

Agricultural Training Post Land Reform in Zimbabwe: Implications and Issues

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This paper explores the implications of the land reform programme on agricultural training and education in Zimbabwe. A critical evaluation of agricultural training post land reform is important given the collaboration and interdependence of human capital and institutions in agricultural growth and development in Zimbabwe. A desk study approach was employed using relevant theoretical and empirical literature. Key informants were interviewed in agricultural training institutions, agriculture and education ministries, and manpower development authorities in Zimbabwe. The first draft of this paper was presented at a National Manpower Advisory Council workshop and comments were obtained on the subject. The study revealed that the land reform programme resulted in increased smallholder agriculture (92%) versus large scale agriculture (8%), expanded area under settlement, changes in typology of farmers, labour shortages, limited partnerships with internal and external institutions, decreased production in agriculture, and gender mainstreaming in land allocation, all of which had implications on agricultural training. For agricultural education, these changes implied; increased demand for human resources to provide supportive services (extension, training and research), a need for curriculum review to integrate emerging issues such as environmental management, business development skills and gender relations, a need for more resources, and a need for strengthening of Private Public Partnerships to enable successful delivery of agriculture education for economic development. An agricultural education policy is essential to provide a harmonized framework in which adjustment measures ensure educational relevance in the new era of land reform.

Key words: Growth, development, human, capital, institutions, gender, curriculum review, resources, demand.

INTRODUCTION

Agriculture maintains a central role in Zimbabwe's economy contributing about 19.5% per cent to the country's Gross Domestic Product (GDP) in 2010. The sector accounts for over 40 per cent of the value of the country's exports, 60 per cent of raw materials to agro-industries, and provides livelihood to over 70 per cent of the population as well as employment for about 66% of those in the formal labour force [1]. Good agricultural performance translates into an excellent overall economic performance and, likewise, sluggish agricultural performance induces negative performance in other

sectors given the positive inter-sectoral linkages. Basic, relevant theories in agricultural growth and development point to the collaborative and interactive efforts of institutional innovation, improvements in human capital as well as changes in the availability of biological and physical capital [2]. Productivity differences in agriculture are increasingly a function of scientific and industrial capacity and in the education of people rather than natural resource endowments.

In the first decade of the 21st century, the agricultural sector in Zimbabwe recorded a negative growth pattern with falls in output, agricultural exports and employment in the sector. Agricultural exports fell by 53% between 2000 and 2007 while non-agricultural exports dropped only 6% [3]. But, beginning 2009, when the country

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adopted the inclusive government concept and dollarization of the economy, the agricultural sector grew by 34% with major agricultural commodities such as maize, soyabeans, groundnuts, tobacco and cotton among others on an upward trend [3]. While it is very difficult to attribute the previous down sliding performance of the agricultural sector to any particular factor, given the multi-dimensional (natural calamities, economics, politics, people's choices, modernization, globalization, etc.) nature of the problems, the structural changes brought about by the land reform in the past decade have definitely induced some shocks and disturbances in the agricultural sector. Matondi [4] stated that the livestock sector in Zimbabwe has never been the same since the inception of land reform programme.

Therefore it should be noted that the land reform programme was a change in the agricultural system that would require complementary changes in interrelated factors such as institutions, human capital, and technology among others, as earlier alluded to, in order to induce desirable changes in the economy at wide. Without a comprehensive and all inclusive adjustment mechanism, the well meaning programme of allocating land to previously disadvantaged Zimbabweans may end up yielding undesirable outcomes to the economy. Thus to complete the cycle, related factors such as institutions, human capital, training and technology must be reconsidered and adjusted in line with the changes brought about by land reform to ensure success in the post land reform era in Zimbabwe.

The Role of Agricultural Education in Agricultural Growth and Development

There is abundant theoretical and imperial evidence that prove the importance of human resource in production activities in all sectors though the engagement of labour and entrepreneurship resources. Agricultural education is an integral part of human capital development that can improve the quality of human resources and enhances human productivity and prosperity. Growth and development in agriculture is driven by land, labour, technical innovation, institutional innovation, research and extension, among other factors [5]. Bonnen [6] noted that increases in productivity arise not from technological change alone but also from institutional innovation, and improvements in human capital as well as changes in the availability of biological and physical capital. Institutional innovation depends on prior human capital accumulation, just as technological innovation does.

