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ABSTRACT

The global food crisis is a real observable fact the world over and it is likely to remain with us if unsustainable food production methods are not in place. The food crisis is regarded as a serious number one problem the world over hence the need for its sustainable production is found under Target 1 of the Millennium Development Goals (MDGs). Food shortage and extreme poverty have not spared Zimbabwe of late due to recurring droughts and very high inflation of 2006-2008. This study investigated how two different urban communities, the urban poor in high density suburbs of Mabvuku-Tafara and the urban rich in the low density suburbs of Mabelreign, Marlborough and Westgate, attempted to solve the food crisis. The urban poor were found doing seasonal farming in the urban periphery (off yard plots) and their farming was often inorganic, less paying and often exposed to the vagaries of nature. The low density urban 'farmers' often practiced on-plots perennial farming with 'green-houses' and these on-plots gardens were often organic, researched on (soil testing for pH value) and hence better paying than the off-plots farming done by the high density farmers. The study employed mainly qualitative methodology comparing urban agricultural activities between the low and high density suburban dwellers of Harare during the peak of high inflation and droughts. It can be recommended from this comparative study that urban farming with the capacity to meet urban food demands has to wholly go organic so as to minimise land and water pollution in Harare waters. It is also envisaged that once urban farming goes organic the city fathers would enjoy an added economic advantage by cutting on water purification costs as an environmentally friendly and less polluting type of farming would be in place. It is therefore envisaged that the adoption of sustainable organic urban farming, has the potential to alleviate the urban food crisis as well as fight the effects of global warming.

Key Words

Urban agriculture; Green house; Horticulture; Organic farming; Inorganic farming On-plot and Off-plot farming; Backyard farming; ZOPPA; MDGs.

Introduction and background to the study

Zimbabwe's 2006-2008 acute poverty affected both rural and urban areas due to an economic crisis characterised by very high inflation and previous droughts. Cash availability ceased to be an important economic variable because food, as a commodity, was just not available and shops remained literally empty. Thus, food production for subsistence became a priority in both urban and rural areas. Industries had shut down and people had little available options on where to get this basic commodity, food. The structural adjustment programme (ESAP) introduced and adopted in the 1990s (Mlambo, 1997) exacerbated the food crisis as the general population failed to cope with the after effects of ESAP when the 2006 hyperinflation caught up with them. Many households lost their buying power as breadwinners were retrenched during ESAP, hence, poverty reduced the general lives of both the urban poor and their rural counterparts to almost destitute level. This, coupled with recurrent droughts did not help ease urban and rural life. Buses from rural areas were often found loaded with foodstuff such as bags of maize destined for the urban area to feed acquaintances in town. Historically the ruralites have always played a crucial role in feeding their urban counterparts by selling food to them on the open markets during good harvests, for economic gain (Cheater, 1979). However, unlike in Cheater's observation (1979), the shipment of food from rural to urban areas in the 2006-2008 period of study was not for economic benefits, but to alleviate the food crisis amongst urban relatives and other associates. As a gesture of appreciation, urban relatives supplied maize seed and fertilizers to their rural counterparts to boost production, and so the cycle was complete.

This symbiotic relationship did not last long as the ruralites were soon hit hard by both economic hardships and droughts with an estimated 80 percent of the population living on less than US\$2 a day (UN, 2008). It is factual that seed and fertilizers were not easily found in shops, and by the year 2007 the situation was so bad that almost 3 million Zimbabweans had to leave the country for jobs outside the country, mainly overseas (Zimbabwe Country Dialogue Paper, 2007). Those left behind relied on remittances from the diaspora and those without relatives in the diaspora, relied on food handouts from government and NGOs. The situation was exacerbated by the advent of economic sanctions that the country had to endure for some years (Timberg, 2007).

The years 2000-2006 were characterised by hyperinflation, multiple exchange rates, persistent fiscal deficit, low foreign exchange reserves, falling international terms of trade, negative interest rates and a build-up in

external debt arrears (Zimbabwe Country Dialogue Paper, 2007). The crisis was at its peak between the years 2006 and 2008 such that both the urban poor and the rich embarked on urban farming to alleviate the food shortage as well as to raise cash which was also very scarce. With urban farming at its peak and droughts and shortage of seed and fertilisers threatening rural seasonal crops, it was soon observed that urban food found itself on buses and trucks, trickling back to the rural areas to feed the folks once a good harvest was realised from the urban small plots. Under these conditions, Zimbabwe shifted from being the bread basket of Africa to a basket case (The Times, 2007).

