



STATE OF THE

AFRICAN FARMER


HEIFER[®]
INTERNATIONAL

ABOUT HEIFER INTERNATIONAL

Heifer International's mission is to end hunger and poverty while caring for the Earth. For 70 years, Heifer International has provided livestock and environmentally sound agricultural training to improve the lives of those who struggle daily for reliable sources of food and income. Heifer is currently working in more than 30 countries, including the United States, to help families and communities become more self-reliant.

For more information, visit www.heifer.org, read our blog, follow us on Facebook or Twitter, or call 888.548.6437.



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FOREWORD

Africa is one of the richest regions in the world from the perspective of resource development. The majority of the world's arable land is in Africa. With a projected gross domestic product growth averaging 5.4 percent, Africa is one of the fastest growing regions in the world. Currently, six of the world's 10 fastest growing economies are in Africa and the continent is attracting more investment in aid. Yet despite these impressive statistics, a significant portion of Africa's billion plus population is mired in poverty and malnourishment. It is a paradox that Africa's agriculture, which is the biggest employer of active labor, cannot provide enough food for its people.

The average life expectancy across Sub-Saharan Africa is 52.5 years, compared to 69.2 worldwide. Half the population lives in extreme poverty, subsisting on less than \$1.25 per day, and 239 million people are malnourished.

Why are smallholder farmers still unable to grow enough food to feed their families and their communities? Why are smallholder farmers (particularly women who constitute the majority of farmers) still unable to generate enough profit to pay for their basic needs from their agricultural produce? Why is the livestock value chain still dominated by few big players when smallholder farmers own the bulk of livestock across Africa?

Of the 300 million people who live on \$1 per day in Sub-Saharan Africa, half depend on livestock, which provides up to 45 percent of the total family income. Market access for livestock smallholder farmers remains highly constrained. Livestock production is relatively generally less funded, and planned for, than crop production in many African countries.

There is recognition in Africa and elsewhere that agriculture drives the continent's economies and that the underfunded agriculture sector will compromise the rest of the economy. If Africa's smallholder farmers are well organized, they can produce some of the best quality products in the agricultural value chain—leather in Ethiopia, fruit in Ghana, cashews in Mozambique, and milk production across the continent have all shown great potential for local value addition. Investment creates not only jobs but provides numerous opportunities for many poor rural people. This in turn has a multiplier effect on the rest of the national economies throughout the continent.



Before African smallholder farmers can become economically prosperous, a complex web of constraints must be unraveled. There is need to invest more in rural infrastructure and to involve smallholder farmers in the design and funding policy. Agricultural research also needs attention. Farmers must have access to both input and output markets, locally, nationally and globally. Perhaps more than anything else, women farmers need a voice and decision-making opportunity in the debate to secure the future of the industry; young people also need to be involved.

The Maputo Declaration of 2003, which supports the Comprehensive Africa Agriculture Development Program (CAADP), commits African governments to eradicate hunger within their countries by 2025. With 11 years to go there is still a tremendous amount of work to be done.

The African Union (AU) has declared 2014 “The Year of Agriculture and Food Security: Marking the 10th Anniversary of CAADP.” The theme is Transforming Agriculture for Shared Prosperity and Improved Livelihoods, through harnessing opportunities for inclusive growth and sustainable development. Here the goal of transforming agriculture is first and foremost to improve production and the availability of food for the population, provide livelihoods for those involved, raise incomes, create jobs and generate wealth for those in the sector and along the entire value chain.

This is indeed a critical juncture in Africa’s evolution.

The State of the African Farmer report has been produced as a contribution to the great debate on agriculture and food security in Africa. It is a compilation of views and voices of farmers, practitioners, policymakers and academics across Africa and beyond, each speaking from the heart and sharing their experience. It is not a prescriptive manual, nor is it intended to be. It is, however, a valuable resource that sheds more light on some of the aspects of smallholder agriculture that are normally overlooked or taken for granted.

We can make African farming a more vibrant, productive and profitable proposition that feeds the continent’s people and fuels future economic growth.



John Kufour
Former President of Ghana

KEY MESSAGE

The future of food security in Africa lies in the hands of African farmers, but data are scarce and their stories are only half told.

This report puts smallholder farmers at the center of the dialog about agriculture in Africa. Too often, the conversation about farming is conceptual and macroeconomic in scale. We go beyond the numbers and speak to the reality in descriptive terms. We talk about the farmer as a person, engaging in agriculture, faced daily with both opportunities and challenges.

It is important we elevate the role of livestock in smallholder agriculture and poverty reduction, which is often relegated behind crops. Most of Africa's smallholder farmers practice agriculture in integrated systems. Policymakers contend that livestock is more expensive and riskier; we assert that its returns are great. Though Heifer's work focuses primarily on livestock, the focus is not exclusive. And we recognize that the bulk of farmers practice integrated agriculture so we did not include a chapter focused on livestock.

Africa is at the crossroads of a profound change in agriculture that can significantly alter the prognosis for food insecurity on the continent as well as create a vibrant industry that employs and feeds its massive and growing population. The challenges smallholder farmers face are not one-dimensional, nor are the solutions. We also would like to acknowledge the limitations of this report and the exclusion of dialogue on a number of issues that affect smallholder farmers, such as HIV/AIDS. We made a deliberate decision not to call it out as its dimensions are too complex to properly address within the limitations of this publication.

This report is the result of a global effort. I am thankful to all those partners who have contributed to this publication, and who work alongside Africa's farmers in removing the obstacles that hinder their livelihoods.

Most of all I am grateful to the farmers, to whom this publication is dedicated. I am thankful for all they do to feed a hungry continent, and for all they are teaching us in the process.



Elizabeth Elango Bintliff
Vice President, Africa Programs
Heifer International

ACRONYMS

AWM	Agricultural Water Management
ASFG	African Smallholder Farmers Group
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
CKW	Community Knowledge Worker
CSO	Civil Society Organization
ICT	Information and Communications Technology
IFAD	International Fund for Agricultural Development
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GCCE	Gumutindo Coffee Cooperative Enterprises Ltd.
IDP	Internally Displaced Persons
IDRC	International Development Research Centre
IFOAM	International Federation of Organic Agriculture Movements
LWR	Lutheran World Relief
MDG	Millennium Development Goals
NASFAM	National Smallholder Farmers' Association of Malawi
NGO	Non-Governmental Organization
PGS	Participatory Guarantee Scheme
RITA	Rwanda Information Technology Authority
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SMS	Short Message Service
SSA	Sub-Saharan Africa
UN	United Nations
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
VBHCD	Values-Based Holistic Community Development
WEF	World Economic Forum

Smallholder farmers, women in particular, are the majority of land users in Africa and the rest of the developing world. They produce up to 80 percent of the food consumed, yet half of them are extremely poor (existing on less than \$2 a day), they are food insecure and marginalized, lacking access to services such as loans, extension, appropriate training and markets. The transformation of smallholder farmers into empowered, self-sufficient entrepreneurs requires a policy and regulatory environment that will reverse this trend and place smallholders firmly within the agricultural value chain.

THE AFRICAN FARMER

CONTRIBUTOR

Bongani Ngwenya is an independent development planning and management professional with more than 20 years of senior level work experience in rural and agricultural development.

More than half of the population of the developing world depends on agriculture for their livelihoods. The International Fund for Agricultural Development (IFAD) estimates that there are some 500 million small farms worldwide and more than two billion people depending largely on agriculture for their livelihoods.

Smallholder farmers produce 80 percent of the food consumed in Asia and Sub-Saharan Africa. In Sub-Saharan Africa, there are over 300 million people living in poverty, 62 percent of whom live on less than \$2 a day.

Africa, with approximately 33 million small farms, represents 80 percent of all farms in the region. The vast majority of smallholder farmers are women, who produce over 70 percent of food in Africa.

Smallholder farmers produce **80 percent** of the food consumed in Asia and Sub-Saharan Africa.

The 2008 World Development Report notes that agricultural growth reduces poverty in two ways.

- 1 > **Directly: by raising farm incomes**
- 2 > **Indirectly: through a positive impact on all other sectors of the economy**

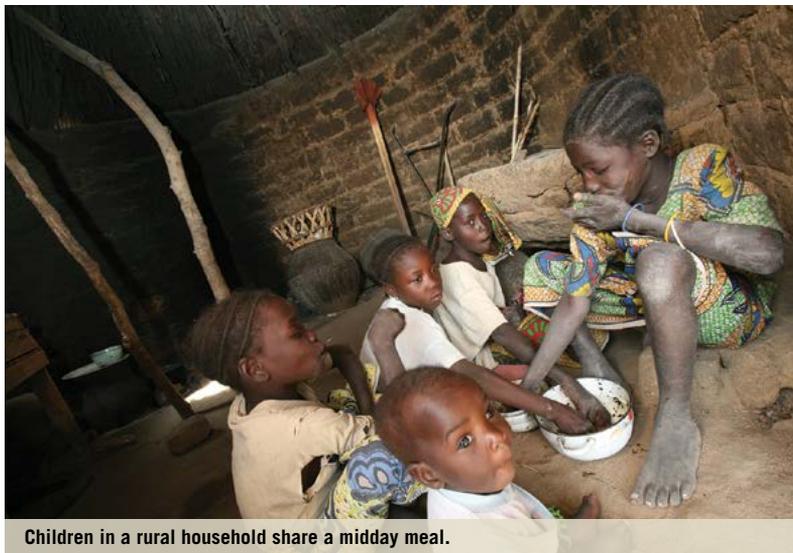
Although agriculture is emerging as Africa's major growth engine, African smallholder farmers continue to struggle, existing on the fringes of national and global economies. The World Bank has reported that growth in agriculture is two and a half times more effective in reducing poverty than growth in other sectors, and, with two-thirds of Africans depending on agriculture for their income, investment in agriculture is key to reducing poverty in Africa.

In 2003, a Summit meeting of the Heads of State and Government of the African Union in Mozambique adopted the Maputo Declaration, specifically designed in support of agriculture by national governments asking them to set aside 10 percent of their national budgets for agricultural development. Additionally, governments agreed to meet an annual agricultural growth goal of five and a half percent by 2008.

However, by 2008, seven out of 50 African countries had achieved the 10 percent target of the national budget.

Given the high number of smallholder farmers in Africa, it is only logical for agricultural investment to focus on this sector in order to deal meaningfully with issues of poverty and food security. As a group, smallholder farmers are among the most disadvantaged and vulnerable in the developing world. Half of the world's undernourished people, three-quarters of Africa's malnourished children and the majority of people living in absolute poverty can be found on small farms. Given this grim reality, smallholder farmers have a key role to play, not only in achieving food security, but also in generating poverty-reducing agricultural growth. They are also stewards of increasing scarce natural resources and on the frontline of dealing with the impacts of climate change (African Smallholder Farmers Group 2013).

Evidence suggests that a significant number of African governments have not sufficiently supported agricultural development, especially smallholder farming. As a result, Africa has been a net importer of food in recent times.



GEOFF OLIVER BUGBEE

Children in a rural household share a midday meal.



Africa's smallholder farmers predominantly practice integrated farming. Few are specialized in either crops or livestock.

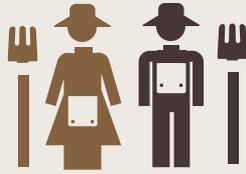
About 70 percent of the groups targeted by Millennium Development Goals (MDGs) live in rural areas. The majority of them depend on agriculture for their livelihoods. Investment in agriculture—smallholder agriculture—is therefore vital to meeting the MDGs on hunger and poverty reduction.

WHO ARE THESE SMALLHOLDER FARMERS?

Smallholders include some 350 million indigenous peoples who conserve many different crop varieties and livestock breeds.

According to the African Smallholder Farmers Group, of the two-thirds of Sub-Saharan Africa's population that resides in the rural areas, the majority can be considered as smallholder farmers. And, while there is no universally accepted definition of a smallholder farmer, two hectares, the land size used by the Food and Agriculture Organization (FAO), is generally accepted as a working standard. This definition initially covered cereal and horticultural production, but has since been extended to cover livestock farmers as well as pastoralists, fisher folk and forest dwellers. IFAD and the United Nations Environmental Programme (UNEP) have noted that the vast majority of smallholders live in rural areas, although urban and peri-urban smallholdings are an increasingly important source of supply for developing urban areas.

PROFILE OF A SMALLHOLDER FARMER



Smallholder farmers in Africa:

- › Are predominantly women
- › Are an aging demographic, with an average age of 60
- › Rely primarily on rain-fed agriculture
- › Are vulnerable to climate change
- › Practice integrated agriculture, hedging their investments on which products are least risky and likely to yield the highest return and tending to both livestock and crops

THE CHALLENGES OF SMALLHOLDER FARMERS

Half of the hungry people in Africa are farmers, with poor access to extension and financial services, inadequate utilization or access to technology, poor infrastructure or insufficient transportation, energy, irrigation and telecommunications. Unreliable and unpredictable markets and with little or no road access means that farmers can only carry what they can eat quickly before food is compromised by pests or spoilage. Due to the lack of adequate roads, farmers are unable to access city centers and miss opportunities to participate in entrepreneurial activities and markets.

Smallholder farmers are routinely manipulated by local traders and do not have up-to-date market information to negotiate effectively. They rely on rudimentary farming equipment, have limited land security, inadequate water supplies and feel the increasing impact of climate change.

Smallholder farmers are considered part of the informal economy (meaning they may not be registered, tend to be excluded from aspects of labor legislation, lack social protection and have limited resources).



RUSSELL POWELL

Leston Mugala, 47, and his sons work in the family garden in Chowa Village, Zambia.

But they are not a homogeneous group. There are some with potential to undertake profitable commercial activities in the agricultural sector and then there are others whose greatest potential is in non- or off-farm activities.

Farmers who own assets in addition to land, like livestock and machinery, and have sufficient access to inputs, services and knowledge, are typically better connected both physically, socially and commercially. These farmers are often involved in producing for export, niche/high value added markets or integrated rural value chains.

There are farmers with little land and few other assets. They lack access to high quality inputs, credit services and equipment, are cut off from markets due to geographical isolation, use poor infrastructure, lack of information or a combination of these things, whose rights to land and other resources are tenuous and the markets to which they have access are not strong enough to result in enough increased productivity to lift them out of poverty.

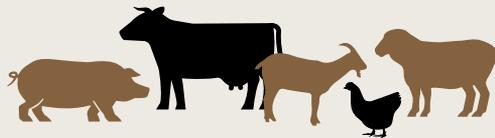
Subsistence farmers are not able to survive on farm income alone, rely substantially, and even entirely on off-farm work, remittances and/or social subsidies, are the poorest and most

vulnerable and include a high number of women-headed households and a growing number of farmers who no longer own any land at all.

Smallholder farmers with potential to become agricultural entrepreneurs face additional challenges of climate change, price shocks and inadequate access to healthy and nutritious food. If smallholder farmers can overcome these challenges, they will be able to move from subsistence to commercially oriented agricultural systems, increase their profits and operate at efficient scale.

Such achievements are only possible in a policy and investment environment that promotes context-specific farm size, supports productive safety nets, improves risk-mitigation and adaptation strategies, links agriculture, nutrition and health, promotes pro-farmer value chains, increases smallholder financing and investment, provides specific support packages for women farmers and recognizes and supports farmer organizations and institutions.