Improvement in human capital increases the ability of human agents to identify, define and deal with problems or disequilibria. New technologies not only arise out of prior investment in human capital and institutions but also from the need for increased productivity that generally cannot be realized until the new technologies are combined with some appropriate complementary

improvements in agricultural institutions and in human agents managing agriculture. This study was thus designed to evaluate the implications of the Zimbabwe land reform programme on agricultural education in order to contribute towards the debate on the additional needs that must be met to ensure success of land reform.

METHODOLOGY

This desk study used various sources of theoretical and empirical literature on land reform and agricultural growth and development in Zimbabwe. The first draft of the paper was presented at a National Manpower Advisory Council (NAMACO) workshop that was attended by stakeholders in the agricultural education sector and the feedback was included in the paper. Informal interviews with key stakeholders in the agricultural sector such as lecturers, students, graduates etc were also done to assist the development of this paper. The study also benefited from peer reviews by experts at universities and agricultural colleges in Zimbabwe, who kindly provided comments. Cause and effect analysis as postulated by City Process Management was used to trace the causes, effects and implications of land reform on agricultural education [7].

Agricultural sector in Zimbabwe before and after land reform

Prior to the land reform programme, the commercial sector occupied 56% of the total arable land while the subsistence sector had 44%. However, the land reform programme saw an increase by area and numbers in smallholder subsistence agriculture (74%) versus commercial agriculture (26%) (Table 1). The Fast Track Land Reform Programme created smaller farms and unlocked more than 4 million hectares (from the commercial sector) previously not catered for by government extension agents. This demonstrated the need for systematic planning of the future institutional framework for agricultural service provision, human capacity and skills development, agricultural research and technology transfer, agricultural inputs and financial services, and domestic and international markets for agricultural products.

Agricultural Training in Zimbabwe

Post Independence Experience

Following independence in 1980, there was a greater demand for extension personnel following the first phase of land reform and the resettlement exercise that resulted in more small farms on the ground. Furthermore, there was a need to extend services to the rural communal sectors that were previously disadvantaged by colonial

Table 1. The Distribution of Land Holdings Before and After Land Reform (1999-2005).

Period	Parameter	Subsistence Sector	Commercial Sector
Before Fast Track Land Reform Programme	Farms	1.3 million	17,135
	Area (million ha)	16.4	13
	% of total area	56	44
	Ave. farm size (hectares)	13	769
After Fast Track Land Reform Programme	Farms	1.3 million	28,177
	Area (million ha)	20.6	7.5
	% of total area	74	26
	Ave. farm size	16	266

Adapted from Utete [8].

Table 2. Agricultural Training Institutions in Zimbabwe.

Universities and year of establishment	Colleges and year of establishment	Other farmer training institutions
University of Zimbabwe (1952)	Gwebi (1950)	Blackfordby
Zimbabwe Open University (1980)	Chibero (1961)	Trelawney
Africa University (1992)	Kushinga (1980)	Kushinga Pেকেল
Bindura University (1996)	UMMA Institute of	Wensleydale
Midlands State University (1999)	Agriculture	Nyamazura
Chinhoyi University of Technology (2001)	Rio Tinto Institute of	Provincial training centres
Lupane State University (2005)	Agriculture	e.g.
Great Zimbabwe University (2006)	Esigodini	Mupfure
Women's University in Africa (2002)	Mazoe Veterinary	Cotton training centre
University of Marondera (2013)	Magamba	Nyamasinga
	Chaminuka	Panorama
	Kaguvi	Hlekweni Rural Friends
	Mushagashe	
	Rupangwana	

agricultural policy. As a result, additional training colleges of agriculture were established to meet the increases in demand for trained agricultural personnel. The Faculty of Agriculture at the University of Zimbabwe was established to provide support to the Department of Agricultural, Technical and Extension Services (AGRITEX). The land reform programme with its bias on smallholder agriculture created demand for human resources in the sector. There was an increase in agricultural training colleges and, while existing ones were expanded in capacity, course durations were reduced to fast track training of agricultural personnel to adjust to emerging situations.