This comparative study was done under this given background where inorganic inputs were scarce and unaffordable.

General objective

To analyse the types of urban agriculture that existed between the urban poor and the rich in their plight to alleviate food shortage in Harare.

Specific objectives

- To investigate the type of farming activities found in the study areas of Mabelreign, Marlborough, Westgate and Mavuku-Tafara in Harare.
- To identify the best farming system observed in these studied areas.
- To investigate the role of urban agriculture on the socio-economic development of the urbanites, rich and poor.
- To appreciate policies which promote organic urban farming to curb the effects of global warming at a small scale.

Research questions

- How popular is organic farming amongst the urban poor and rich?
- Does organic farming have the potential to alleviate poverty and sustain urban food supply in Harare?
- What crops are associated with the urban rich and what are those associated with the urban poor?
- Why is the world moving slowly away from inorganic farming and towards organic farming?

Statement of the problem

A lot has been done by the Government and Non-Governmental-Organisations (NGOs) to alleviate rural poverty. Things done include free

supplies of food, seed maize, groundnuts and fertilisers to improve and ensure high yields amongst the rural poor. This has been an attempt to alleviate poverty as noted in Target 1 of the Millennium Development Goals (MDGs). Little of such handouts and efforts were exposed to the urban poor. These urban poor had, in most cases, to bear with high costs of living except for isolated cases where the vulnerable benefited from NGO handouts and Basic Commodities Supply Side Intervention (BACCOSSI) (http://www.rbz.co.zw/pdfs/licenced_forexshops.pdf). Urban farming was practised at every open space available as most of the urban poor hardly had three meals a day, hence, this ubiquitous sprouting of urban farming. Urban farming was envisaged as the panacea to urban poor people's plight in supplementing family incomes. Two main types of urban farming were commonly observed, the on-plot (urban rich) and the off-plot (urban poor). In Zimbabwe a lot has been written on off-plot farming amongst the urban poor and funding by some NGOs has been made available to promote that type of farming whilst little has been documented on the on-plot urban rich farming. Trying to compare these two types of urban farming as found in the urban poor and rich became the main issue in this study. Such farming could benchmark on food security in the urban areas in a period of global food shortage and where the globe is looking for sustainable farming methods that protect the world from global warming.

The study area

The low-density suburbs, which were once occupied by predominantly white people before 1980 were bought by relatively rich black Africans once the original occupants, opted to emigrate. These new suburban occupants are still regarded as the urban rich (Conyers, 2001). Over 50 on-plot low density farmers from Mabelreign, Marlborough and Westgate were involved in this study as well as 35 off-plot farmers from the high density suburbs of Mabvuku and Tafara. A purposive sampling technique was adopted where the researchers carefully targeted those urban farmers involved in both inorganic and organic farming under 'green houses.' Some targeted high density farmers, after having suspected that the researchers might be officers from the city authorities aiming at banning their farming activities, refused to cooperate with them. Hence, the sample in that regard was 35 and not 50 as was the case in the low density suburbs. Quarter sampling within the sampled population included farmers of different sex and socio-economic status, specialising in different crops. Therefore, a representative sample was derived. All in all, the research was based on a total of 85 farmers from Harare's low and high density suburbs.

Literature review

Urban farming

In Zimbabwe urban farming has been defined as the production of crops and livestock on land which was administratively and legally zoned for urban uses (Mbiba, 1995) and this type of farming has some social and economic benefits on the people. Smith and Nasr in Enda-Zimbabwe (1996) defined urban agriculture as food and fuel grown within the city or peri-urban areas. Before independence urban agriculture was found predominantly in the peri-urban areas especially designed for blacks and these had to sell their horticultural produce to urban markets (Cheater, 1979).