WHY LIVESTOCK?



- › Livestock ownership currently supports or sustains the livelihoods of an estimated 700 million rural poor
- › Livestock is frequently the only asset that keeps poor families from getting poorer
- › Livestock can provide a steady stream of food and income, helping to raise farm productivity as a whole
- › Up to 70 percent of the poor are women for whom livestock play an important role not only by providing a source of income but also by conferring status
- › Livestock production creates employment opportunities beyond the immediate household

FAMILY FARMERS

Feeding the world, caring for the earth

Family farming is inextricably linked to national and global food security. Both in developing and developed countries, family farming is the predominant form of agriculture in the food production sector.

Family farming includes all family-based agricultural activities, and it is linked to several areas of rural development.



There are more than **570 million farms** in the world of which over **500 million** are **family owned**



They are responsible for at least **56%** of agricultural production



agricultural



forestry



fisheries



pastoral production



aquaculture production

Family farmers work on a significant portion of the world's farmland.



Family farmers manage their lands to sustain remarkably high levels of productivity despite having less access to productive resources such as agricultural inputs and support.



In Brazil, family farmers provide on average approximately **40% of the production** of a selection of major crops working on less than **25% of the farmland**



Family farmers in Fiji provide **84% of yam, rice, manioc, maize and bean** production working on only **47.4% of the farmland**



In the United States, family farmers **produce 84%** of all produce – totalling USD 230 billion in sales, working on **78% of all farmland**

Family farming preserves traditional food products, while contributing to a balanced diet and safeguarding the world's agro-biodiversity and the sustainable use of natural resources.

More than 3.5 billion people depend on rice for at least **20% of their daily calories**

More than 1 billion people depend on rice production for their livelihoods

Family farms are the main source of rice production – especially in Asia



2014
International Year of
Family Farming

The United Nations declared 2014 as the International Year of Family Farming. FAO, in collaboration with its partners, is facilitating the implementation of the year with the following objectives:



Support the development of agricultural, environmental and social policies conducive to sustainable family farming



Increase knowledge, communication and public awareness



Attain better understanding of family farming needs, potential and constraints and ensure technical support



Create synergies for sustainability

Social capital, or the ability of people to associate in various ways with others and mutually benefit from that association, is one of the key success factors in African smallholder farming. In the contributions below, James Kasongo, Everiste Karangwa (LWR) and Ephraim Chirwa explain with concrete examples the role of community groups and farmer associations in farmer capacity building and how these examples can be improved and replicated across Africa.

SOCIAL CAPITAL

THE ROLE OF COMMUNITY GROUPS

CONTRIBUTOR

James Chinkubila Kasongo is Heifer Zambia's Country Director. He has 24 years of work experience in the area of rural development and poverty reduction. Mr. Kasongo holds master's degrees in agricultural sciences and business administration.

Few investors in smallholder agriculture fully understand the role of social capital building as functional to community economic development. Many investors instead focus on addressing the economic challenges farming communities face which are often symptoms and not root causes.

But when organized into community groups and organizations, smallholder farmers can play a major role in stimulating smallholder agriculture regarding access to support services and markets, as well as building social capital which is fundamental to community development.

STATE OF COMMUNITY GROUPS

Community groups and farmer associations in Africa are historically diverse, ranging from small informal farmer groups to large, tiered farmer cooperatives. Heifer International's experience in working with community groups has shown that they:

- › Lack capital to grow in scale and complexity, particularly investment in physical assets for value addition through processing and manufacturing
- › Lack management capacity and good organizational governance
- › Compete in markets against economic forces that confound their traditionally bureaucratic and unresponsive structures and strategies

Besides internal organizational weaknesses and the absence of market competitiveness, unstable agricultural policies have created a disempowering external environment. As a result, neither statutory nor voluntary forms of association and

collective enterprises have generated significant and sustainable agribusinesses in Africa, generally speaking.

Structural adjustment and a commitment to market-based agricultural development have reduced the direct role of the state in providing services. In most countries, publicly financed marketing boards have disappeared and access to unsecured and subsidized credit through government lending institutions is no longer available. Private systems are emerging but there remains the question about their ability to adequately fill the gap left by state withdrawal, especially in the short-term.



Heifer Cameroon lead a Values-Based Holistic Community Development training.

JAKE L'VELL

THE A TO B TO C MODEL

Heifer's priority to scale-up program impact challenges us to increase our programmatic reach, focusing operations where we can make the most impact. To do this, we are implementing projects that help more families at one time than in the past. We are serving Heifer's traditional beneficiaries through the A to B to C model, transitioning them from:





GEOFF OLIVER BUGBEE

Group formation and organization models that are organic and evocative are generally more successful than prescriptive models.

POTENTIAL OF COMMUNITY GROUPS

Community groups, especially among those that have commercial potential, are widely perceived as one mechanism of improving smallholders' access to agricultural services. While many community groups may have struggled and disappeared, others have recalibrated themselves in order to better cope with the changes in the global marketplace. Cooperatives and rural associations are now resurgent business forms in Africa; it is once again accepted that community groups offer a way to harness the potential of collective action in order to access markets more effectively, to take advantage of organizational opportunities to overcome financial, cash and investment constraints to leverage economies of scale in production and marketing. In recent years, this view has influenced the design of many assistance programs for smallholders in Africa to make group formation a prerequisite for accessing project resources.

Additionally, from the donors' perspective, there are significant advantages to distributing project resources to groups rather than to individuals, costs are lower and resources can be disbursed more rapidly. The potential therefore for community groups to improve the livelihoods of the rural population and contribute to a decrease in poverty may well depend on a new generation of dynamic and alternative forms of commercial organization.

In 70 years, Heifer's work with community groups has revealed that well supported and structured community groups bring

about significant benefits for smallholder farming in Africa. They reduce transaction costs, increase production, increase efficiencies along the value chain through networking and information access, promote collective agreements resulting in substantial collective bargaining, create new markets with improved quality and value addition and increase capital opportunities from financial institutions and have a joint pool of resources from cooperative members.

Community groups provide the opportunity for food autonomy, advocacy as part of collective action, help obtain resources for education and infrastructure and allow for groups to be a part of the democratic process.

KEY CHARACTERISTICS OF COMMUNITY GROUPS

- › Origin – self- or externally initiated
- › Coherence with pre-existing organizations and culture
- › Size – number of members
- › Composition – diversity in respect to socio-economic status and gender
- › Internal governance – representation, transparency and accountability
- › Leadership style – participatory or hierarchical
- › Management skills – training and professionalism
- › Capital investment – fixed tangible and intangible assets
- › Motivation and objectives – focus, complexity and boundaries
- › Formalization – constitution, registration, federation/integrative structures

While there is no absolute guidance about what does and does not work, under varying circumstances, different blends of characteristics can enhance or impair group performance.

Source: Management literature, such as Handy, and many reviews and summaries such as Chirwa et al (2005), Berdegue, Biénabe and Peppelenbos (2008), and Markelova, Meinzen-Dick, Hellin and Dohrn (2009)

FACTORS THAT LEAD TO SUCCESSFUL COMMUNITY GROUPS

Matching skills to experience is a critical prerequisite to the alignment of the levels of management capacity required by farmer groups and those required of future joint activity.

Evidence suggests that in practice such a common sense approach has had little influence on project design. In rural Africa, smallholder farmers' access to financial resources is likely to be severely constrained and local management experience limited. Yet many projects are designed on the assumption that both can be expanded rapidly and exponentially.

The type of activity to be undertaken will have a significant bearing on the management demands made on the group. These may range from coordinating marketing or procurement activities to operating jointly owned assets. Heifer's experience indicates that successful community groups are more likely to be involved in the former. The skills and experience required to orchestrate activities are often less complex than those required to operate a jointly owned capital asset.

On the other hand, in situations where there is a strong tradition of cooperation, projects involving the operation of jointly owned assets sometimes work. Processing activities are traditionally and generally undertaken by groups of women. When developed with sensitivity and in line with market opportunities, successful groups have emerged. Heifer's chilling hub model and the use of social capital in dairy value chains in East Africa, Zambia and Malawi are some of the working examples.

THE INTERNAL DYNAMICS OF A COMMUNITY GROUP

Internal cohesion and a clear member-driven agenda are central to successful farmer cooperation. Small size, diversity and face-to-face contact facilitate these elements, as well as accountability among members. Smaller, diverse groups are most important when the group activity requires a commitment of financial resources to a shared enterprise, whereas, when the group's primary function is to liaise on behalf of its members with a buyer or supplier, larger and much more variation of group composition may be appropriate.

Some donors and NGOs promote large groups for marketing or processing because of scale-economies, particularly when they need to acquire large capital assets. There is often a trade-off between economies of scale and group cohesion, though group cohesion and social capital is a critical factor for sustained success.

Previous experience of group or co-op activity can make an important contribution to the development of cohesive groups. Among women, traditional group processing, savings and loans clubs and petty trading are common. Labor-sharing groups among men and women are also common and a shared identity, religious, ethnic or otherwise, provides the antecedents for many self-help groups.

A STRONG BUSINESS RATIONALE AND RELATIONSHIPS WITH THE PRIVATE SECTOR

Strong business rationale is the third feature of successful community group activity. Fundamental to this is the group's successful integration into the wider economy.

Two types of relationships operate between community groups and external markets:

- › Linkage-independent cases, where the group stands alone, providing smallholder members with sufficient market presence to seek out independent relationships with other market intermediaries, like banks or buyers
- › Linkage-dependent groups which depend on a particular outside agency which in effect supervises its activity. This could be, for instance, a private marketing company or a bank which provides working capital to group members

Experience has shown the process of community group formation is best done gradually and organically. At its best, the group members themselves own the process. According to UNIDO (2006), market access entails being able to export your product or services on the basis of fair trade or competition with a level playing field.

In order to effectively access markets, community groups should be designed with business models that ensure that members fully benefit from being entrepreneurs. Access to the markets is one of the critical success factors, failing which, members of the community group do not benefit from being entrepreneurs. Competition and product quality is core and should be introduced to the community group members right from the start, thereby promoting the market-driven approach. Agricultural cooperatives should offer an effective way of delivering agricultural services to smallholder producers that facilitate escalation of production, improved product quality and diversification and added value.

“More often than not cooperatives have failed without a market-driven approach that allows small business owners and farmers to compete effectively in local, regional and global markets, with the motivation of increased profits.”
(OCDC, 2010:35)

ROLE OF HEIFER INTERNATIONAL IN COMMUNITY GROUP STRENGTHENING

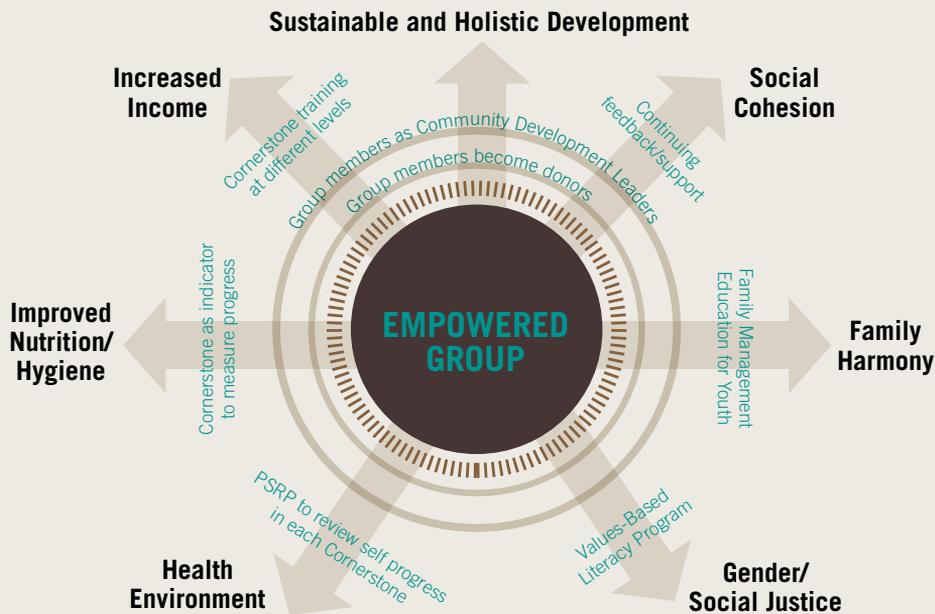
Heifer uses the Values-Based Holistic Community Development (VBHCD) approach in its efforts to strengthen community groups. The VBHCD model asserts that the self-defined values and vision of the people in the project communities are the best foundation upon which to plan and manage projects and programs to build organizational capacity. A strong education component is very important in all Heifer supported projects and/or programs as it enables participatory planning and monitoring of work in the communities, the foundation for sustainability. VBHCD seeks to include every member of the community group—men, women, youth and children. This is done through the process of values-based planning and management to assure that mechanisms are in place to benefit the most vulnerable within the community group, an evocative consultative dialogue which established the norms with which the community will engage.

Heifer's role in community group strengthening is to

- › Facilitate community values-based self-assessment, planning and management
- › Build awareness and provide training and technical assistance to strengthen gender capacity of community groups
- › Strengthen community groups through training, including formation of leadership, accountability and self-review
- › Support community group programs/projects, with assets and resources, enabling them to effectively achieve their vision and objectives
- › Support leaders and members through a process of values-based planning and management and ensure that mechanisms are in place to benefit the most vulnerable member of the community group members
- › Build capacity and facilitate the community groups' ability to network and partner with like-minded organizations and groups around gender equity and advocate for policy changes in favor of equity and justice
- › Build the capacity and skills of the community group in enterprise development, including facilitation of community group access to production inputs, credit and business training to create sustainable economic growth
- › Help the community group to identify commodity value chains that make economic sense

Heifer believes in order for smallholder farmers to attain food security, better nutrition, income and economic self-sufficiency, they need more than individual, small-scale production. They have to be in an effective community group that enables them to aggregate their production, negotiate better prices and advocate for better policies. Working in community groups makes it easier for smallholder farmers to access information, appropriate technology, training and extension services that enable them to easily integrate in the national, regional and global economies allowing direct contribution to the national gross domestic product (GDP).

THE HEIFER MODEL



Values-Based Holistic Community Development (VBHCD) is the development model used by Heifer International. It is focused around the people living in the communities rather than on a program focused on distributing inputs. Through gifts of livestock and seed, Heifer aims to help communities identify their values and develop their vision. Communities are empowered to achieve their goals and then pass their skills, knowledge and resources on to other communities.

ZERO-GRAZING

Zero-grazing is an approach to animal management in which families contain livestock in an enclosed, shaded area. Farmers carry fodder and water to them and provide them with daily exercise instead of letting them wander in the open where they are more likely to catch diseases or damage the environment.