Currently agricultural training is classified under three major learning levels; universities, colleges and other farmer training institutions. Table 2 shows current agricultural training institutions in Zimbabwe. There are currently 11 Universities, 13 colleges and 11 training centres established for agricultural training at various

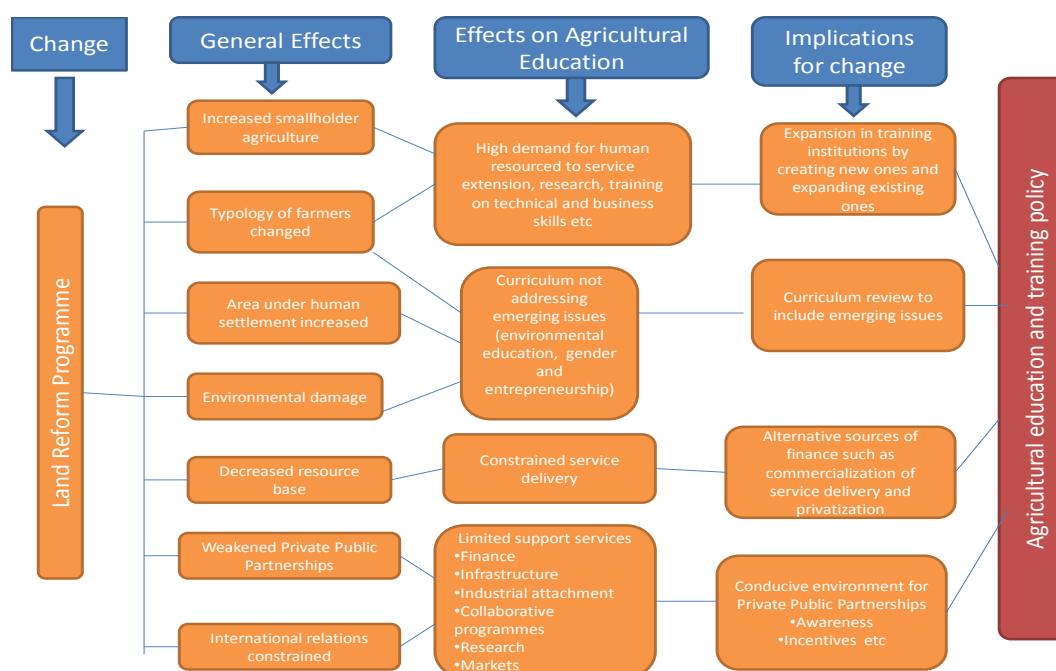
levels in Zimbabwe. Some institutions were established before independence, while others were established after independence and some post-2000, in the land reform era. The current training capacities by gender of some universities and colleges are as indicated in Table 3. As shown in Table 3, agricultural training at these institutions is biased towards males except for Chibero which has more females in current enrolment.

Funding of Agricultural Training

The CAADP, 2010 report explains that disagreements between Government and international financial partners with regard to land policy, as well as political conflicts surrounding the 2000 to 2002 elections and the war in the Democratic Republic of Congo, soured relationships between these partners, leading to a reduction in foreign aid. As a result, the Zimbabwean economy has been on a downward trend, with GDP shrinking by 5 percent, 8

Table 3. Current Training Capacities by Gender of Some Agricultural Training/Education Institutions in Zimbabwe.

Institution	Student enrolment		Total
	Female	Male	
University of Zimbabwe	114	251	365
Africa University	9	23	32
Lupane State University	1	9	10
Bindura University of Science Education	12	17	39
Gwebi College of Agriculture	59	99	156
Chibero Agricultural College	107	53	160

**Figure 1.** Emerging Issues for Agricultural Training and Education Post Land Reform.
Source: Current Study.

percent, 11.9 percent and 13.2 percent in 2000, 2001, 2002 and 2003 respectively [1]. The contraction in the economy has led to company closures, causing unemployment and loss of savings. Unemployment has had a direct impact on agricultural production since most small farmers rely on remittance income from family members employed in the formal sector for the purchase of essential inputs and for working capital.