In South Africa's Pretoria-Witwatersrand-Verneeniging area, it was noted that 30 % of monthly expenditure was on food items (Rogerson, 1996), whilst in peri-urban areas of KwaZulu close to Durban, household expenditure on food items was up to 52 % (May and Rogerson, 1995). Thus, in the absence of free space for urban agriculture, the urbanites spent more money on food. Urban agriculture seems to be a common activity in most cities and peri-urban areas elsewhere as it is in Zimbabwe. Urban agriculture amongst other variables is determined by climate, culture, politics and the physical environment. The potential role of urban agriculture in poverty alleviation convinced the World Commission on Environment and Development (WCED, 1997) to urge all governments in the developing world to consider supporting urban agriculture. The Food and Agriculture Organization (FAO, 1995) also argued that urban food production, in addition to improving the nutritional quality, can become a valuable income generating activity for the unemployed and underemployed. Urban agriculture is also important in that it utilises spare and unused land available in the cities (Hussein, 1990; Rogerson, 1996).

In Zimbabwe the continuation of rural-urban migration resulted in overcrowding of towns and cities putting a lot of stress on the accessibility of food and other amenities offered by urban authorities. This development, amongst other variables, led to the increase in urban farming activities. Urban agriculture can be described as on-plots (residential) with small gardens found near the homestead mainly in the high density suburbs (Rogerson, 1996). Such on-plots farming activities are done at a very small scale with small vegetable beds around the household unit and watered using either horse-pipe or buckets. Much bigger farming is found behind the yards as 'green house horticultural farming,' mainly in the low density suburbs, whilst off-plots seasonal farming with large pieces of land farmed are found amongst the high density dwellers that did not necessarily stay near their plots (*Ibid*).

For a long time, urban council managers have viewed off-plot crop farming as illegal activity, hence, the urban poor from the high density suburbs were often found in running battles with the city authorities during the farming season in Zimbabwe. In South Africa urban farmers have often been fined for illegally cultivating on land belonging to white farmers (Rogerson, 1996). This punitive approach emanated from the fact that urban free spaces the world over have been spared for developmental projects and not for farming per se. At times, inorganic urban farming has been blamed for water and land pollution, making it expensive to provide clean water to the urban dwellers (Magadza, 1997). Poor urban farming has, therefore, been associated with negative impact on the environment and the decline in aesthetic quality of urban space. Traditionally urban landscape has been only designated for residential, industrial, commercial and recreational purposes and yet literature has it that urban farming has the capacity to reduce vulnerability of women and children to food insecurity (Mudimu, 1996; Zundel and Kilcher, 2007). The increased use of open spaces in urban areas for agricultural purposes dictates that town planners and policy makers should find ways of harmonising the farming activities with conventional urban land use systems. The fact that urban residents increasingly resort to off-plot cropping poses serious challenges to town planners (Mbiba, 1995). Smit and Fasic (1992) and Rogerson (1998) reported that new research on alleviating poverty in cities of developing world highlights the potentiality of urban agriculture in alleviating poverty. This study, therefore, sought to obtain information on the role urban organic agriculture could play on the socio-economic development of the urbanites, rich and poor.

Benefits of urban farming

Urban agriculture has occurred for several reasons as noted by Moran (1985). Amongst other reasons, urban agriculture is practised for the provision of fruits and vegetables as these provide a healthy diet. Apart from home consumption, urban agriculture is also practised to raise income (*Ibid*). Raising income through selling fruits and vegetables has been a major income earner for the urban poor in Zimbabwe (Moran, 1985). Elsewhere, urban farming has gone organic. Organic farming in general is farming that excludes the use of harmful chemicals that are often blamed for the destruction of the ozone layer. Going organic is an environmentally friendly way of farming with a global recognition. In Australia for example, urban organic community gardens contribute to the health promotion and education in sustainable environment whilst restoring the farmer-consumer relationship (Zundel and Kilcher, 2007). Urban organic farming has also been associated with the supply of fruits and vegetables of high nutritional

values to the urban market (Drescher, 1998). Urban organic farming has been advocated for by the Zimbabwe Organic Producers and Promoters Association (ZOPPA, (www.zoppa.org.zw)).