Benefits of a zero-grazing pen include

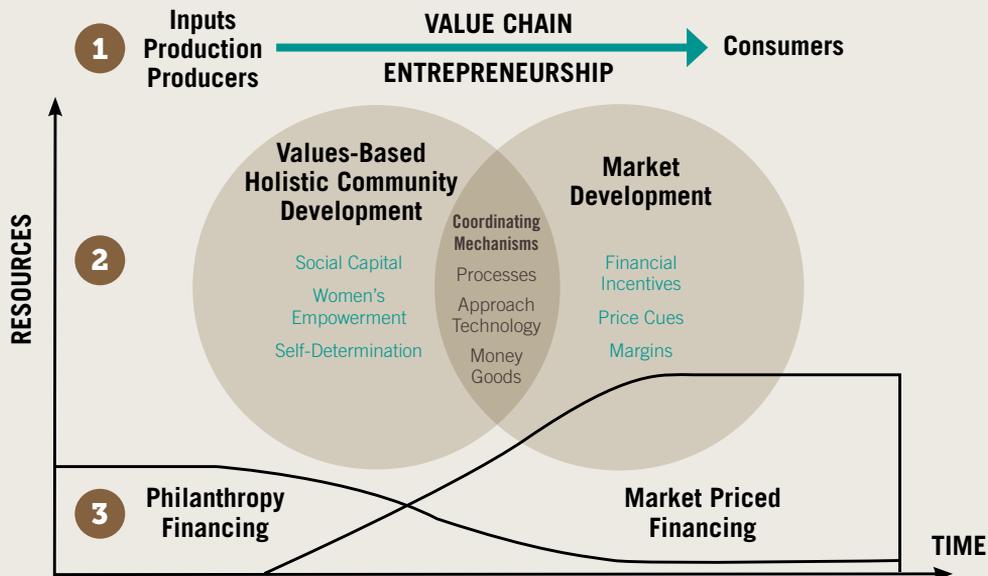
- Reduced contact with disease
- Easy, sanitary collection of manure
- Less damage to ecosystems
- Manageable breeding
- Decreased mortality rate
- Protection from predators

BUILDING RELATIONSHIP BETWEEN SOCIAL CAPITAL AND MARKET DEVELOPMENT

1 > In order to move out of poverty, a person must go from A, the most vulnerable and marginalized level, to B, someone with enough income to access to the market, creating an environment that allows for collective impact and shared prosperity. C, the final step, happens when smallholder farmers are self-reliant and able to plan economically viable futures.

2 > Heifer operates in “pre-market areas,” these are areas where markets do not work because of a lack of trust or poor infrastructure making the area too remote. We work to build trust and collaboration through establishing co-ops or self-help groups to build community markets and ultimately connect to larger economies. Social capital, or what Heifer calls our Values-Based Holistic Community Development approach, helps communities identify shared resources.

3 > Investments rarely ever happen at the pre-market stage; it is philanthropy’s role to provide private funding in this phase. Heifer understands how important this is and is focused on creating pro-poor wealth creating value chains. Moving from private to public funding is a critical inflection point. Over time, a self-sustaining market creates local resource mobilization lifecycles.



STRENGTHENING THE DAIRY INDUSTRY IN EAST AFRICA

CONTRIBUTOR

Pierre U. Ferrari is President and CEO of Heifer International.

Heifer International's work is to build social capital and engage the smallholder farmer. From the first visit to the field, until now, the truth remains the same: rural Africa is changing, and Heifer is proud to play a role. Not only does Heifer's work empower smallholder farmers, it also enables them to take advantage of opportunities within their community to become a part of the dairy industry.

For Heifer's work to assist more people, we have to increase the size of our projects while creating measurements on our successes and promoting effective, successful development models. To help create social capital, we have to put our project participants on the pathway to economic prosperity through sustainable development.



RUSSELL POWELL

A router clerk (left) and a quality officer unload a truck filled with milk at the Tanykina Dairy Plant Ltd., in Rift Valley, Kenya.

Through the East Africa Dairy Development (EADD) project, we are doing just that. EADD is funded by a grant from the Bill & Melinda Gates Foundation. Heifer partners with TechnoServe, the International Livestock Research Institute, the World Agroforestry Center and the American Breeders Services Total Cattle Management Limited to implement this comprehensive dairy industry project. EADD has made

impressive progress in Kenya, Uganda and Rwanda in increasing the incomes of dairy households and promoting the commercialization of the smallholder dairy industry. By bringing smallholder farmers to form cooperatives in their communities, Heifer helps them have a stake and voice in how the business of dairy unfolds. Farmers now understand how to improve their livelihood security through the



Madeleine Madamu, EADD participant

HEIFER INTERNATIONAL

production of high quality milk. Not only has milk production increased dramatically in these countries, but the milk quality also has improved.

Farmers are now encouraged and inspired to become even more knowledgeable in the dairy industry to not only help their families achieve income and food security, but also continue to create a successful cooperative that incorporates the entire community. Though all of these efforts take time, it's imperative to build social capital and effective training for lifting individuals and communities out of poverty for good.

One of our great success stories is Madeleine Madamu from Rwanda, a Heifer International EADD participant. For Madeleine and her family, the journey has been long, but they only look to the future with hope. "With just one cow, our lives have completely changed. When I look back to my days of extreme poverty, it seems so long ago and yet I do not forget that as a woman, I have had to work extra hard to provide for my family. The determination of a woman is endless. We never give up hope. We just pick up the pieces and move on." Through Madeleine's determination, she participates in the dairy cooperative that will help her reach her full potential to provide for her family.

For smallholder dairy farmers, social capital is vital. Without it, farmers will not have successful, sustainable changes to their lives.

CAPACITY DEVELOPMENT UNLOCKS FARMER POTENTIAL

CONTRIBUTOR

Dr. Evariste Karangwa, Lutheran World Relief's Africa Regional Director, has over 25 years of experience in international development. He pioneered LWR's innovative Tripartite Rural Financing Model and has overseen the organization's agriculture and food security programming in East and West Africa for more than 10 years.



LUTHERAN WORLD RELIEF

Even more than the technical skills provided to coffee farmers, empowerment is critical.

"Farming is in my blood." That's what Oliver Kishero will tell you if you visit her farm in Mbale District, Uganda. She grew up on a coffee farm and now grows coffee to support herself and her family. Until recently, it was almost impossible to make a living as a smallholder coffee farmer here. With only 300 trees on half an acre of land, Kishero wasn't always able to produce enough coffee to sell. She had to walk more than eight miles to sell her coffee to a middleman for a very low price. But today, Kishero and her husband, Joseph, run a successful coffee farm with 3,000 trees on six acres of land, which has created a better future for Kishero's entire family. All seven of their children are either in school or have graduated, and she is especially proud of her oldest child who is now attending college. When she joined in 2003, she was the first woman member of her local primary society. She is now the co-op's treasurer and says that women in her region "want to follow what I am doing."

Kishero's and other farmers' success with coffee in the Mbale District is due to a strong farmer cooperative called Gumutindo Coffee Cooperative Enterprises, Ltd (GCCE), which was formed in 1998. GCCE is an organization of smallholder coffee farmers who produce washed Arabica coffee on the slopes of Mt. Elgon, Uganda.

They work in partnership with Lutheran World Relief (LWR), whose organizational capacity development approach has strengthened this coffee cooperative and others like it around the world. Founded in 1945, LWR seeks to improve the livelihoods of millions of smallholder farmers in Africa, Asia and Latin America—through agriculture programs—reaching over 35,000 coffee producers in Uganda alone. LWR’s “Empowered Coffee Farmers” project with GCCE invests in farmers’ production and processing capacities, as well as GCCE’s capacity to serve its members, enabling farmers to grow, harvest and process coffee that GCCE can proudly market with the name *Gumutindo*, meaning “excellent quality,” in Lugisu, the local language.

GCCE obtained organic certification, registered as a cooperative union, obtained its export license and was certified under International Fair Trade standards between 2002 and 2004. By 2008, GCCE comprised six primary societies (smaller, local cooperatives) and over 5,000 members. Although the organization had developed relationships with buyers, low coffee bean quality limited their market appeal. Despite the potential of the organic and fair trade markets, in 2007, GCCE was operating with annual losses of \$250,000.

LWR’S RESPONSE

LWR strengthens community systems by encouraging active local participation and involvement from problem identification through solution ownership. Through its organizational capacity development approach, LWR maximizes the impact of local partner organizations by jointly assessing their strengths and weaknesses and designing strategies for greater accountability, transparency and sustainability.

In light of the technical, operational, governance and accountability challenges GCCE faced, LWR coupled farmer level improvements with interventions designed to build cooperative organizational capacity to create the financial, management and operations systems necessary to sustain GCCE’s growth.

COOPERATIVE CAPACITY

Technical Capacity

- › The project built a team of **dedicated technical staff** known as “coffee quality promoters” embedded in GCCE’s extension infrastructure **who continue to be employed with GCCE’s own profits** to support farmers at field-level
- › GCCE now has the capacity to operate across most of the Arabica coffee value chain. The value accrued at each stage of the value chain translates into increased returns to farmers since GCCE has the capacity to handle input provision, production, processing, marketing and exporting, which means lower costs for cooperative members

GOVERNANCE AND ACCOUNTABILITY CAPACITY

Operational Capacity

GCCE grew its national market share and increased exports by 60 percent over three years to 640 tons in 2011.

- › GCCE attracted new outside investment and interest from nearly a dozen buyers
- › From 2008 onward, **GCCE redistributed profits by issuing farmers a second payment** beyond the initial purchase price. This second payment often comes at a time when farmers are cash-strapped and need additional funds to meet their needs
- › **An independent organization, Gumutindo Management Agency, was created to manage GCCE's day-to-day operations**, which has improved operational efficiency by using recognized management and marketing practices.⁵ The arrangement ensures transparency and protects GCCE from undue influence by any one farmers' group
- › GCCE's strategic plan and related action steps were developed and implemented, providing strategic direction that yielded results such as those highlighted above

BUSINESS AND ENVIRONMENTAL SUSTAINABILITY

In addition to promising immediate and longer term results, LWR's capacity development approach also is designed to ensure both business and environmental sustainability for project gains once funding ends. Cost and revenue projections during the project design phase established a plan for progressive phasing out of project support, with GCCE taking on expenses as its revenues increased. In the project's first year, 100 percent of expenses were covered by the project, which decreased incrementally to 25 percent grant and 75 percent GCCE funding by the final year of the project.

Over the course of the initiative, GCCE broke through earlier challenges to become an internationally recognized specialty coffee brand, generating annual net profits of over \$500,000 by 2011.

After distributing an agreed portion of its profits to member farmers, GCCE reinvests sales revenues in services to support members' quality production and to acquire productive assets which further solidify GCCE's competitive role as one of the top 20 exporters in Uganda's Arabica coffee value chain. Even after the project ended, GCCE retains its six project-recruited coffee quality control promoters as staff, paid with GCCE earnings. With its own revenues, GCCE purchased mini-washing stations at the farmer group level, and a centralized hulling plant in order to further increase processing capacity and ultimately, the purchase price commanded from buyers.

FACTORS INFLUENCING SMALLHOLDER COMMERCIAL FARMING IN MALAWI: A CASE OF NATIONAL SMALLHOLDER FARMERS' ASSOCIATION OF MALAWI COMMERCIALIZATION INITIATIVES

CONTRIBUTOR

Ephraim Wadonda Chirwa is Professor of Economics and Managing Consultant at Wadonda Consult Limited, Malawi.

One of the organizations leading the commercialization of smallholder farming is farmer-based group, the National Smallholder Farmers' Association of Malawi (NASFAM).

NASFAM COMMERCIALIZATION INITIATIVES AND FOOD SECURITY

NASFAM was created in 1994 out of the Smallholder Agriculture Development Project funded by the United States Agency for International Development (USAID) to organize smallholder tobacco production. Over the years, the mandate extended to diversify into the production of other cash and food crops including ground nuts, rice, chili, cotton, soya and other legumes. The vision of NASFAM is to promote farming as a business among smallholder farmers. It draws its membership from smallholder farmers who usually cultivate less than one hectare of land, producing 60 percent food and 40 percent cash crops and use a hand hoe as their main tool for farming activities. Since then, NASFAM has grown in terms of membership, geographical coverage, scope of services and the coverage of crops. Membership has grown to 110,000 smallholder farmers across the country. Groundnuts, that have always been a smallholder cash crop, have reappeared as an export crop, a situation attributed largely to NASFAM. Some of the associations involved in the groundnuts cultivation have a fair trade label, which enables them to export the nuts at a premium.

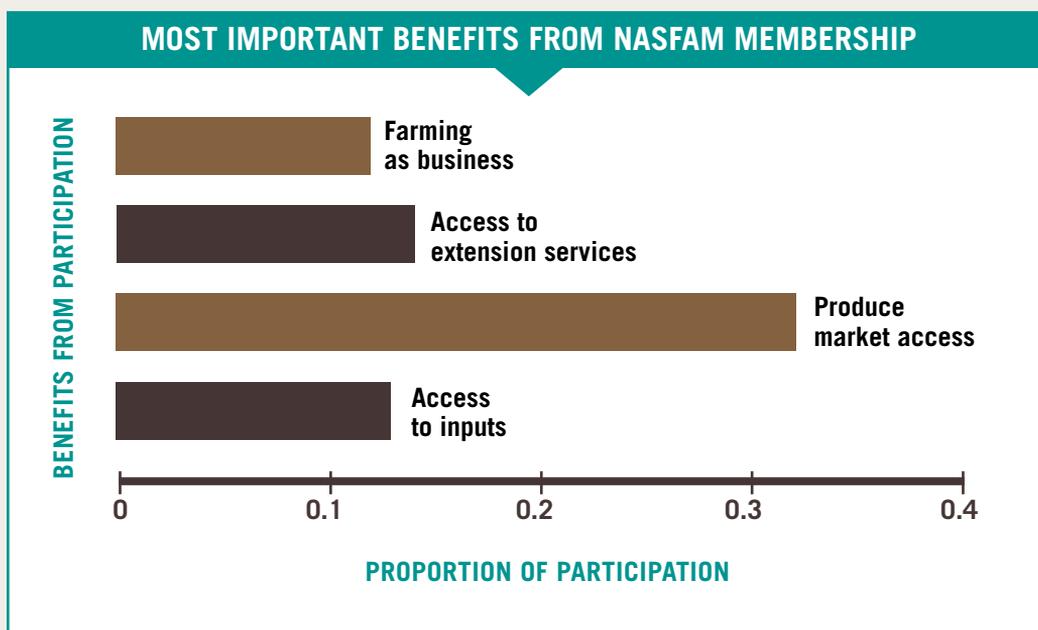
The extension of NASFAM is organized such that the smallest operational unit is the "Club," made up of 10-15 individual farmers. Clubs combine to form "Action Groups" which are the key points in the extension network for dissemination of information to members and the bulking of member crops. Action Groups in turn combine to form NASFAM associations which are legally registered entities, member-owned and managed by farmer boards.

NASFAM offers several services to their members including training and capacity building in farming activities and management of associations, facilitating access to farming inputs, market access and crop marketing, extension services and advocates policy changes. Additionally, NASFAM promotes commercialization through

changing the mindset of the smallholder farmers from mere subsistence farming to farming as a business, or commercial farming.

PARTICIPATION IN NASFAM COMMERCIALIZATION INITIATIVES

Participation in farmer organizations has the potential to secure better prices for produce, lower prices for inputs as associations could buy in bulk, and make available technical assistance and technology that allows participating farmers to harvest higher yields. The figure below shows that farmers had access to inputs and markets for their produce, received extension advice and benefited from the change in orientation to farming as a business. The most important benefit is market access for agricultural produce, which is consistent with the commercial orientation of NASFAM activities. The results also suggest that the change in the mindset from subsistence farming to commercial farming through change of objectives is considered an important benefit but was only clearly articulated by about 12 percent of participants.



