural Economy and the Evolution of Legislation on the Production and Marketing of Peasant Economic Crops. *Journal of African Studies* 12(2):240-262.

Nordin, Kristof, and Stacia Nordin. 2004. "Newsletter: Permaculture Review." Permaculture Network in Malawi. http://www.neverendingfood.org.

—. 2005. "Newsletter: Zone Zero." Permaculture Network in Malawi. http://www.neverendingfood.org.

—. 2006. "Newsletter: Culture." Permaculture Network in Malawi. http://www.neverendingfood.org.

—. 2007. "Newsletter: Design." Permaculture Network in Malawi. http://www.neverendingfood.org.

Nordin, Kristof. 2008. "Personal Communication."

Nyasulu, Alfred. 2008. "Mandate, Roles and Responsibilities of the Ministry of Finance, Malawi." Powerpoint presentation. Malawi: Ministry of Finance.

Øygard, Ragnar, and Garcia Roberto and Atle G. Guttormsen, et al. 2003. "The Maze of Maize: Improving Input and Output Market Access for Poor Smallholders in Southern African Region, the Experience of Zambia and Malawi." Agricultural University of Norway, Department of Economics and Resource Management.

Peters, Pauline E. 2002. “Bewitching Land: The Role of Land Disputes in Converting Kin to Strangers and in Class Formation in Malawi.” *Journal of Southern African Studies* 28(1):155-178.

Rollins, Nigel. 2007. Food Insecurity – A Risk Factor for HIV Infection. *PLoS Medicine* 4(30):1576-1577.

Singer, Merrill. 2008. The Perfect Epidemiological Storm: Food Insecurity, HIV/AIDS and Poverty in Southern Africa. *Anthropology News* 49(7):12, 15.

Smale, Melinda, and Paul W. Heisey, Howard D. Leathers. 1995. “Maize of the Ancestors and Modern Varieties: The Microeconomics of High-Yielding Variety Adoption in Malawi.” *Economic Development and Cultural Change* 43(2):351-368.

Smale, Melinda, and Thom Jayne. 2003. Maize in Eastern and Southern Africa: ‘Seeds’ of Success in Retrospect. EPTD Discussion Paper No. 97. Washington, DC: IFPRI.

Thornton, Hope. 2008. Permaculture Adoption Among Malawian Farmers: A Positive Deviance Inquiry. MA Thesis, School for International Training.

United Nations. 2006. “Malawi: More than half the people still living in poverty – new report.” Johannesburg: UN Office for the Coordination of Humanitarian Affairs.

Yeudall, Fiona, Rosalind S. Gibson, and Timothy R. Cullinan, et al. 2005. Efficacy of a community-based dietary intervention to enhance micronutrient adequacy of high-phytate maize-based diets of rural Malawian children. *Public Health Nutrition* 8(7):826-836.