Whilst elsewhere urban farming is now taken as serious business benefiting both the farmer and the consumer from the quality of organic crops produced, in Zimbabwe the situation had been different since the year 2000 as the galloping inflation and high costs of basic commodities made the urbanites resort to backyard and off-plot farming at whatever cost to the environment as long as they subsidised income and supplement food (Madzingira, Dirwai and Chizororo, 2002). However, not all urban farmers polluted the environment as some practised on-plots farming under 'green houses' Mkhandla (1997). These, often the urban rich, had their crops well managed in 'greenhouses' where vegetables, fruits and flowers in artificial environments ripen sooner than in natural conditions and had the potential to raise income as returns were quick and high. When well managed, therefore, urban farming seems to have the potential to contribute to urban food supply. Literature has it that in Cuba, for example, urban and peri-urban farming contributed up to 30 % of urban food needs (Murphy, 1999). Thus, different nationalities have tried different ways to fight the food crisis, including the use of free urban area spaces.

Poultry farming

Poultry production still accounts for the major part of all meat produced in many developing countries, and is an integral component of nearly all-rural, peri-urban and urban households. Poultry production is of considerable significance to the rural as well as national economy and is also an important source of animal protein (FAO, 1999). Women and children are generally in charge of poultry husbandry. In the case of organic poultry that scavenge for food (road-runners), feed costs are kept at low levels and do not seem to represent the main constraint for production. Despite the many problems that might be involved in keeping poultry, most poor households own poultry (Gueye, 1998). Poultry production is very important. Apart from meat and income from sales, the droppings can be used as very good organic manure and energy through biogas.

Benefits of urban agriculture

Urban agriculture has always been part of the urban land-use and most urban habitants turned to it as part of their livelihood (Urban Agriculture Magazine, 2003). Urban agriculture provides self employment and food security for households. Organic urban agriculture, as noted in literature,

helps in health management as vegetables grown under such systems provide healthy diet and can raise income (Reganold, et al, 2001; Zundel and Kilcher, 2007; Batiano, et al, 1999; Buerkert, et-al, 2001 and 2002). Urban children, as noted by Moran (1985), look healthier because fresh vegetables and fruits are available on a day-to-day basis. Surplus field crops such as maize and beans are stored away to guard against times of shortages and money saved from buying food is spent on non-produced food stuffs or be used to generate principal income which can be reinvested in other urban businesses (*Ibid*). Urban agriculture has the potential to introduce urban children to agricultural skills (livelihood) as well as educating them on traditional crops such as (*amaranths-mowa*), (*cleome-gynandra-nyevhe*) and pumpkin leaves (*muboora*), and so on, hence, children living in urban areas get the opportunity to learn different agricultural practices normally associated with the ruralites (Urban Agriculture Magazine, 2003; Madzingira et-al, 2002). Urban agriculture has the capacity to turn cities 'green', improving on their aesthetic value in the process as pollution is reduced. Apart from all that, urban farming has the potential to improve on water management because the cultivated areas with permeable land surfaces allow rainwater to percolate and recharge underground water vital for irrigation.

Smit (1996) also reiterated that in Harare, Zimbabwe, sanctions on urban agriculture were lifted temporarily in 1992 and within two years, the area cultivated had doubled and the number of farmers more than doubled too. Municipal costs for landscape maintenance and waste management were down, food prices were down too and hundreds of jobs were created. Similar policy related benefits were also documented in Lusaka and Accra in the 1970s (*Ibid*). Backyards, community gardens, and rooftop plots constitute cases in the urban landscape with city gardens clearing air by producing oxygen and absorbing carbon dioxide, and control temperatures via shade and transpiration (Laurence, 1996).