Participation in these commercialization initiatives is voluntary. NASFAM markets its services to potential smallholder farmers, and based on the information, smallholder farmers make their decision whether or not they would like to participate. It is worth noting that prior to NASFAM, several farmers were already commercialized and were selling some of their agricultural produce.

Using farmer data collected prior to their joining NASFAM, commercialization initiatives were significantly influenced by the following factors.

Gender of the Household

Farmers from male-headed households are more likely to participate than members from female-headed households. This gender differentiation results from biases in access to various forms of capital against female-headed households. It is well known in Malawi that female-headed households are poor and one of the more vulnerable groups relative to male-headed households.

Household Size and Family Labor

Large households are more likely to commercialize.

Wealth

Wealth represents a resource base that facilitates affordability of farm inputs.

Food Security

Food secure households are 12 percent more likely to participate in NASFAM commercialization initiatives and had higher levels of commercialization.

CONCLUSION

NASFAM's approach to smallholder intensification and commercialization presents lessons that can be learned in order to increase agricultural productivity and profitability. Farmer organizations continue to be vital in facilitating farmer commercialization. The results highlight the importance of supporting the development of farmer organizations, such as NASFAM, that provide capacity building training to smallholder farmers in business management and promote market access. However, the decision to participate and the extent of commercialization is hampered by credit market constraints, food insecurity and biases arising out of gender differentiation evident in ownership of assets, such as limited access to land, capital and greater domestic responsibilities for women, reducing the labor available for farming.

Food markets in Malawi can be made functional by addressing the constraints that private traders face such as storage, access to capital, poor infrastructure and unpredictable government interventions among others, since these limit inter-seasonal movements of maize and integration of markets.

The main lesson for similar initiatives is that a more targeted approach—focusing on female farmers and addressing their constraints to market participation, such as access to credit—will have positive spillover effects for their household's welfare. In

addition, there is need for investing in the young farmer—especially given the rising levels of unemployment and underemployment for young people. Agriculture has the potential to provide young people and others in rural areas with a reasonable livelihood and reduce the increased vulnerability associated with rural-urban migration due to limited employment prospects.

Land is the prime factor of production. In Africa, the story of land access and utilization is economically complex, and sometimes politically sensitive, given the facts of history. In this section, T.S. Jayne and others explore these issues in the context of smallholder farming in Africa and suggest possible solutions to the challenges.

LAND

LAND SCARCITY AND AFRICAN AGRICULTURE: IMPLICATIONS FOR FOOD SECURITY AND POVERTY REDUCTION STRATEGIES

CONTRIBUTORS

T.S. Jayne, Milu Muyanga, Jordan Chamberlin, and Chance Kabaghe.¹ Thomas Jayne is Professor in the Department of Agricultural, Food, and Resource Economics at Michigan State University, and an Adjunct Professor at the Indaba Agricultural Policy Research Institute in Lusaka, Zambia; Milu Muyanga: Assistant Professor, Michigan State University; Jordan Chamberlin: Assistant Professor, Michigan State University; Chance Kabaghe: Executive Director of the Indaba Agricultural Policy Research Institute, and Chairman of the Zambian Association of Manufacturers.

Sub-Saharan Africa is conventionally viewed as a land-abundant region. A recent World Bank report estimates that Africa contains roughly half of the world's remaining 450 million hectares of unutilized arable land.² Carefully documented recent analyses reveal that large-scale foreign investors have acquired about 10 percent of the remaining arable land in Sub-Saharan Africa.³ There are signs that even more land than this has been acquired in recent years by relatively well-connected indigenous "emergent farmers."⁴

These developments could bring important benefits to African economies and could be viewed in a generally favorable light were it not for the distinct possibility that they may be ruling out a more inclusive pattern of smallholder-led agricultural development that could more effectively eradicate hunger and poverty. This article summarizes recent studies documenting emerging land pressures in Africa, the extent of potential cropland expansion in the region, and the implications of increasing land scarcity for African governments' agricultural programs.

TRENDS IN FARM SIZE IN AFRICA

About 95 percent of Africa's farms are small-scale (less than



OLLIVIER ASSELIN

In densely populated countries like Rwanda, land management is a critical need for advocating food security.

five hectares in size); of these, about half operate with less than one-and-a-half hectares of land. Much of Africa's smallholder population is facing severe land constraints, and area expansion will be required for a smallholder-led agricultural strategy to succeed. African farms have been declining in size over the past four decades as parents sub-divide their small plots to sons and daughters. Localized land scarcity prevents them from acquiring more land in their home areas.

Table 1 shows the changes in the ratio of land cultivated to agricultural population over the past five decades for selected African countries. About half of the countries in Table 1 show a substantial decline in land-to-labor ratios in agriculture. In Kenya's case, for example, cultivated land per person in agriculture has declined from 0.462 hectares in the 1960s to 0.219 hectares in the 2000-08 period.

A consistent story emerges from surveys of farmers carried out by African governments; most, but not all, countries show a gradual decline in median and mean farm size over time. Most of these farms are unable to produce the level of surplus production required to make farming a viable activity. Land scarcity is

Table 1.

HECTARES OF ARABLE LAND PER PERSON IN AGRICULTURE (10 YEAR AVERAGE) IN SELECTED COUNTRIES						
	1960-69	1970-79	1980-89	1990-99	2000-09¹	2000-09 land-person ratio as % of 1960-69
Ethiopia	0.501	0.444	0.333	0.224	0.218	43.5%
Zambia	0.643	0.607	0.398	0.342	0.297	46.2%
Kenya	0.462	0.364	0.305	0.264	0.219	47.4%
Uganda	0.655	0.569	0.509	0.416	0.349	53.3%
Malawi	0.480	0.466	0.357	0.304	0.307	64.0%
Zimbabwe	0.613	0.550	0.452	0.420	0.469	76.5%
Rwanda	0.212	0.213	0.195	0.186	0.174	82.1%
Mozambique	0.356	0.337	0.320	0.314	0.294	82.6%
Ghana	0.646	0.559	0.508	0.492	0.565	87.5%
Nigeria	0.982	0.860	0.756	0.769	0.898	91.4%

Source: Jayne, Muyanga and Chamberlin, compute from FAO STAT (2010).

creating difficulties for young families in densely populated rural areas to make a livelihood through farming, thereby contributing to outmigration to cities where the majority of migrants take up low-paying informal jobs.

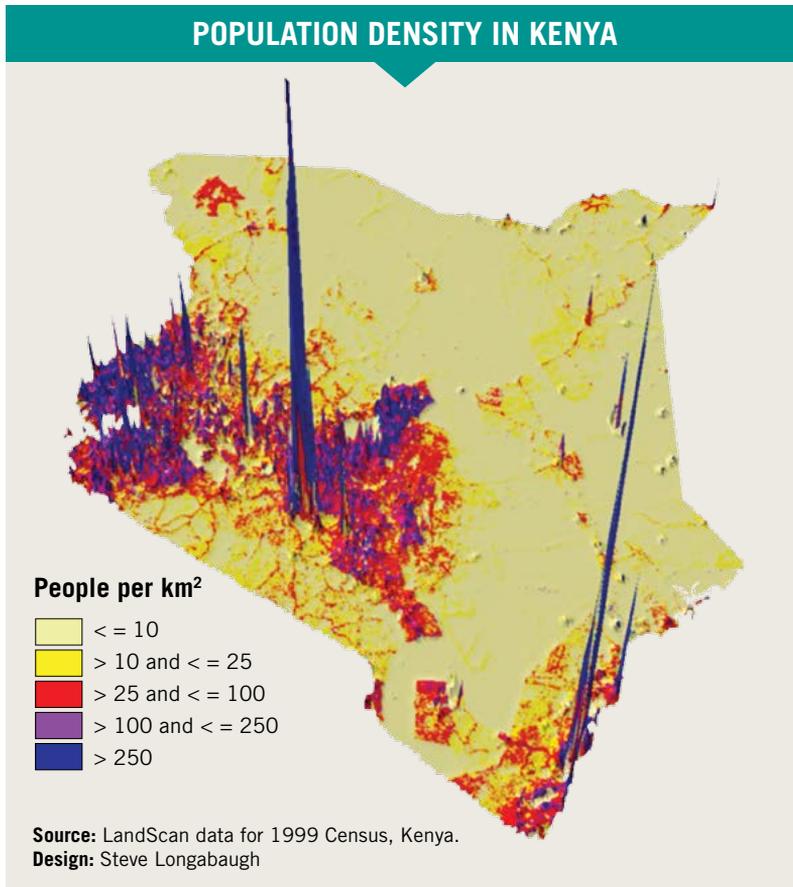
WHAT EXPLAINS THIS APPARENT PARADOX OF LAND SCARCITY BEING FACED BY MANY AFRICAN FARMERS WITHIN A CONTEXT OF OVERALL LAND ABUNDANCE?

Africa's rural population is heavily clustered into enclaves. One percent of Sub-Saharan Africa's rural land contains 16 percent of its rural people. Twenty percent of the region's rural land contains 75 percent of its rural people.⁵

Figure 1 provides a graphical representation of population dispersion in Kenya. This concentration owes to both natural factors (settlement in areas of good agroecology and low disease burden) and, in some cases, historical factors associated with colonization. In any event, the clustering of rural people into

a relatively small proportion of Africa's rural lands has resulted in land pressures in those specific areas and has inhibited the expansion of smallholder agriculture at the same time that millions of hectares of unutilized land are being transferred to foreign interests and relatively well-off local elite.⁶

Figure 1.



While much of Africa remains land abundant, most of its unutilized land is found in just a few countries. Roughly 80 percent of Sub-Saharan Africa's unutilized arable land is concentrated in six to eight countries, many of which are fragile states.⁷ Roughly, a third of the region's surplus land is currently under forest cover. Conversion of forests to cropland would entail major environmental costs.

Even when excluding forested lands as is done in Table 2, the concentration of unutilized arable land is remarkable. Most of the continent's unexploited land resources are located far from major cities, limiting their economic attractiveness. In the long run, improvements in infrastructure and agricultural productivity and the growth of bush country towns will intensify pressures for cropland expansion. In the short to medium term, however, the potential for profitable cropland expansion in most African countries is likely to be considerably more limited than suggested by earlier World Bank estimates.⁸

Table 2.

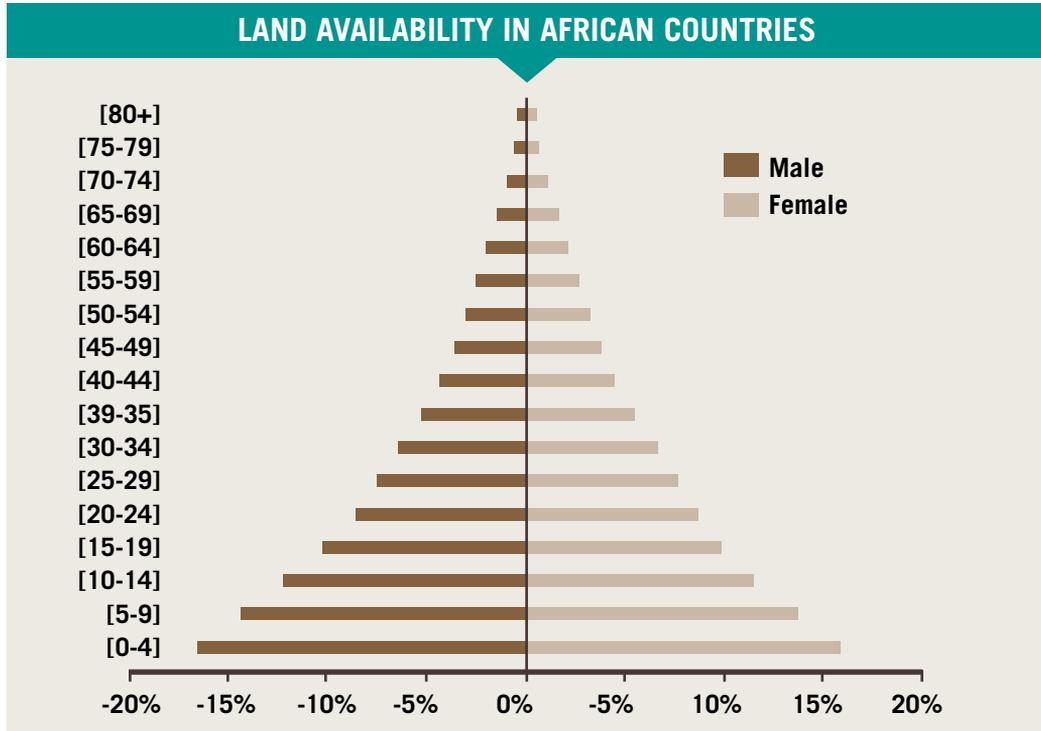
LAND AVAILABILITY IN AFRICAN COUNTRIES			
	Non-forested unutilized land (1000s Ha)	Proportion	Cumulative Proportion
DRC	84824	46.5%	46.5%
Angola	18889	10.4%	56.9%
Congo	12872	7.1%	63.9%
Zambia	10834	5.9%	69.9%
Cameroon	10447	5.7%	75.6%
Mozambique	8994	4.9%	80.5%
CAR	7049	3.9%	84.4%
Gabon	6534	3.6%	88.0%
Sudan	5803	3.2%	91.2%
Tanzania	4313	2.4%	93.5%
Madagascar	2718	1.5%	95.0%
Zimbabwe	2142	1.2%	96.2%
Chad	1520	0.8%	97.0%
South Africa	1219	0.7%	97.7%
Kenya	807	0.4%	98.2%
Mali	800	0.4%	98.6%
Burkina Faso	655	0.4%	99.0%
Ethiopia	651	0.4%	99.3%
Rest of Africa	1259	0.7%	100.0%

Source: Chamberlin and Jayne (2014).

AGE DEMOGRAPHIC INFLUENCES ON LAND SCARCITY

A final and emerging cause of increased land scarcity in Sub-Saharan Africa concerns the region's unique age demographic. In 2015, 62 percent of its rural population will be under 25 years of age and will soon be entering the job market. By contrast, only 11 percent of the region's rural people will be over 50 years of age.

Figure 2.



Source: UN 2013b.

Intergenerational and inter-sibling conflicts are likely to intensify because rural parents in their 50s and 60s (accounting for 2/3 of the rural population over 50 years of age) may not yet be ready or able to "retire" and bequeath or subdivide their land assets to their children. Inheritance of land, which has until recently been considered a birthright of young adults growing up in rural areas, will be increasingly difficult. In Kenya, roughly a quarter of young men and women born in rural areas start their families without inheriting any land from their parents, forcing them to either commit themselves to off-farm employment or

buy land from an increasingly active land sales market. These trends will intensify rural outmigration and put further pressures on the non-farm economy to absorb labor and provide a decent standard of living for this rising young labor force.

Mounting research evidence shows that as land increases in value due to emerging new commercial interests, fathers are less willing to provide land to their children, which further increases the prevalence of intergenerational conflict.⁹

SHOULD AFRICA FAVOR LARGE FARMS OR SMALL FARMS?

Recently, the feasibility of a small farm approach to rural development has been questioned by some scholars, and, by their actions, a growing number of African governments.¹⁰ There is increasing receptivity to viewing large-scale farm development in Africa at least as a complement if not an alternative to broad-based smallholder-led agricultural growth.