Unemployment has also affected savings and tax revenues, thus choking the productive sector and leading Government to increasingly rely on borrowing in order to finance both infrastructural investment and recurrent expenditure. This has serious implications for the portion of the budget that can be usefully allocated. In 1998 interest payments on borrowings amounted to 9.5 percent of GDP and constituted 30 percent of the national

budget. However, by 2001 domestic borrowings were consuming 45 percent of the budget, leaving very little to allocate to productive support and social investments including extension and training in agriculture.

Land Reform and its Implications for Agricultural Education and Training

The changes in the sectoral structure and ownership of land following land reform had implications for agricultural education among other factors such as technology, physical resources, biological resources and institutions. Figure 1 shows the effects and emerging issues with implications on human resources and agricultural education post land reform. The detailed descriptions of emerging issues for agricultural training and educational

post land reform are given below:-

Increased Smallholder Farms and Demand for Human Resources in Agriculture:

The expansion in smallholder agriculture, (92%) versus large scale agriculture (8%) from the land reform exercise, implies that a greater number of farming units is creating greater demand for support services such as extension, education, as well as appropriate governance, political bodies and research capacities that were traditionally spread over a smaller area and fewer units. Despite economic challenges, the government of Zimbabwe has made efforts to provide support services to existing and newly developed farming units through expansion in agricultural education training institutions. To date, out of the 10 universities, 13 colleges and 11 training centres in the country, about 50% of these institutions were developed after land reform. This was in line with the quest to provide trained human resources to service farms. There is still a need to expand the capacity of previously existing and new institutions to meet increased demand.

Change in Typology of Farmers: Besides the expansion in settlements and smallholder farming, one important change in the structure of agriculture with implications on agricultural education is the change in the typology of farmers. In the former agricultural system, over 40% of agricultural land was being utilized by experienced and trained commercial farmers who were producing mainly for the market. The new occupants of over 90% of the farming community now comprise mainly non-experienced, semi-commercial farmers who are not so market-oriented. The new farmers need to be trained adequately in technical aspects of agricultural production to ensure that nutritionally and commercially viable results are achieved. There is a need to avail farmer training facilities at grassroots and provide adequate human resources to train newly resettled farmers.

Expanded Area under Human Settlement and Environmental Issues:

The expansion in smallholder farming units resulting from the land reform programme as explained above also resulted in an increase in area under human settlement, as numerous family farming units established their new homesteads in single family farming units previously owned by former commercial farmers. The process involves clearing of land, cutting down trees and burning of grasses, and disturbs animal and plant ecosystems as space is created for human habitation. In some cases occupants are reported to be settled in non-habitable and specially reserved spaces such as swampy areas, wildlife areas and urban areas. To facilitate orderly and environmentally friendly occupation and settlement by newly resettled farmers, there is a need to educate the new farmers, extension personnel and other professionals in the agricultural field on environmental management issues to ensure

sustainable agricultural systems. This demands provision of expertise in the field of environmental management through training and a change in curriculums at all levels to include such issues.

Need for Entrepreneurship in Agriculture:

Most newly resettled farmers are semi commercialized and subsistence farmers. They need education and extension to help them embrace the concept of commercial agriculture for their benefit and the benefit of the economy, or most of the farmland availed to these farmers will remain underutilized. There is a need to develop entrepreneurial skills among new farmers to ensure that commercial agriculture (which formerly contributed immensely to the economy, through input supply to industries, and export earnings) will prosper in the future. The concept of entrepreneurship needs to be included at all levels of agricultural training to ensure that farmers, extension agents and other professionals providing services to the farming community embrace such dynamic ideas in their various endeavours.