Challenges to urban farming

Chemicals used for spraying crops damage the flora and microbio-fauna. Chemicals used for sprays spread diseases to humans if improper protective clothes were used Munowenyu (1996). Contact with the chemicals may cause skin and eye problems. Some people may eat or sell the crops before the expiry date of the sprayed chemicals and this causes health problems to consumers (*Ibid*). Continued praying and use of other herbicides causes high contamination to the soils. Some chemicals affect the plant leaves and could

harm or even kill the plants, therefore, low-yield production is experienced as noted by Chard et-al (1985). Urban farming can be very intensive by nature since it sometimes involves market gardening skills and the lack of expertise and shortage of finance to sustain its efficient production can be a major constraint. Urban farmers, apart from facing punitive measures from city fathers, also face stiff competition from their rural counterparts as they compete for the same market (Mbiba, 1985). Hindering urban farming are also the city bylaws such as No 914/1998 of the Urban Council Act and By-law 363/1999 both of which are on boreholes and metered water, that sinking of boreholes at private homes is prohibited and residents are to pay for metered water supplied by the council. The Nyanga declaration of 2002 acknowledged the contribution of urban agriculture to food security, but, despite all this, clashes between urban off-plot farmers and the city fathers are at times a common phenomenon in Zimbabwe.

All this means that policy makers and land use planners need to recognise urban agriculture as a viable economic development activity within cities especially if the emphasis is on organic agriculture as noted in the literature reviewed here. Local authorities elsewhere in the world should be encouraged to appreciate urban organic agriculture both financially and legally through enforcing policies conducive for organic farming as has been the case in Latin America, Asia and Havana, Cuba (Murphy, 1999). As noted in the literature review, by supplementing food and income, the urban poor are able to comfortably afford their rates and rentals which lessens the burden of arrears to the economically struggling city authorities. Food sufficiency also reduces the de-humanising begging-for-food syndrome that has been associated with the developing world in general (*Ibid*).

Methodology

This comparative research dwelt much on descriptive statistics which by nature is qualitative. The use of observations and detailed interviews in cross-validation of results maintained validity and reliability of the study. The questionnaire was designed to obtain information concerning the current farming status extracting data from both the rich and urban poor. Qualitative methods as noted by Gillham (2000) enables one to get under the skin of a group or organisation to find out what really happened, documenting real events, recording what people say, observing behaviour, studying written documents or examining visual images (Neuman, 2000; Miles, 1979).

Research findings

Reasons for urban farming in Zimbabwe

Several reasons on why residents embarked on urban farming were noted in this study. It was found out that the urban rich in the low density suburbs studied practised organic farming in their back yards. This was associated with high nutritional and health values as well as high income from sales. The urban rich seem to have been following the general world trend in farming where advocacy on organic farming is on the increase. It was also noted from the findings that the urban rich planned their farming activities, do market research and soil testing before embarking on a crop. Urban farming here is potential big business.

The urban poor, on the other hand, lacked the financial support to do marketing research and soil testing. These often practised inorganic farming to meet household food demands. Whilst rampant urban farming was experienced after the year 2000 in the Mabvuku-Tafara area, urban farming in the low density suburbs studied dated as far back as 1979 with 5 % of the low density respondents claiming that they were already in urban farming business by that time. From interviews, 91.4 % of both low and high density urban farmers noted that the number of urban farmers was on the increase. Coinciding with the crippling economy, between 2003 and 2004, about 52.9 % of the 50 low density suburban farmers interviewed had already entered into farming. Thus, from interviews harsh economic hardships forced both the urban rich and poor into urban agriculture. Sixty percent of the high density urban farmers also noted that they practised farming both in their rural homes as well as in towns.

Economic hardships brought about by the Economic Structural Adjustment Programme (ESAP), and hyper-inflation, paved the way for rampant urban farming. Both the rich and the poor had to supplement food and income at different levels. During this period most of the basic food commodities were in short supply and others were found at the informal 'black market' at almost doubled prices. Maize-meal, cooking oil, salt, sugar and bread were among the scarce basic food commodities. From the year 2003 up to the year 2008 low density urban dwellers, like their high density counterparts, resorted to farming in order to supplement food and sell the surplus in order to obtain money to buy other basic food commodities such as cooking oil, sugar and so on, which were sold at the informal (black) market. Cash was very scarce even at the banks (www.thezimbabwetimes.com/).