However, many studies from Asia and Latin America have clearly demonstrated that relatively egalitarian land distribution patterns have tended to generate more broadly based agricultural growth, higher rates of economic growth and more success in reducing poverty than in cases where land distribution was highly concentrated.¹¹ The reason for this is that broad-based agricultural growth tends to generate greater second-round expenditures in support of local goods and services in rural areas and towns. These multiplier effects tend to be much weaker when the source of agricultural growth is concentrated in relatively few hands.

Productivity growth on millions of small farms in Green Revolution Asia was crucial to poverty reduction and the development that this region has witnessed in recent decades. This smallholder-led Asian experience is starkly contrasted with parts of Latin America, which also achieved agricultural growth, but not in an inclusive way. Latifundia estates—large landed estates or ranches typically worked by slaves—expanded production impressively in many cases while millions of small peasant farms remained mired in poverty and were often dispossessed of their land. A major lesson for Africa from these contrasting experiences of smallholder-led Asia and estate-led Latin America is that for agricultural growth to rapidly reduce poverty, it must be broad-based.

CONCLUSIONS AND POTENTIAL IMPLICATIONS

Despite the fact that Sub-Saharan Africa contains much of the world's unutilized and underutilized arable land, a significant and growing share of Africa's farm households live in densely populated areas facing land scarcity.

A review of nationally representative farm surveys in Africa shows the following patterns:

- › Declining average farm size over time within densely populated smallholder farming areas
- › Great disparities in landholding size, leading to highly concentrated and skewed patterns of farm production and marketed surplus
- › Half or more of rural farm households are either buyers of grain or go hungry because they are too poor to afford to buy food; most households in this category control less than one hectare of land
- › A high proportion of farmers in densely populated areas perceive that it is not possible for them to acquire more land through customary land allocation procedures

There is need for a policy and strategic shift away from an elitist approach to agricultural development to one that is broad-based and inclusive. It should address land ownership disparities and associated government expenditure and investment, craft poverty reduction strategies that take into account the need for agricultural land development, including infrastructure development, for smallholders as key players and stakeholders and protect customary lands from being taken from indigenous rural communities and sold through land markets to outside interests.

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- 1 The authors are Professor, Assistant Professor, and Assistant Professor, Michigan State University; and Chairman of the Zambian Association of Manufacturers and former Vice Minister of Agriculture, Government of Zambia.
 - 2 World Bank (2011). *Rising global interest in farmland: Can it yield sustainable and equitable benefits?* Washington, DC: World Bank.
 - 3 Schoneveld, G. (2014). *The Geographic and Sectoral Patterns of Large-scale Farmland Investments in Sub-Saharan Africa*. Food Policy, forthcoming.
 - 4 Chamberlin, J. and T.S. Jayne (2014). *Scarcity Amidst Abundance: Reassessing the Potential For Cropland Expansion in Sub-Saharan Africa*. Food Policy, forthcoming.
 - 5 Namwaya, O. 2004. *Who owns Kenya? East Africa Standard*, October 1, 2004. Reprinted at: http://www.jaluo.com/wangwach/200709/Otsieno_Namwaya092807.html
 - 6 Chamberlin and Jayne (2014), *ibid*.
 - 7 Lambin, E.F., H.K. Gibbs, L. Ferreira, R. Grau, P. Mayaux, P. Meyfroidt, D.C. Morton, T.K. Rudel, I. Gasparri, J. Munger, (2013). *Estimating the world's potentially available cropland using a bottom-up approach*, *Global Environmental Change*, 23(5), 892-901.
 - 8 See, for example, Le Mur, P-Y. and R. Odgaard. (2006). *Land Rights and Land Conflicts in Africa: The Tanzania Case. Country Policy Study*. Danish Institute for International Studies.
 - 9 For example, *Zambia's 1995 Land Act* provides the rationale for state conversion of substantial portions of land from customary tenure (where smallholder farming is located) to state land to enable land to be more productively utilized by local entrepreneurs, investors, and farming blocks.
 - 10 See, for example, Johnston, B.F. and P. Kilby (1975). *Agriculture and Structural Transformation: Economic Strategies in Late-Developing Countries*. New York: Oxford University Press.
 - 11 See, for example, Johnston, B.F. and P. Kilby (1975). *Agriculture and Structural Transformation: Economic Strategies in Late-Developing Countries*. New York: Oxford University Press.
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Low production and poor productivity among smallholder farmers is a major contributor to poverty and food insecurity. In her contribution, Professor Ntombizakhe Mpofu analyzes the social, technical and policy issues in general livestock production, while Professor Margaret Ngigi focuses on small-scale dairy development in Kenya.

PRODUCTION AND PRODUCTIVITY

LIVESTOCK PRODUCTION AND DEVELOPMENT: CHALLENGES AND OPPORTUNITIES FOR SMALLHOLDER FARMERS IN AFRICA

CONTRIBUTOR

Prof. Ntombizakhe Mpofu has a Ph.D in Animal Breeding and Genetics and 29 years of work experience in research, extension project evaluation and university teaching across Africa. She also has managed agricultural projects and institutions. She is a private consultant based in Bulawayo, Zimbabwe.

Livestock production in the African smallholder sector occurs in systems that include crop production, agroforestry and other natural resources. Farmers generally keep more than one species of livestock such as beef and dairy cattle, sheep, goats, poultry, donkeys, camels, buffalo and rabbits. Major livestock products are meat, milk, eggs and skins and hides. Livestock is also used for draught power in crop production. Livestock rearing is an important risk reduction strategy for vulnerable communities especially those in arid to semi-arid areas as they can be sold to generate cash to buy food. However, smallholder farmers face huge challenges in livestock production. These include diseases, weak institutional support services, poor market infrastructure and policy asymmetries.



RUSSELL POWELL

Grazing cows

TRENDS IN LIVESTOCK PRODUCTION AND DEVELOPMENT

The consumption of livestock products has increased since 1980 and is projected to continue increasing due partly to increasing population growth, increasing incomes and increasing urbanization.

Table 1.

TRENDS IN CONSUMPTION OF MEAT AND MILK IN DEVELOPING AND DEVELOPED COUNTRIES					
		Annual per capita consumption		Total consumption	
		Meat (kg)	Milk (kg)	Meat (MT)	Milk (MT)
Developing	1980	14	34	47	114
	1990	18	38	73	152
	2002	28	44	137	222
	2015	32	55	184	323
	2030	38	67	252	452
	2050	44	78	326	585
Developed	1980	73	195	86	228
	1990	80	200	100	251
	2002	78	202	102	265
	2015	83	203	112	273
	2030	89	209	121	284
	2050	94	216	126	295

Source: P.K. Thornton, 2010.

Although livestock production and productivity has improved, it has been impossible to keep up with increasing global demand in livestock products in Africa. Given the centrality of livestock in smallholder livelihoods in Africa, it is important to investigate the challenges and opportunities for its production.

CHALLENGES AND OPPORTUNITIES IN LIVESTOCK PRODUCTION AND DEVELOPMENT

The challenges and constraints in livestock production and development are both social-economic and technical. Social challenges have a bearing on the adoption of technical opportunities, and in Africa, they are viewed as more complex than technical challenges.

Livestock Versus Crops

The development policy agenda generally places livestock production second to crop production. The focus is on crop production so as to satisfy people's dietary needs. Livestock products are seen as luxuries, yet they are multi-functional, providing the needed protein, draught power and manure for crop production, income for various family needs and as a mechanism for socio-cultural transactions, like dowries.

Livestock provide protein, draught power, manure for crop production, income and socio-cultural transactions.

Budgets for livestock development are a lot lower than those for crop development. Livestock development has been largely handled in "silos" – treating different fields of animal science separately, breeding projects are kept separate from nutrition projects, which are separate from health projects. This disconnect does not support livestock development.

Additionally, livestock development practitioners are usually animal scientists with limited appreciation of rural socio-economic dynamics.

Marginalized rural communities usually allow development workers and researchers to implement projects that are not particularly useful for them. Multi-disciplinary teams have to be encouraged, incorporating social scientists in livestock development work.

Land Resources

Available agricultural land has to be used for crop and livestock production as well as for natural purposes such as wildlife and forestry. There is competition for land between crops and livestock. Grazing land, for both pastoralists and agro-pastoralists, is being lost to crop production, and more recently, to growing plants for biofuels.

A balance between the need for human food, animal feed and energy must be met. By shrinking grazing or pastureland, an opportunity exists for changing production systems and adopting more intensive systems supported by pastures and crop residues.

Policy and Government Framework

Successful livestock development requires a supportive policy environment. Policies that encourage importation and promotion of unsuitable foreign breeds, favor urban consumers at the expense of rural producers, price controls and cheap imports of livestock products, stifle local production. Strategically, there is need for long-range planning to accommodate the long livestock generation interval, especially for cattle, whose lifespan goes beyond five years. Livestock production needs to be supported by enabling policies regarding land tenure, loss and security of livestock, markets and livestock inputs.

Government

Support has included various services to farmers, including extension and training, veterinary and marketing through parastatals.

In many African countries, public institutions are weak due to poor economies and have not been able to provide the required support. Budgets for agriculture in general, particularly livestock development, are low.

Labor

Smallholder farmers rely on family labor for agricultural activities. Labor availability is being threatened by rural to urban migration and most youth are moving from rural areas or are not interested in agriculture. There is great need for innovative ways of sharing and managing rural human resources such as traditional community mobilization and labor sharing concepts.

Finance

Smallholder farmers are generally not well endowed with resources. Therefore, production environments have few production inputs. Required inputs include labor, nutrition, disease control and distribution and marketing costs.

Low inputs usually result in low production and productivity. Various subsidy schemes (input schemes) have been implemented but have been criticized for promoting dependence and thus, being unsustainable.

Livestock Losses and Insurance

Livestock losses due to theft, accidents and poor production environment (disease and nutrition) are very high in the smallholder sector. There is still a lot of work to be done in this area, given that livestock have in most cases been viewed as insurance for crop losses and also have more social than economic value in this sector.

Research and Technology

There have been significant advances in animal science that have contributed to increased production and productivity. Opportunities lie in their applicability or modification for the African smallholder sector and also in the development of technologies and practices that are particularly suitable for this sector.

A large proportion of smallholder farmers in Africa use indigenous livestock breeds, adapted to local production conditions. The Ndama cattle of East Africa, for example, have been shown to tolerate trypanosomiasis, or African sleeping sickness. Fat tailed sheep are tolerant to poor nutrition during the dry seasons. There is need to improve productivity of the indigenous breeds, thus raising an opportunity of conservation through utilization. Local breeds, therefore, need to be characterized so as to select those that can be promoted for use in local environments. Where the environment can be improved, foreign breeds can and have been introduced with great success – e.g., in dairy cattle production in Zimbabwe and most East African countries.

Due to the low exchange of breeding animals, resulting from limited use of technology like artificial insemination, livestock populations are likely to be highly inbred, which further lowers productivity. An opportunity exists to introduce breeding technologies in the smallholder sector so as to promote the exchange of genotypes amongst smallholder farmers and to

bring in genotypes from other sectors and countries. Farmers will need to improve their skills to manage the increased productivity. This may necessitate development and/or learning of new production systems and methods. The big challenge in most countries is poorly resourced public extension services and smallholder farmers do not have the resources to engage in already scarce, private extension services. Additional extension services in the smallholder dairy sector have been provided by local and international nongovernmental organizations.

Livestock development in the smallholder sector needs to be supported by research, both social and technical research. In various southern African countries, there are research stations that were set up to develop the commercial production sector. Smallholder farmers own most (60 to 90 percent) of livestock in Africa. Research and development needs to give due attention to this sector and fund both on-station and field research, with smallholder farmers participating in order to yield appropriate technologies and innovations.

Livestock Feeds and Feeding

One of the biggest challenges in livestock production in Africa's arid to semi-arid regions is the inability to adequately feed livestock throughout the year. Smallholder farmers rely on natural and local feed resources, such as pastureland for ruminants. The nutritive value of these pastures varies with the seasons, the value being higher during the wet seasons than during the dry seasons.

A large proportion of smallholder farmers in Africa use indigenous livestock breeds, adapted to local conditions.

Crop products, by-products and residues have been used to feed livestock, especially pigs and poultry but also ruminants during the dry season. The main challenge with crop products is that they are also required for human consumption. Fodder banks, cultivated forages, leguminous trees, improved pastures (planting grasses as well as grass/legume pastures), mineral and protein supplementation have been used to supplement natural

In 1995, large populations of cattle in Botswana were affected by an epidemic of Contagious Bovine Pleuropneumonia (CBPP), a highly contagious respiratory disease found in cattle. While the disease has been eradicated in the western hemisphere, CBPP has a death rate of nearly 80 percent in Africa.

grazing for ruminants in semi-arid, sub-humid, humid and highland areas. For arid to semi-arid areas, grazing management practices that use livestock to reverse land degradation may be the way forward. For all livestock species, it is important to investigate the nutritional value of local livestock feed.



JANE HAHN

Harriete Adogo administers de-worming medicine to one of her goats on her farm in Abokobi, Ghana. She also provides basic veterinary services to other farmers in her community.

Livestock Health

Tropical climates are conducive to multiplication of various micro-organisms and pests that cause and transmit livestock diseases. Livestock diseases cause direct economic losses due to mortality and indirect economic losses due to low fertility and low productivity due to slow growth.

Control methods and drugs are already known for most, if not all, diseases. The major challenge in Africa is for public institutions to develop, maintain and run effective disease surveillance and control systems, and the production and supply of adequate veterinary drugs. Privatization of some aspects of veterinary services is an option, though expensive, in combination with rehabilitation of public veterinary services to ensure effective control of major diseases. Some projects have used community volunteers to perform basic services in the absence of

government workers. An opportunity exists to investigate ethno-veterinary methods that are no longer commonly used.

Marketing of Livestock Products

In general, smallholder farmers are widely dispersed and produce in small quantities. Collecting livestock products for processing and marketing under such conditions is costly. Farmers, therefore, need to be organized into marketing groups to reduce collection and transport costs. Such groups are operational in the smallholder dairy production sector in several African countries. A further challenge is poor road networks and transport and marketing infrastructure (e.g., sale and holding pens, slaughter houses) for the smallholder sector. Smallholder farmers, in addition, have a poor understanding of market requirements and produce products that may not be accepted by markets. Pricing policy and marketing restrictions such as dairy regulations, variable and poorly accessible markets and undeveloped markets also deter marketing. Some projects have investigated developing processing infrastructure in rural areas and transporting processed products to markets. This improves rural employment, results in by-products being used locally and reduces transport costs. A great opportunity exists in developing markets for “green” products produced by a large number of smallholder farmers.

Climate Change

Climate change has resulted in extremes in weather patterns. While some countries have benefited from increased rains, others have experienced high temperatures and drought.

Direct effects of climate change on livestock include extreme weather events that contribute to destruction of grazing lands, water availability, drought and floods and productivity losses due to physiological stress owing to temperature increase. Indirect effects of climate change on livestock include agroecological changes, fodder quality and quantity, host-pathogen interactions and disease epidemics.

As smallholder farmers are already resource poor, any extra stress posed by climate change on the environment would reduce productivity.