Labour Shortages:

Following the land redistribution exercise, new farm occupiers were former communal farmers moving away from degraded and congested land, and also former farm workers and individuals from urban areas most of whom with no previous commercial farming experience. The allocation of land to former farm workers who used to provide labour on large commercial farms decreased the labour supply to these entities, further stifling commercial production in the farming sector. Compounded by the problem of HIV and AIDS, and the inability to acquire modern labour saving techniques for operations by the new farmers, labour has become the greatest constraint to farming. To mitigate and adapt to this situation, research and development has to come up with innovative labour saving techniques (for instance, energy-efficient technologies of appropriate scale and cost) that are for new farmers, and diffuse such innovations among potential beneficiaries. There is a need to educate and train researchers who will develop such appropriate technologies to sustain farming operations in an environment where labour is scarce and large scale equipment previously used at large scale commercial farms has become inappropriate or unavailable.

Limited Private Public partnerships in Agricultural Education:

Prior to land reform, agricultural education used to benefit from support rendered by commercial farmers through various farmer forums and organizations towards research, industrial placements, manpower development assistance and scholarships to students. These private public partnerships which assisted economic growth and development were disturbed following the displacement of former Large Scale Commercial Farmers. With a significant reduction in

farmer support to public institutions and intermediary organizations, agricultural education was deprived of much needed assistance that seriously constrained service delivery. Research activity diminished, students failed to get industrial exposure and limited scholarships were available for student training. The education sector was affected as the economy had to rely on limited resources, and external institutional linkages that facilitated education and training in agriculture were limited. Similarly, employment opportunities for agricultural graduates have significantly diminished as business has diminished at all levels of agricultural and agribusiness sectors since land reform.

Limited External (International) Linkages and Support to Agricultural Education: Most of the western economies were not in favour of the land reform programme for political and economic reasons, and as a result, they instituted policies in the form of economic sanctions against Zimbabwe, to punish the economy for this policy implementation. Areas such as foreign investment, foreign aid, human movement, exports and imports from and to the west were greatly decreased, limiting local production, resource flows and external partnerships between Zimbabwe and the west. This resulted in resource limitations to governmental fiscal capacity that translated into limited resource outlay to all public services including the educational sector.

Decreased Production and Support to Agricultural Education: Besides the constraints of limited support from internal and external partners, production levels in the agricultural sector were low after land reform, as productivity declined with new farmers on the ground. Tax revenue from agriculture and agribusiness diminished as production declined. Personal income tax to government also declined as employment opportunities decreased with low activity. This also implied a decrease in resources available to agricultural education given the limited budget outlay by government.

Gender Mainstreaming in Agricultural and Agricultural education: The land reform programme was implemented with a major focus on advancing the gender balance in land allocation and utilization. The policy document clearly stated that “a quota of at least 40% of the land allocations should be made to women, especially in A1 areas where elderly women care for sick, orphaned and indigent people, often without adequate resources”[8]. The policy recognized women’s significant participation in all farming systems, and that it ought to be consolidated through a quota of 40% of funding reserved for women and other new farmers, for credit and other purposes” among other policies. The allocation of land to women in their own right implied that agricultural education together with other complementary developmental factors should mainstream gender to

ensure that there is a gender balance in the drivers of agricultural growth and development. If the imbalances are maintained, disadvantaged groups will be left out and the full benefits of the land reform programme will not be realized.

Policy Recommendations for Agricultural Education Post Land Reform

In order to create a conducive environment for successful agricultural training and education post land reform programme, the following recommendations, derived from emerging issues discussed above, are proposed:

Avail More Resources to Agricultural Training and Education: In order to ensure that agricultural education and training keep pace with increased demand for support services like farmer training, extension, research, policy and markets, there is a need to allocate more resources towards agricultural education and training. The government, development partners and other interested bodies need to prioritize allocation of resources to education to ensure establishment of infrastructure, human resources and other support services to improve the capacity and quality of institutions to train more in agricultural education. Research inquiry should be commissioned to identify gaps in agricultural education capacity to inform the resources needs.