Crop type and land acquisition for urban farming

Maize, the staple food in Zimbabwe, was the crop commonly grown by the high density farmers. The period that maize had been grown by high density (off-plot) urban farmers of Mabvuku and Tafara, varied from 1 to 10 years. Some 42.9 % (N=35) of the off-plot high density farmers had been growing maize since the year 2000 when the effects of ESAP and economic crisis started being experienced, hence, the need to supplement urban income. This was consistent with what Rogerson (1996) observed about the urban poor of South Africa, that they grow crops to supplement the household food base and income. Whilst high density farmers resorted to off-plot farming, the low density farmers resorted to backyard horticultural and field-crop activities to supplement food and income during the financial and food crisis of 2006-2008.

In the high density, farmers land acquisition varied with 57.1 % claiming that they simply allocated themselves urban vacant land in order to curb the effects of urban poverty. Informal allocation of land (Rogerson, 1997) was also common among the Mabvuku-Tafara farmers as was the case in South Africa's urban poor. In the case of the Mabvuku-Tafara farmers who had earlier allocated land to themselves, they helped others acquire land as noted by 22.9 % of the high density suburban respondents. The allocation was often not formally recognised by the city authorities.

Some 17.1% respondents from the high density urban farmers claimed that they bought land from Harare city council, hence, they legally practised off-plot farming. About 79.4% of the high density suburban farmers claimed that the land allocated to them was not sufficient for their needs resulting in their having to look for more land elsewhere within Harare. Only 20.6 % of the respondents indicated that the acquired land was sufficient for their needs. Those with insufficient land put emphasis on the need for accessibility to more land so as to eradicate urban poverty. All land farmed by the low density farmers was legally theirs. These people practised organic farming within the confinement of their dura-walled and electric fenced big yards.

Urban farming as a panacea to urban food shortage and income

Almost all the 35 Mabvuku-Tafara farmers surveyed grew maize, pumpkins, wheat and groundnuts in their off-plot inorganic farming areas. These crops have always been the traditional crops among peri-urban farmers even before independence (Cheater, 1979). Crops were grown for two main purposes, namely, home consumption and for sale. Quantities of maize kept for home consumption varied. Some 11.4 % high density suburban

respondents claimed that they kept up to 20 bags of 50 kg each of maize (1 000 kg) per season for home consumption; 8.6 % kept 10 bags (500 kg) and 2.9 % kept 40 bags or (2 000 kg) for subsistence. The number of bags kept for home consumption in the high density suburb also varied by family size. Some 35.3 % of these off-plot farmers claimed that they send most of their maize crop to their rural homes to supplement the production there, whilst all surplus maize had to be sold to raise income for rates and rentals in town. All the interviewed off-plot urban farmers found urban agriculture helpful during the time of economic stress. These farmers also reiterated that by producing their own food in towns, they saved money that was supposed to buy mealie meal and the savings had to meet other household demands. From the detailed interviews, the respondents also commended urban farming for its capacity to reduce crime rates as people were pre-occupied with farming activities.

Whilst the off-plot farmers dwelt much on maize and other traditional crops, those in the low density suburbs practised backyard vegetable gardens amongst others. Flowers, orchards and hedge-seedlings in backyard farming provided the urban rich with cheap source of nutritious food and fast income. The flowers and hedge-seedlings used in dividing pathways in schools, industries and home grounds had a ready market in and around Harare. Twenty-seven and half percent (27.5%, N=50) of the low density dwellers interviewed also grew fruits such as mangoes and paw-paws for home consumption and for sale. These, again, had a ready market in and around Harare. Almost 20% of the low density farmers grew crops in 'greenhouses' where crops mature fast under controlled environmental conditions and this helped the households attain maximum yields and high cash returns, as noted from the 50 interviewed respondents. In 'greenhouses' the urban rich grew seedlings, vegetables, and flowers whilst open spaces within their big yards accommodated field crops such as maize, okra, pumpkins and leafy vegetables, namely, rape, covo and cabbages, all for home consumption and for sale.