CONCLUSION

There are social and technical constraints to improved livestock production and productivity in Africa. Technical solutions to most challenges, except for climate change, are already clearly known. What needs solving is the application of technological advances in a way that will suit the smallholder livestock sector. In Sub-Saharan Africa, the large-scale commercial sector has always been small (in terms of numbers) and the smallholder sector is very important. There are policy, strategic and technical issues that need addressing in order to make the livestock sector realize its full potential.

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1. Abusuwar, A.O. and Ahmed, E.O. 2010. *Seasonal variability in nutritive value of ruminant diets under open grazing system in the semi-arid rangeland of Sudan (South Darfur State)*. Agriculture and Biology Journal of North America 1(3): 243-249
 2. Marobela-Raborokgwe C. 2011. *Contagious bovine pleuropneumonia in Botswana: experience with control, eradication, prevention and surveillance*. Veterinaria Italiana 47(4):397-405.
 3. Mpofu, N. 2003. *Comparison of indigenous and foreign cattle for beef production at Matopos Research Station in Zimbabwe*. A case study in "Animal Genetics Training Resource CD-ROM. Version 1." Mwai O. and Malmfors B. (eds) ILRI, (International Livestock Research Institute), Nairobi, Kenya, and SLU (Swedish University of Agricultural Sciences), Uppsala, Sweden ISBN 92-9146-133-4
 4. Mpofu, N., Savory, A. and Butterfield, J. 2011. *Using livestock to reverse desertification/climate change: ACHM experiences*. In: *Mitigation and Adaptation Strategies to Climate Change*. Pages 185-197.
 5. Editors: I. Mapaure, B.J. Mhango & D.K. Mulenga. Published by: Regional Agricultural and Environment Initiatives Network (RAEIN-Africa). Printed by: John Meinert Printing, Windhoek, Namibia. ISBN: 978-99945-72-85-4.
 6. Mupunga, E. G. and Dube, D. M. J. 1993. *Smallholder dairy development programme in resettled and communal areas in Zimbabwe*. In: *Future of livestock industries in East and Southern Africa*. Proceedings of a workshop held at Kadoma Ranch Hotel, Zimbabwe, 20-23 July 1992. ILCA (International Livestock Centre for Africa), Addis Ababa, Ethiopia. 227 pp. Edited by J. A. Kategile and S. Mubi
 7. Thornton, P.K. 2010. *Livestock production: recent trends, future prospects*. Phil. Trans. R. Soc. B 2010 365: 2853-2867
 8. Thornton P. K. and Gerber P. 2010 *Climate change and the growth of the livestock sector in developing countries*. Mitigation Adapt. Strateg. Glob. Change 15:169-184.
 9. Wilson R T, Ehui S and Mack S (eds). 1995. *Livestock Development Strategies for Low Income Countries*. Proceedings of the Joint FAO/ILRI Roundtable on Livestock Development Strategies for Low Income Countries, ILRI, Addis Ababa, Ethiopia, 27 February – 02 March 1995. Food and Agriculture Organisation, International Livestock Research Institute, Nairobi, Kenya.
 10. Winrock International. 1992. *Assessment of animal agriculture in Sub-Saharan Africa*.
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BUILDING ON SUCCESSES IN AFRICAN AGRICULTURE: SMALLHOLDER DAIRY IN KENYA

CONTRIBUTOR

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Dairy production in Kenya has grown at 2.8 percent per year over the past two decades, resulting in per capita production levels that double those found anywhere else on the continent. Kenya's commercial farmers laid the foundation for this growth. They introduced improved dairy breeds in the early 1900s, and, by the 1930s, they had successfully lobbied for a range of government, financial and policy support, including quarantine laws, veterinary laboratories, artificial insemination services and marketing and price controls managed through the Kenya Cooperative Creameries.

Subsequent smallholder growth began slowly in the 1950s and 1960s, spurred by rapidly growing cash incomes in rural areas, which stimulated steadily rising demand for milk. Following the adoption of the Swynnerton Plan for encouraging smallholder production in agriculture, the Kenyan government and donors financed a series of promotional projects supplying veterinary and artificial insemination services, extension support for an intensive zero-grazing production package and support for cooperative development.

Decontrol of milk pricing in 1992 led to a restructuring of production and retailing, resulting in a growing share of raw milk in total sales and greatly improved milk availability in retail outlets. Smallholders have captured a steadily rising share of that market. Recent panel data show that by the year 2000 nearly 70 percent of Kenyan smallholders produced milk and that it had become their fastest growing income source.

IMPACT

Production

More than 600,000 small farmers raise dairy cows in Kenya,

generating per capita milk production double that found in the rest of Africa (see table). Among the small farmers who produce milk, annual net earnings from milk average \$370 per year.

Table 1.

Indicator	Kenya		Ethiopia		Uganda	
	1985	1998	1985	1998	1985	1998
Total milk availability per capita (kg/year)	83.3	85.1	25.6	20.1	25.6	24.2
Total milk availability (000s of MT)	1,656	2,421	1,125	1,170	377	485
% of imports in total milk availability	2.8	0.1	19.7	0.9	6	2
Per capita net imports (kg)	2.4	0.1	5	0.2	1.5	0.5
Total cattle (thousands)	12,727	13,418	28,000	34,514	5,064	5,438
Milking cows (thousands)	3,209	4,494	3,567	4,507	1,013	1,358
% of milking cows	25	33	13	13	20	25
Total cow's milk produced (000s of MT)	1,484	2,277	683	941	355	475
Yield (kg/cow)	462	507	192	209	350	350

Equity

Smallholder farmers operating between one and three dairy cows produce 80 percent of Kenya's milk. When divided into five groups, the poorest fifth of small farmers earns 48 percent of its income from milk sales, whereas the richest fifth earns 28 percent from milk. In spite of decades of formal sector marketing support, informally marketed raw milk accounts for more than 75 percent of marketed sales.

Sustainability

Dairy production remains highly profitable for smallholders. Although recent liberalization has reduced recurrent input subsidies for artificial insemination and veterinary services, market liberalization has simultaneously raised the output prices smallholders receive. The net effect has been to increase smallholder profitability by more than 100 percent. Ecologically, smallholders operate a range of intensification technologies, from purely range-fed systems to zero-grazing, stall-fed regimes. In intensive systems, they recycle manure and fodder between crop and livestock enterprises.

DRIVERS OF CHANGE

Improved Breeds

Widespread introduction of highly productive breeds of dairy cows, or grade cattle, has been the major source of increased productivity in Kenyan dairying. Provision of efficient and affordable reproductive services has therefore remained a central pillar of the country's dairy development strategy. In the early decades following independence, from 1964 to 1987, government heavily subsidized artificial insemination services. Though expensive, this strategy did result in widespread adoption of improved breeds.

Today in Kenya, improved dairy cattle account for 23 percent of the total cattle population and 75 percent of all specialized dairy cattle in eastern and southern Africa. In contrast, improved breeds account for only three percent of dairy cattle in Uganda and less than one percent of total cattle in Ethiopia.

Extension Services Subsidies

In addition to 80 percent subsidy rates on artificial insemination services, the Kenyan government supplied veterinary services and medicines at nominal charges at more than 280 clinical centers across the country. From 1988 on, government gradually withdrew these subsidies to encourage privatization of veterinary services.

Market Policy

From its creation in 1931 until 1992, the Kenya Cooperative Creameries (KCC) tightly controlled milk marketing through a tiered system of quotas and statutorily controlled prices. All other licensed milk processors were denied the right to procure raw milk supplies directly from farmers. Instead, they were required to place an application with the KCC. The government formally declared raw milk sales illegal in urban areas until their decriminalization in 1992.

Since liberalization, raw milk sales have flourished, and continue to dominate milk markets in Kenya. For smallholders, the most important practical effect of liberalization was to introduce competition in milk procurement. Producer prices received by farmers for their milk have nearly doubled since liberalization.

KEY LESSONS FOR BUILDING FUTURE SUCCESSES

Time and experience are key. Kenya has enjoyed 100 years of experience with exotic breeds of dairy cattle, while surrounding countries such as Ethiopia and Uganda have not. The resulting accessibility of improved cross-breeds, well established artificial insemination and veterinary services and marketing infrastructure offer an important springboard on which smallholder farmers have been able to build. Other countries without this historic endowment of dairying expertise and facilities will likely face longer lead times in expanding smallholder dairy production.

Input services are crucial but expensive. Artificial insemination, veterinary and disease control services have been critical ingredients in raising productivity of the Kenyan dairy herd. For two and a half decades, from independence through the late 1980s, smallholders received a subsidy of up to 80 percent on artificial insemination and veterinary services. The gradual withdrawal of these unsustainable subsidies from 1988 onward has led to a shrinking of public services and rapid but geographically uneven growth of private services. In areas that are considered easy to serve, privatization has tended to flourish. Because of this market “skimming,” while smallholders in high-density dairy zones have access to the more expensive private services, smallholders elsewhere do not. Since veterinary services, particularly those related to disease control, constitute public goods, even cash-strapped governments will need to identify ways of maintaining effective disease control while keeping down costs.

Raw milk markets merit greater attention and most promotional resources, in Kenya and elsewhere, have been channeled into promotion of formal milk markets. Yet in Kenya, as elsewhere, raw milk dominates the market, accounting for more than 75 percent of total sales. Given the prevalence of raw milk in total marketed supplies, attempts to facilitate development of this market will merit increasing public attention on efficiency, equity and public health grounds.

The short-term priority is market access for smallholders; the immediate focus of a strategy to promote market-oriented

dairying must be to improve market access for smallholders. One way to do this is to reduce smallholders' travel time to a milk sale point. This step releases time, allowing the household to give more time to other farming activities.

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ONE COW PER FAMILY

Girinka—also known as One Cow per Family, is the government of Rwanda's program that provides livestock, primarily dairy cows, to poor families. The program was introduced in 2006 to accelerate poverty reduction and integrate livestock and crop farming and address high rates of childhood malnutrition. Vulnerable families, including genocide survivors, widows, orphans, people with disabilities and people living with HIV/AIDS receive a dairy cow that enables them to improve their livelihood through provision of a more nutritious and balanced diet from milk, increase agricultural output from improved soil fertility from manure and increase income through the sale of milk and dairy products. Participating families receive in-depth and ongoing training in animal husbandry and are given livestock once adequate forage and (animal) housing are in place and approved. So far, more than 179,000 families have received cows, with an aim to provide 350,000 cows to poor families by 2017. An evaluation found that more than 88 percent of farmers in the program had increased their income through milk sales and growing more vegetables using livestock manure. All the farmers commit to passing on their cow's first-born heifer and new skills to another poor family in the community, thereby multiplying the impact of the program.

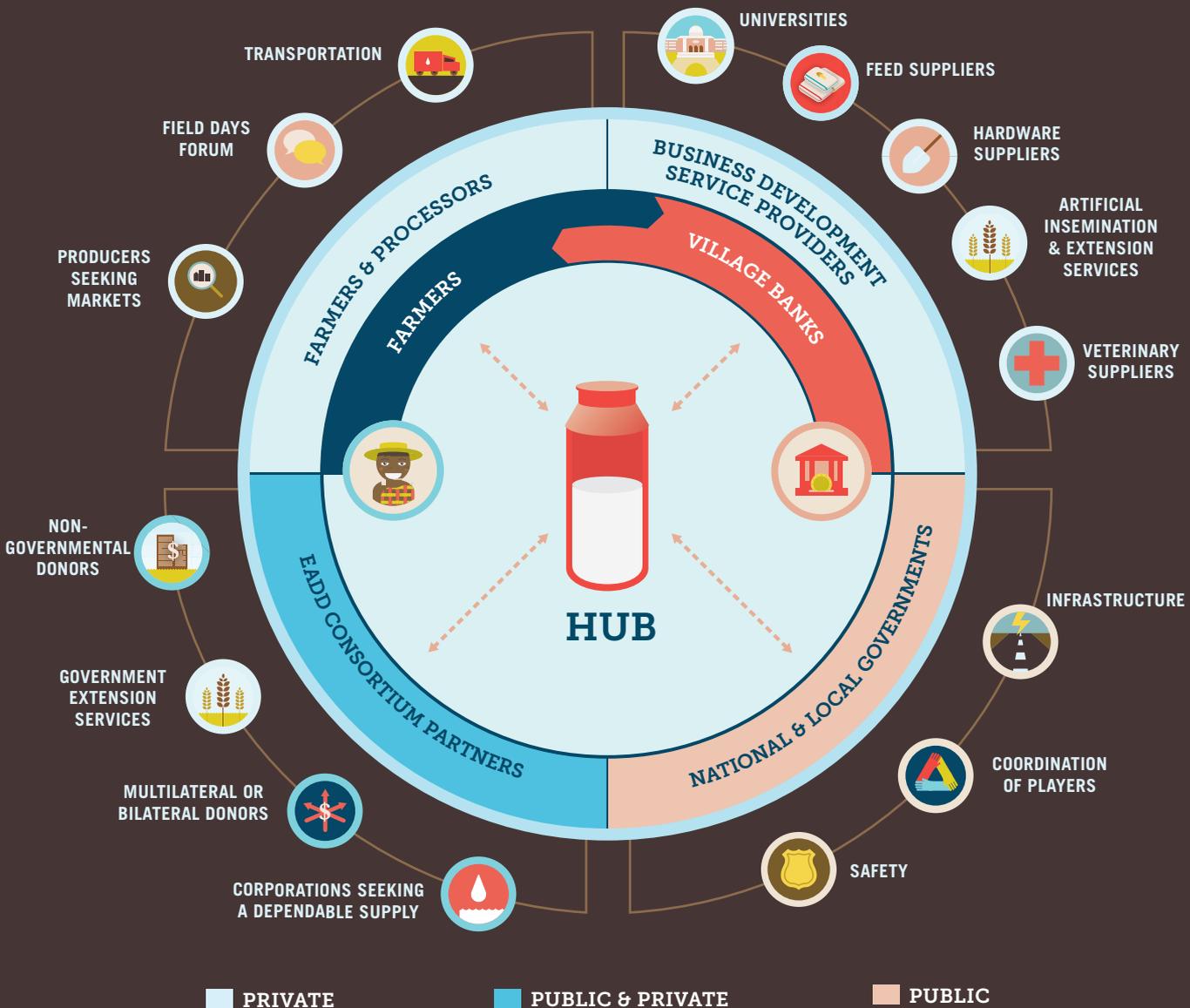
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www.asfg.org.uk/success-stories/the-one-cow-per-poor-family-programme-in-rwanda

EAST AFRICA

DAIRY DEVELOPMENT PROJECT HUB MODEL

SHARING THE WEALTH

Smallholder dairy farmers buy shares in a milk-chilling hub through a regional business association. Through that hub they sell a dependable, quality supply of milk to dairy processors and receive income in return. They also gain access to banks and credit as well as private goods and services they need to sustain and grow their dairy businesses.



Commodity marketing and participation in the value chain is one of the big challenges of smallholder farmers. The African Smallholder Farmers Group (ASFG)¹ outlines measures and processes that are required in order for the smallholder farmers to access and benefit from lucrative markets, and to be active and influential players within the agricultural value chain.

MARKETS AND VALUE CHAINS

INTEGRATION OF SMALLHOLDER FARMERS INTO SUPPLY CHAINS

CONTRIBUTORS

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LOCAL, REGIONAL AND INTERNATIONAL SUPPLY CHAINS

Africa is urbanizing faster than the rest of the world. By 2030, roughly half of the total population is expected to live in cities with a higher concentration in some regions of West Africa. Urban markets are driving the expansion of African supermarkets.² This will bring new opportunities for smallholder farmers, but only if they can meet quality and quantity requirements.