Improve Relevance of Agricultural Training by Curriculum Review: Agricultural education and training need to be reviewed constantly to ensure relevance under changing situations. The land reform has emerged with new environmental, entrepreneurship, extension education, technology development and gender related challenges that require revisiting agricultural education curriculums to ensure adequate attention on these together with existing technical content. This will enable education and knowledge transfer to take place in context with sustainable development. Proposed changes in curriculum used in agricultural education and training at all levels are as follows:

- (a) Environmental issues in agricultural education
- (b) Entrepreneurship and commercialization of agriculture
- (c) Gender
- (d) Extension and information and communication technologies
- (e) An inter-disciplinary systems approach to agricultural education
- (f) Technology development

Gender mainstreaming in agricultural education: The land reform has recognized the role played by women in agriculture and has made efforts to ensure improved allocation of land to this disadvantaged but resourceful group. The 1996 FAO expert consultation urged that

special efforts be made to recruit and support female students from rural areas who could become extension agents, agricultural researchers, teachers and policy-makers [9]. One of the reasons why there are few women extension workers, researchers and other agricultural professionals is the small number of female graduates from intermediate and higher-level agricultural education institutions. Educators need to become more responsive to gender related issues by taking into account women's roles and contributions in the overall agricultural industry. While there is a trend for increased enrolment of women students in agricultural sciences at the technical or higher levels, this has not resulted in the dissemination of improved technology to women farmers because few female graduates are employed in extension work. Agricultural education institutions may increasingly have gender-sensitive admission policies, but due to traditional barriers, female graduates continue to have problems finding employment in agriculture [10]. Strategies, curricula, and policy shifts need to emphasize and include women as role models and leaders in agriculture.

Conducive Environment for Private Public Partnerships: Impacting knowledge on agricultural education and training is not the responsibility of the training institutions alone. A number of partners have to collaborated to ensure that education and training is effectively transferred and applied by intended beneficiaries. Besides universities, colleges, skill development centres and farmer training institutions, collaborative inputs are needed from other stakeholders in the agricultural sector such as farmers, agro-processors, research institutions, government to facilitate resources (e.g. finance, industrial exposure, counterpart learning) needed for effective training. To sustain education amid constrained resources, government policy should consider commercialization and privatization of agricultural training. The government has to create a conducive environment for private and public partnerships that will see collaborative inputs by all parties in successful delivery of agricultural education and training.

Innovative Ways to Fund Agricultural Education: To cope with a diminished revenue base and consequently lower governmental outlays for agricultural education institutions, new ways to generate supplementary resources should be explored to ensure that agricultural education will prosper post land reform. These include income generating programmes by training institutions such as using the current experimental farms partly for commercial production, parallel programmes, cost recovery, commercialization and privatization of agricultural education to generate additional revenue.

Agricultural Education Policy: Finally, in order for agricultural education in Zimbabwe to successfully

maintain its relevance in the post land reform era, there is a need to develop an agricultural education policy to guide implementation of changes. This entails enhancement of coordination of policy and monitoring, and programmatic interventions by public and private actors in agricultural training and a harmonized, regulated and quality assured education system.

Conclusions

The structural changes brought about by the land reform programme have implications for agricultural growth and development in the country. The collaboration and interdependence of various drivers of agriculture in the economy implies that the land reform programme alone cannot yield desired benefits to the people of the nation if it is not adequately supported by complementary adjustments in other factors such as education, institutions and technologies among others. The emerging issues post land reform such as; increased smallholder agriculture (92%) versus large scale agriculture (8%), expanded area under settlement, changes in typology of farmers, labour shortages, limited partnerships with internal and external institutions, decreased production in agriculture, and gender mainstreaming in land allocation, all of which had implications on agricultural education and training. For agricultural education, these changes implied; increased demand for human resources to provide supportive services (extension, training and research), a need for curriculum review to integrate emerging issues such as environmental management, business development skills and gender relations, a need for more resources, and a need for strengthening of Private Public Partnerships to enable successful delivery of agricultural education for economic development. An agricultural education policy is essential to provide a harmonized framework in which adjustment measures ensure educational relevance in the new era of land reform.

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