Towards urban organic farming in the low density suburbs of Harare

Whilst the off-plot high density farmers paid little attention to environmental degradation where they used fertilisers and chemicals, the low density farmers were already practising organic farming by the period 2006-2008. Fifty-five percent (55%) of the low density respondents used organic manure for plant nutrition and this included compost and humus. According to the interviewed respondents, they used organic manure to improve soil

aeration, water retention, infiltration and soil structure. Others, 45.1%, used animal manure since some bred chickens and rabbits and animal manure was, therefore, locally available. A few of the farmers bought cow manure from out of town whilst others used horse manure for flowers and hedge seedlings. This also improved the soil structure. All this showed a new dimension in the low-density suburb horticulturalists whose activities were found to be environmentally friendly, a thing that was lacking in the off-plot poor farmers. To augment this organic farming, 48.0% of the urban rich used cultural pests and weed control methods such as spreading tobacco, chilly remedies, soap solution and ashes on crops. This was in line with organic farming practices (www.zoppa.org.zw). Crop rotation was also used as a cultural control method to keep pests away as noted from the interviews carried out.

Apart from organic farming practices, the low density urban farmers also claimed that they often sent soil samples to soil specialists, testing for both acidity and alkalinity (pH) before they embarked on a crop. Thus, there was a lot of investment involved in this type of farming, an issue that was found missing in the off-plot non-organic urban-poor farmers. Although cultural control methods were slow in reaction to pests and weeds these had many advantages as compared to chemical methods as noted from the interviewed respondents since the cultural technology was readily available. Globally the shift in people towards organic farming is not a new phenomenon unique to Zimbabwe, but is already being practised in over 120 countries on over 31 million hectares of land (Zundel and Kilcher, 2007). Efforts to practise organic farming have also been noted in some developing countries such as Mexico, Indonesia, the Philippines and Uganda (Zundel and Kilcher, 2007). In Zimbabwe, advocacy to organic farming continues under the Zimbabwe Organic Producers and Promoters Association (ZOPPA) amongst other stakeholders (ZOPPA, 2008). Literature reviewed noted several advantages derived from organic farming such as the increased crop yields as experienced in Brazil, Mexico, Cuba (Murphy, 1999); reduction in the emissions of 'green house gases.' Hence, organic farming has a positive influence on global warming. Organic food is also localised enabling it to sustain the developing countries as a panacea to food crisis. It encourages a variety of natural methods of enhancing soil and plant health thereby reducing dangers of pests and diseases; nutritious food is assured whilst biodiversity and soil fertility is encouraged ([thegreenhorns.wordpress.com/essays/essay-10-reasons-why-organic-can-feed-the-world-and-10-reasons-gm-wont/ - 111k -](http://thegreenhorns.wordpress.com/essays/essay-10-reasons-why-organic-can-feed-the-world-and-10-reasons-gm-wont/)).

Problems common to off-plot farmers

Problems faced by urban farmers in this study varied by location where 85.3 % of the non-organic off-plot farmers encountered thieves, baboons, fertilizer shortage and weeds. About 2.9 % of these off-plot urban farmers faced drought as a problem with 5.9 % encountering the problem of long distance to the off-plots and often had to board buses when going for cultivation. All the off-plot urban farmers interviewed claimed that they employed the zero tillage method of cultivation and whilst responding to land degradation, 6.5 % of the interviewed off-plot farmers claimed that they took precautions against environmental degradation with 93.5% saying they did not mind about taking precautions against degrading the environment as long as they produced food for their households. Lack of knowledge about environmental issues amongst the developing world has also been noted in the existing literature reviewed (Zundel and Kilcher, 2007).

To overcome water shortages 68.8% of the off-plot urban farmers claimed that they used open wells in order to cope with water problems. Many shallow wells were observed by the researchers in Mabvuku-Tafara because of the high water table found around these areas which are characterised by wetlands. Some 9.4 % of the off-plot urban farmers indicated that they used rivers in order to cope with water problems during droughts.

Thus, whilst off-plot farmers struggled with water supplies, their low density counterparts used boreholes for irrigation in their 'green houses' making their farming perennial, better paying and better organised with ready markets. The major types of irrigation found in the low-density suburbs were sprinkler and drip irrigation. The leafy vegetables and fruits, flowers and hedge-seedlings were grown throughout the year according to the interviewed respondents. Fruit trees were planted once and only needed to be well maintained. From the study, almost 98% of the 50 low density farmers in the study grew crops throughout the year, as the crops were a source of income to supplement other income sources. About 2.0% grew fruit trees and managed them and these had sales twice a year once the fruit trees bear fruits.