Formal local and regional markets for raw or processed indigenous crops such as cowpeas, sorghum and shea nuts are growing. While these crops can be sold to earn an income, they also provide household food security. They are more resilient to the higher temperatures and lower precipitation brought about by climate change in many parts of Africa than traditional export crops for European markets. Marginalized farmers need market systems for these crops as this will reduce the risk involved in diversifying their production and becoming more market-oriented.

Integrating into local and regional supply chains still impose transaction costs on smallholder farmers similar to those they face when trying to integrate into global supply chains. Even existing market-oriented farmers find it difficult to meet the costs of complying with product and process standards of local firms or to increase their production sufficiently to meet the volume requirements of wholesalers and retailers.³



RUSSELL POWELL

Women play a critical role in Africa's formal and informal markets and are key agents in various value chains.

INTEGRATING MARGINALIZED PRODUCERS INTO SUPPLY CHAINS

Even value chain development programs aiming to link smallholder farmers to supply chains tend to target the relatively better off⁴ and favor men, because women often lack the time or power to engage effectively. To overcome these challenges, ASFG member programs incorporate interventions to address the barriers faced by women. These include:

- Targeting women for leadership and capacity development
- Engaging female extension staff
- Organizing meetings and trainings to fit into the rhythm of women's responsibilities
- Creating specific support groups for women
- Facilitating access to credit and bank accounts for poor women
- Focusing on crops that are primarily cultivated by women

Understanding the roles women already play in their household, farm and community is critical to identifying opportunities to empower them. This requires investment and time before any intervention is designed and implemented. Without this research, an intervention can damage the standing of women and further overburden them.

ROLE OF CIVIL SOCIETY

Civil society organizations, or CSOs, can play a critical role in creating spaces for smallholder producers and buyers to explore opportunities and constraints and develop relationships that will build trust and provide the basis for future collaboration. This role is a temporary one, acting as a facilitator and catalyst, and will differ depending on the context of the producers with which they are working.

CSOs help producers organize into cooperatives, associations or farmer economic groups and build the capacity of these groups. Being part of a producer organization can help smallholder producers lower the risk of upgrading, increase their bargaining power, promote their interests in policy dialogues with relevant institutions and regulating bodies and offer them financial and business support structures. Such support needs to build on the commercial incentives and drivers that motivate producers to cooperate.

MARKET MAPPING

Very poor and marginalized producers will only be able to produce for supply chains and benefit from their involvement if they are able to cope with some level of risk. CSOs can help farmers manage risk through value chain analysis, an approach which helps them to identify barriers faced by women and other marginalized producers and interventions required to integrate them into supply chains.

PARTICIPATORY MARKET SYSTEM DEVELOPMENT

Participatory market system development, used by Practical Action in Guruve, Zimbabwe, brings together farmers, buyers, input suppliers, community-based organizations and government departments in a series of participatory market mapping workshops to identify key opportunities and constraints in the livestock market chain. Through this process farmers were able to negotiate prices and discuss purchasing logistics directly with buyers and have established linkages with veterinary drug suppliers. This led to benefits for about 20,000 farmers with an increase in cattle prices of eight percent and a reduction of 20 percent in the prevalence of livestock diseases.⁵



RUSSELL POWELL

Transporters and official weight milk at the Tanykina Dairy Plant Ltd. in the Kipkaren Salient Village, Kipkaren Division, Nandi County, Rift Valley Province, Kenya.

Intervention in a value chain requires a detailed understanding of the context and system in which it exists. Different contexts and systems will require different intervention strategies. In some cases producers are disadvantaged by poor access to market information, in which case an intervention might focus on developing market information systems with new technology or supporting social arrangements to this end. In other instances the problem might be a lack of bargaining power due to an imbalance between the number, or size, of sellers and buyers—in which case support structures for the formation of producer cooperatives might be an appropriate intervention.

As far as linkages are concerned, CSOs can facilitate access to the different service providers required to enable farmers to produce effectively for the market, such as financial service providers, certification bodies, government or private and voluntary sector providers of technical services such as business skills training or production technologies. They also can link smallholders directly to buyers.

Certification Standards

Given the weak institutional setting in many African countries, CSOs play a valuable role in training smallholder producers to adhere to process and product standards required by supply chains through facilitating training and advocating for certification schemes, or in linking them to service providers.⁷

CONCERN UNIVERSAL IN MALAWI

In Malawi, Concern Universal has enabled 700 smallholders to supply potatoes to a leading potato chip manufacturer, Universal Industries Limited (UIL). As a result, farmers have increased their incomes 20-fold. UIL has provided the farmers with seeds, technical advice and a guaranteed market, and the International Potato Centre has provided training in production methods. Concern Universal has provided producers with leadership and agricultural training and helped them to organize into production groups that are able to negotiate with UIL. Government extension agents also have been involved to reinforce good agronomic practices.

FARM AFRICA IN KENYA

In Kenya, Farm Africa supported farmers close to Nairobi to switch from producing cut flowers and vegetables for export markets to traditional varieties of leafy vegetables, which they sell under contract to local supermarkets in Nairobi. A local NGO, Farm Concern International, helped farmers to negotiate these contracts and ensure farmers to be paid on delivery rather than the normal 60 working days the supermarkets normally take to settle their invoices. Farmers have almost tripled the amount of land under cultivation with indigenous vegetables given that their gross margin per acre is almost five times that of the export crops they grew before.⁶

GARDEN AFRICA IN ZIMBABWE

Garden Africa and its local partners helped to establish and train 32 farmer associations in organic conservation agriculture, and develop a participatory guarantee scheme (PGS) compliance system in line with International Federation of Organic Agriculture Movements (IFOAM) guidelines. Zimbabwean authorities formalized these standards in 2011, and the produce of fully certified associations is being sold to supermarkets and wholesalers in Harare under the Zim-Organic trademark. Associations are receiving prices over three times what they would normally get paid and some associations have already increased their income by five-fold.

CHRISTIAN AID IN GHANA

In Ghana, Christian Aid has supported the establishment of the Ghana Trade and Livelihoods Coalition (GTLC), an umbrella organization of smallholder producers campaigning to influence government policies and private service providers. Farmers are now able to articulate their concerns and demands directly to policy makers and service providers. As a result, they have secured government subsidies for a tomato processing plant and investment in irrigation and roads. Rice farmers have managed to reduce the interest rates they pay to banks by half, and have campaigned through the GTLC to promote the consumption of home grown rice in Ghana, thus increasing demand for their produce.⁸

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- 1 The following ASFG members have contributed to and endorsed this submission: Concern Universal, Tree Aid, Garden Africa, Self Help Africa, Find Your Feet, Christian Aid, Farm Africa, Practical Action, Oxfam UK and Send a Cow. See www.asfg.org.uk for further information.
 - 2 Africa Economic Report, 2009, UNECA, Addis Ababa
 - 3 Concentration in Food Supply and Retail Chains, DFID Agriculture and Natural Resource Team, August 2004
 - 4 USAID Micro Report #180 Pathways out of Poverty. January 2012. http://microlinks.kdid.org/sites/microlinks/files/resource/files/PoP_Tools_Value_Chain_Practitioners.pdf
 - 5 http://practicalaction.org/docs/ia2/promising_practices_pmsd_livestock_zim.pdf
 - 6 Africa's Smallholder Farmers: approaches that work for viable livelihoods, ASFG, London, 2010
 7. Partner Africa is an example of a social enterprise which does ethical audits for major companies to ensure that their own standards or other voluntary standards such as fair trade and rainforest alliance certification standards are met. It also provides capacity building services for smallholder producers. www.partnerafrica.org
 - 8 See www.povertyover.org/foodandagriculture
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Demographics across Africa show that women farmers are by far the majority, making up 70 percent of the rural farmer population. However, a complex interplay of tradition, patriarchy and legal systems has constrained women from full access to productive land, knowledge, skills, appropriate technology, farming inputs and profitable markets for them to fully benefit from their work. In the contributions below, IDRC, ASFG and Landesa explore these issues in respect of livestock, markets and land and suggest gender-specific approaches in smallholder agricultural development in order to meaningfully empower women.

WOMEN FARMERS

WOMEN AND LIVESTOCK: REALITIES, OPPORTUNITIES AND CHALLENGES

CONTRIBUTOR

Jemimah Njuki has worked in gender and agriculture in Africa for more than 15 years. She works at the International Development Research Centre (IDRC).

Livestock provides income, creates employment opportunities and provides food and nutrition security across different production systems and along different value chains. Livestock provide a safety net, helping poor households from falling into poverty and are an easily sold asset when families have to meet emergency or health needs.

Of the 600 million poor livestock keepers, two-thirds are rural women.

Women are major contributors in the agricultural economy, but face various constraints that limit them from achieving optimal livestock production and agricultural development such as limited access to productive resources, including land, water and credit, limited access to market information and market prices and limited decision-making powers because of unequal power relations within the household and the community. Livestock is often one of the large assets that women can easily own and control and has potential to contribute to a reduction in the gender asset gap within households. It is often easier for many women in developing countries to acquire livestock assets, whether through inheritance, markets or collective action processes, than it is for them to purchase land or other physical assets or to control other financial assets. The relative informality of livestock property rights can, however, be disadvantageous to women when their ownership of animals is challenged. Studies in Kenya, Mozambique and Malawi show that livestock are a much more important asset to women than they are to men. For example, in Mozambique, livestock makes up 55 percent of



JAKE LYELL

In smallholder intensive livestock systems, women bear primary responsibility for caring for all the animals.

men's total assets portfolio, and 73.8 percent of women's total assets portfolio.

OWNERSHIP OF LIVESTOCK

Putting assets in the hands of women can increase their bargaining power, their role in household decision-making and household spending on children's education and health. Interventions that increase women's access and rights to livestock, and then safeguard the women from dispossession of their stock from theft or untimely death, help women move out of poverty.

Evidence of the extent of women's ownership of livestock is scant. Studies in Kenya, Mozambique and Tanzania looking at ownership of livestock show women are most likely to own small livestock such as poultry compared to large livestock such as cattle, goats and sheep. Even in households where women own livestock, they are likely to own fewer livestock compared to men. For example, men own 10 times more cattle than women in Kenya and 18 times more in Tanzania. In Mozambique for every one cow owned by a man, a woman owned 0.8.

It is important to note, however, that ownership and rights over livestock are complex and that women may be able to derive benefits from livestock irrespective of whether they own them or

not. This is especially true for cattle where women may have rights and decision-making over the milk even when they do not own the cattle. The concept of ownership also can differ depending on the cultural context as well as the production system. To cope with this complexity, compiling information on the rights that women have over their assets is important. For example, in Kenya, studies found that the majority of women who owned livestock did not feel that they were able to sell even small animals without permission from their husbands, while a majority of men could sell women-owned livestock without their wives' consent. For most women, a desired outcome is to be joint owners of family property and to be able to make decisions on this property.

PARTICIPATION IN LIVESTOCK MARKETS

As livestock production becomes more commercialized, marketing patterns can shift, in many cases, to formal systems such as cooperatives that can lock out women. For instance, among the Fulani community in Nigeria and the Omdurman community in Sudan, men have been attracted by the increasing monetary importance of products, like milk and hide, traditionally controlled by women. Women's role is often then reduced to that of laborers.

Women's participation at each level of the value chain is influenced by a number of factors, including access to capital, skills, capacities, ability to organize and constraints on their mobility.

Anecdotal evidence and some preliminary research indicate that in a livestock value chain, the number of men compared to women—in terms of representation and control—rises with increases in household wealth and value of milk.

Women's participation in marketing of live animals (cattle, sheep and goats) tends to be much lower than their participation in the products market (milk, butter, cheese, ghee, hides and skins). Generally, they have far more rights over these products than they do over the live animals themselves. In some countries, women are more involved in the sale of small livestock compared to large



GEOFF OLIVER BUGBEE

Aida Mwialumpa is a beneficiary of the Tigwirizane Dairy Cattle Project in Tigwirizane, Zambia.

livestock. In Ethiopia, for example, evidence suggests that many pastoral women play a significant role in buying and selling of goats and sheep, but not cattle and camels.

Recent studies in Kenya, Mozambique and Kenya, show that the most common markets for women are farm gate, markets where farmers sell directly to the consumer. In these countries, over 70 percent of livestock sales and livestock products by women were found to be at farmgate to other farmers or to traders. There is evidence that women's participation diminishes as distances between markets and sites of production increase, and the value chain becomes more complex with multiple actors. This could be due to women's time constraints, and the transaction costs involved in selling to outside markets, like transportation, which is seldom owned or controlled by women.

WOMEN'S MANAGEMENT OF INCOME FROM LIVESTOCK AND LIVESTOCK PRODUCTS

It must be noted, however, that livestock trading and products are one of the few opportunities for rural women to earn an income. Women's ability to manage their income is vital to the survival of many households. Income under the management of

women can increase their bargaining power, reduce domestic violence and improve the nutritional status of their children. However, women's greater earning power can have negative consequences, especially if male household spending reduces as women contribute and manage more income.

There is a common perception that women are more likely to own, and therefore benefit more from small stock (chickens, sheep and goats) rather than larger animals (cattle, water buffaloes and camels). While this is sometimes true, studies also have shown that women do sometimes manage income from the sale of livestock products even when they do not own the livestock.

SIX THINGS THAT RESEARCH AND DEVELOPMENT ORGANIZATIONS CAN DO TO OPTIMIZE BENEFITS OF LIVESTOCK FOR WOMEN AND THEIR HOUSEHOLDS

- 1. Conduct gender analysis to understand the specific constraints and opportunities that exist for men and women in the livestock sector.**
- 2. Use gender transformative approaches that broadly address gender and power inequalities.**
- 3. Focus on strategies and approaches that increase women's access to livestock assets.**
- 4. Pay attention to women's constraints in marketing by providing skills and training, increasing access to assets and technologies and applying appropriate legal and institutional mechanisms that can enable women to effectively participate in formal value chains.**
- 5. Promote collective action as this has especially been shown to increase women's access to markets and services, as women can pool labor, resources, assets and even marketable products to overcome gender specific barriers that constrain them from participating in economic activities.**
- 6. Work with men and women.**

FEED THE FUTURE

At USAID's Feed the Future, reaching female farmers is a top priority. Women make up a majority of the agricultural workforce in many developing countries. They are involved in every aspect of agriculture production, from planting seeds to weeding fields to harvesting crops. Yet women farmers are 30 percent less productive than male farmers for one reason: they have access to fewer resources. They certainly work as hard. And they, like farmers everywhere, are at the mercy of nature. But these women have less fertilizer, fewer tools, poorer quality seeds, less access to training and limited land ownership. It is for reasons like these that the United States has focused on women farmers in our Feed the Future Food Security Initiative, which is a centerpiece of the U.S. foreign policy in the Obama administration.

Feed the Future is focused on spurring innovation and finding ways to do more with less and deliver results to people in need. Close the resource gap holding women back in developing economies and we could feed 150 million more people worldwide every year, according to the Food and Agriculture Organization. And that's in addition to the higher incomes for families and the more efficient markets and more agricultural trade that would result. By increasing women's participation in the economy and enhancing their efficiency and productivity, we can bring about competitiveness and growth of our economies.