Of the 50 respondents from the low density suburbs, 26 % had 2 boreholes each per household and these used sprinkler irrigation to water their crops to improve growth and productivity of crops, whilst 8 % of the respondents had each a borehole per household and they used drip irrigation. Fifty-two percent (52 %) used horse-pipes for watering their crops according to the interviewed respondents.

Another dimension found in the low density farmers and not in the off-plot farmers was the issue soil testing. Forty-four percent (44 %) of the low density farmers sent soils for pH value tests to determine the type of crop and fertility needs before investing in a crop. This aspect of research was only found in the urban rich and not the poor. Because of the high capital costs invested through research, 96.1% of the urban rich said that they sold their crops in order to sustain low urban density suburban life and cover costs incurred during the farming process. To maintain high standards, 98 % of the low-density backyard horticulturalists graded their crops before selling and this aspect was missing in the off-plot farmers who noted that they simply sold their surplus crops in quantities.

Due to economic hardships where the urban poor could no longer afford to buy meat, 80% of the 35 off-plot farmers resorted to poultry farming in their yards dating back to 1993. This practice has continued at a small scale as the urban poor never recovered from the after effects of ESAP before the advent of hyper-inflation caught-up with them. Poultry business was, therefore, regarded as viable by 85.7 % of the off-plot farmers. Poultry farming provided enough manure for organic vegetable farming within the homesteads. Poultry diseases were encountered by 8.6 % of the farmers whilst 5.7 % indicated that the feeds were very expensive or at times never to be found. Apart from poultry 78.6 % of the off-plot urban farmers kept some rabbits from which they got meat and manure which they used in their vegetable gardens found near their doorsteps.

Conclusion

From the findings, it was noted that increased backyard farming activities within the low-density suburbs of Marlborough, Westgate and Mabelreign in Harare prompted by economic hardships, took a positive dimension towards organic farming whilst off-plots in the high density suburbs were mainly non-organic. Urban farming as a survival strategy became popular amongst the rich and the poor because of economic problems from ESAP in the 1990s and hyper inflation between 2000 and 2008. The presence of boreholes in low density suburbs made agriculture an easy task to do as compared to the urban poor who relied on seasonal rains and unprotected wells. It can also be concluded that urban farming continues to play a very important role in alleviating poverty in the urban poor as the urban poor often feed their immediate urban families as well as folks in the rural areas with surplus for sale. Those mainly involved in urban farming were the married who in most of the cases had extended family members to take care of. If the Nyanga Declaration of 2002 can be respected by all stakeholders, then urban farming

remains a viable option to alleviate food shortage in the urban poor and the developing world as such, as long as it remains organic. It was interesting to note that those who practised urban farming activities were also likely to keep animals such as rabbits or do poultry projects. These animals provided the much needed organic manure for the move towards organic farming.

Recommendations

The study has shown that low density urban farmers have already moved towards organic farming and this has to be recommended. The high density urban farmers of Zimbabwe should be encouraged to practise organic farming also as it is environmentally friendly. The study also recommends that government and non-governmental organisations support the noble cause of urban organic farming as a survival strategy and livelihood skills whilst food security is accessible and stabilised. Urban farming can be a great source of foreign currency once it is certified and sent to international markets. Urban agriculture is a cross cutting activity, hence, it should include planners, social and community people as well as non agriculturists for it to take up a recognised commercial shape. Advocacy towards organic farming should be vigorous especially in the less developing countries. Different stakeholders should be encouraged to fund vigorously organic farming for the benefit of sustainable environment and food supply. The importance of soil testing should be emphasised especially to all the urban farmers as it helps in proper planning for cropping. It is also recommended that the government should avail more farming land to the urban farmers, as is the case with the rural and new farmers. Multi-farm ownership should be discouraged as it divides concentration and resources and may result in low yields. Thus, urban farmers who were still practising farming back at their rural areas were found to have a divided attention which is not good for production. All in all, urban organic farming when properly done, has the capacity to ensure food security in the urbanites. Farmers have to go 'green' as this is the global trend.

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