Njuki, Jemimah. *Women and Livestock: Realities, Opportunities and Challenges*. International Development Research Centre² (IDRC).

Kristjanson, P., Waters-Bayer, A., Johnson, N., Tipilda, A., Njuki, J., Baltenweck, I. et al. (2010) *Livestock and Women's Livelihoods: A Review of the Recent Evidence*. ILRI Discussion Paper No. 20. Nairobi: ILRI.

Waters-Bayer, A. (1985) *Dairying by Settled Fulani Women in Central Nigeria and Some Implications for Dairy Development*. ODI Pastoral Development Network Paper 20c. London: Overseas Development Institute.

AN UNEXPECTED ROLE REVERSAL

CONTRIBUTOR
Heifer International

Prior to the roll out of the Project for the Enhancement of Livelihoods in Northern Brong Ahafo (PENLILOBA), gender inequalities were so entrenched in this area of Ghana that mere discussion of gender issues in public by women was considered taboo. However, three years into the project, it is not only possible to discuss gender inequities publicly but men now undertake tasks that were once considered to be the responsibility of women.



Agya Yaw takes a walk with his granddaughter.

HEIFER INTERNATIONAL

Yaw Sarpong, a resident of the Koforidua community who is affectionately referred to as Agya Yaw, is a 70 year-old widower who lives with his daughter. Following the numerous public discussions on the need for equitable distribution of household chores amongst male and female household members in neighboring Heifer project communities, Agya Yaw noticed a marked attitude and behavioral change.

During a routine monitoring visit by the project's field staff, Agya Yaw was spotted carrying a baby on his back, a practice that defied the "norms" in that community. When he was questioned on what had prompted his action, he said "I had taken notice of changes in the attitudes and behaviors of some members of the Bonsu community (a project community). Men were assisting their wives in chores, which were believed to be women's chores."

Agya Yaw, who is not involved in a Heifer project, asked why these men were doing women's work. He was told there was an NGO (Heifer) working with some groups in the community that sensitized the people on the need for equitable distribution of household roles.

"Today, I feel very happy that my granddaughter has become so fond of me that she readily stays with me, which allows her mother to engage in her domestic chores without disruptions," says Yaw. "My satisfaction is even greater when I see other men in my community now helping their wives in different ways. I am so excited to be associated with the behavioral changes that are taking place in my community because of that step that I took."

By doing "little things" with resource-poor project communities, Heifer's work is inspiring changes and breaking age-old gender barriers.

SECRETARY OF STATE CLINTON GOES THE DISTANCE FOR WOMEN

CONTRIBUTOR

An interview with *World Ark*, the magazine of Heifer International.

Since taking the oath of office in January 2009, to this interview in 2012, U.S. Secretary of State Hillary Rodham Clinton has flown almost 900,000 miles and visited 102 countries and counting. In that time, Clinton visited with rebel leaders in Libya, supported rebuilding work in Afghanistan and addressed issues from religious freedom to climate change and human trafficking. She has focused her work on improving the lives of women and children since her days as Arkansas' first lady. The nation's former top diplomat is one of history's most notable champions for women. To achieve world peace and security, she says, women are the key.

WORLD ARK: What inspired you to make the historic “Women’s Rights are Human Rights” speech in Beijing at the 1995 United Nations Conference on Women as first lady? And what changes have you seen in the world since then?

HILLARY RODHAM CLINTON: I vividly remember 17 years ago when delegates from 189 countries met in Beijing for the Fourth World Conference on Women. It was a call to action—a call to the global community to work for the laws, reforms and social changes necessary to ensure that women and girls everywhere finally have the opportunities they deserve to fulfill their own God-given potentials.

In my travels all over the world, I’ve met women for whom higher education is a distant dream. They have the talent, they have the drive, but they don’t have the money. I’ve met mothers trapped in abusive relationships desperate to escape with their children, but with no means of support. I’ve met too many women who cannot afford necessary healthcare for themselves and their children.

We know that investing in women’s employment, health and education levels leads to greater economic growth across a broad spectrum. It also leads to healthier children and a better educated population overall. We know that political systems that are open to full participation by women produce more effective institutions and more representative governments.

In South Africa, women living in shantytowns came together to build a housing development outside Cape Town all on their own, brick by brick. And today, their community has grown to more than 50,000 homes for low-income families, most of them female-headed.



THE ASSOCIATED PRESS

Secretary Clinton meets with Liberian President Ellen Johnson Sirleaf, the first woman to head an African nation, in 2009 in Monrovia.

In Liberia, a group of church women began a prayer movement to stop their country's brutal civil war. It grew to include thousands of women who helped force the two sides to negotiate a peace agreement. And then those women helped elect Ellen Johnson Sirleaf president, the first woman to lead an African nation.

In the United States, a young woman had an idea for a website where anyone could help a small business on the other side of the world get off the ground. And today, the organization she co-founded, Kiva, has given more than \$120 million in microloans to entrepreneurs in developing countries, 80 percent of them women.

These are the stories of what women around the world do every day to confront injustice, to solve crises, propel economies, improve living conditions and promote peace. Women have shown time and again that they will seize opportunities to improve their own and their families' lives. And even when it seems that no opportunity exists, they still find a way. Thanks to the hard work and persistence of women and men, we have made real gains toward meeting the goals set in Beijing so many years ago.

You and President Barack Obama made the advancement of women's rights a cornerstone of U.S. foreign policy. How does empowering women globally help the United States achieve its foreign policy goals?

From Northern Ireland to Liberia to Nepal and many places in between, we have seen that when women participate in peace processes, they focus discussion on issues like human rights, justice, national reconciliation and economic renewal that are critical to making peace, but often are overlooked in formal negotiations. They build coalitions across ethnic and sectarian lines, and they speak up for other marginalized groups. They act as mediators and help to foster compromise. And when women organize in large numbers, they galvanize opinion and help change the course of history.

That is why President Obama signed an executive order launching the first-ever U.S. National Action Plan on Women, Peace and Security, a comprehensive roadmap for accelerating and institutionalizing efforts across the United States government to advance women's participation in making and keeping peace. This plan builds on the president's national security strategy, and the departments of State and Defense, USAID and others jointly developed it with guidance from the White House.

You've said development work is just as imperative as defense and diplomacy. Why is alleviating hunger and poverty in the world key to establishing peace and economic stability?

Food security is fundamental to human security. Scarce food resources can lead to panic buying, countries disrupting or even stopping their food trades and spikes in the price of food. That then can lead to public unrest or violent protests. When nations make competing claims for fertile fields or sources of water, it can also undermine regional stability. But when we strengthen food security and enhance cooperation at the local, national and regional levels, we create a stronger base for our efforts to promote human development, dignity and security worldwide.

Reaching female farmers is a top priority for USAID's Feed the Future. How does USAID incorporate that priority into its projects?

Women make up the majority of the agricultural workforce in many developing countries. They're involved in every aspect of agricultural production, from planting seeds to weeding fields to harvesting crops. Yet women farmers are 30 percent less productive than male farmers for one reason: They have access to fewer resources. They certainly work as hard. And they, like farmers everywhere, are at the mercy of nature. But these women have less fertilizer, fewer tools, poorer quality seeds, less access to training and limited land ownership. It is for reasons like these that the United States has focused on women farmers in our Feed the Future Food Security Initiative, which is a centerpiece of U.S. foreign policy in the Obama administration.

When did you create your International Fund for Women and Girls and why?

The International Fund for Women and Girls was established in April of 2010 in order

to provide flexible, rapid, targeted and high-impact grants to nongovernmental organizations working to meet the critical needs of women and girls around the world. It was established with the realization that no one, not the government, not the private sector, not civil society can solve the problems facing women and girls alone. What we've done is to try to bring people together in these public-private partnership networks. The fund invests in efficient and innovative solutions to combat violence, improve health and education, promote climate change solutions and create economic and political opportunities for women and girls. The fund allows organizations to move quickly and effectively to address new challenges and advance creative ideas through flexible grants and rapid funding. It prioritizes investments in women and girls that enhance local ownership, community engagement and capacity building.

How do you explain the importance of women's rights to leaders of countries where empowering women is a foreign concept that contradicts centuries of tradition?

One aspect of peacemaking that too often goes overlooked is the role of women in ending conflict and building lasting security.

They know when communities are fraying and when citizens fear for their safety. Studies suggest that women's physical security and higher levels of gender equality correlate with security and peacefulness of entire countries. But political leaders too often overlook women's knowledge and experience until it's too late to stop violence from spiraling out of control.

We need to move the discussion off the margins and into the center of the global debate, and we frankly have to appeal to the self-interest of all people, men as well as women. Because including more women in peacemaking is not just the right thing to do, it's also the smart thing to do. This is about our own national security and the security of people everywhere. I remember when I was in Africa as first lady and I commented on all the work that was being done by women. Someone told me that it "didn't count." But the truth is, if women stopped working, economies would collapse. And if women are allowed to realize their potential, economies and countries have the chance to become even stronger and more prosperous.

You've been quoted as saying, "The question is not whether we can end hunger, it's whether we will." With global populations rising, do you think we will see the end of hunger?

Nearly a billion people already go to bed hungry every night. By the year 2050, the global population is estimated to reach 9 billion. And according to the latest Food and Agriculture Organization estimates, the world will need to produce 60 percent

more food than we do today to feed everyone. Making sure people get enough nutritious food is fundamentally a human, moral concern and this work cannot be only the work of scientists and agronomists. It takes political will and leadership at every level. It takes private investors who see the long-term benefits to this.

THE IMPORTANCE OF LAND RIGHTS FOR FEMALE SMALLHOLDERS

CONTRIBUTOR

Landesa is an organization that works to secure land rights for the world poorest families. It is based in Seattle, Washington.

Jacqueline Okello¹ and her eight children had survived Uganda's decades-long civil war, life in an internally-displaced person (IDP) camp, and the death of her husband. After all of the adversity, one major hurdle remained: her late husband's brothers wanted the land she lived on and farmed.

To make their intentions clear, they blocked her livestock's route to the river; they encroached on her land; and they harassed her. They demanded that she move to a less productive family plot.

Jacqueline appealed to the clan leaders, but they ignored her request.

Jacqueline's situation is not unusual. By custom, African women generally access land through men—first fathers, then husbands or brothers. Women and the households they support risk losing their primary source of food, income, and shelter should they lose their only link to the land they till: husbands, fathers, or brothers taken by death or illness, violence, migration or marital problems. Typically, the world over, women's rights to own, inherit, and access land is dictated by a web of traditions, personal relations and formal law.

Women's insecure rights to their most important asset—land—impacts them, their families, and their communities in important ways.

In agrarian societies, land is the most important asset. Land rights can determine access to opportunities like agricultural extension services or contract farming, access to housing, credit, economic and nutritional security through crop diversification and economic safety. In many societies, land rights are also an indicator of status, affecting social and political standing within the community. This in turn can impact access to social and government services, and inter- and intra-household decision-making.

Women comprise on average 43 percent of the agricultural labor force in developing countries, and 50 percent in parts of Africa and Asia (FAO, 2011). They generally farm land to which they do not have secure rights. The plots they farm are smaller in size and poorer in quality than men's plots. And they farm this land with fewer resources at their disposal. They do not have the same access to agricultural inputs,

information, or even labor. In fact, if women had the same access to productive resources—not even including land—as men, they could increase yields on their farms by 20-30 percent increasing total agricultural output by 2.5-4 percent.

These insecure rights to land impact more than agricultural production alone. With insecure rights to land, women have a short-term planning horizon. They often will not let land lie fallow, even though it would improve soil quality. This is simply because they are not certain they have rights to use the land for more than one season and unused land is more easily taken by others. As a result, women are also much less likely than men to adopt labor-intensive conservation techniques or invest expensive new seed strains or new technology which takes time and effort to learn.

Studies around the world have demonstrated that when women have secure rights to their land:

- › Family nutrition and health improves
- › Food security and diversity of diet improves
- › Women’s agricultural productivity increases
- › Women may be less likely to be victims of domestic violence
- › Children are more likely to receive an education and stay in school longer
- › Women may have better access to micro-credit
- › Women’s participation in household decision-making increases

There is growing awareness that to achieve food security and reduce poverty, governments and the development community need to address the many barriers to women’s secure land rights. To ensure women’s secure rights to land, it is essential not only to address formal, legal rights, but also to take action to make those rights real for women in their daily lives.

A woman’s land rights are secure if:

- › They are legally and socially legitimate
- › They are unaffected by changes in her family, community or social status
- › They are granted for an extended period of time
- › They are enforceable
- › Her ability to exercise them does not require an additional layer of approval that only applies to women

Having laws, policies, and regulations that support women’s right to land is, while

an important milestone, only half the battle. Poor implementation or enforcement of laws, ignorance of the law, social pressures, customs, and women's limited resources can all conspire to ensure that women cannot exercise their right to access, own or inherit land.

What's more, in most of the developing world, smallholder farms are in rural areas where custom, rather than formal, law dominates.

Despite the significant challenges facing women and their families, there are a variety of promising efforts underway around the world that are changing not just the letter of the law when it comes to women's land rights, but also ensuring that women and their families can experience the benefits of more secure land rights:

- › Encourage gender-sensitive laws and regulations; for example, in 2010, Kenya adopted a new constitution that for the first time protected women's rights to own and inherit family land and resources.
 - › This legal change sparked a second wave of interventions aimed at making women's new legal rights real, such as the USAID-funded Kenya Justice Project in partnership with Landesa. This project trained women and tribal elders in women's land rights. Elders have become champions of women's rights and women have subsequently been elected to the tribal council and are enjoying greater control over family resources including land.
 - › Educate girls to position them to enjoy land rights as women and build support for them within their community. In India, a partnership between the state of West Bengal and Landesa has helped more than 40,000 girls learn about their rights to land and learn land-based livelihood skills. The girls are staying in school longer, marrying later and are more likely to have an asset.
 - › Gender sensitive implementation guidelines; for example, Namibia's Communal Land Reform Act implementation regulations require the name of the applicant (or the person applying for rights to communal land) and the name of the applicant's spouse on the form.
 - › Ensure that land laws supporting women's rights are not undermined by other laws, such as family and inheritance laws; for example, in Lesotho, until recently, married women were considered minors and therefore not legally permitted to make certain decisions about property.
 - › Support awareness of legal rights among women, local customary institutions, and formal legal institutions; in Odisha, India, women's support centers have helped women to apply for government anti-poverty and land ownership programs. Previously, the women were not aware of the programs and didn't know how to access them. Local officials were not supportive of women's applications, instead assuming that all applicants should be male-headed households.
-

The pilot program, designed by Landesa, started with women and works with women, their communities, and community-based facilitators to identify and understand the barriers to women's land rights, and to help women develop locally appropriate strategies for overcoming those barriers.

The project focused on engaging women in the designated communities (both in the group and individual settings) as well as the local and cultural leaders. Women and men held community conversations which focused on land rights upon marriage, divorce, and death of a spouse, and on land dispute resolution processes in their traditional system. Groups clarified pathways for resolving disputes under the formal and customary systems (i.e., what were the institutions that could be contacted to resolve disputes), provided training and information on land rights provisions under customary and statutory laws, and discussed norms and practices that inhibit women's rights with participants, their husbands, partners, and extended families, as well as local leaders, to address those barriers.

Results from the project are promising; women saw:

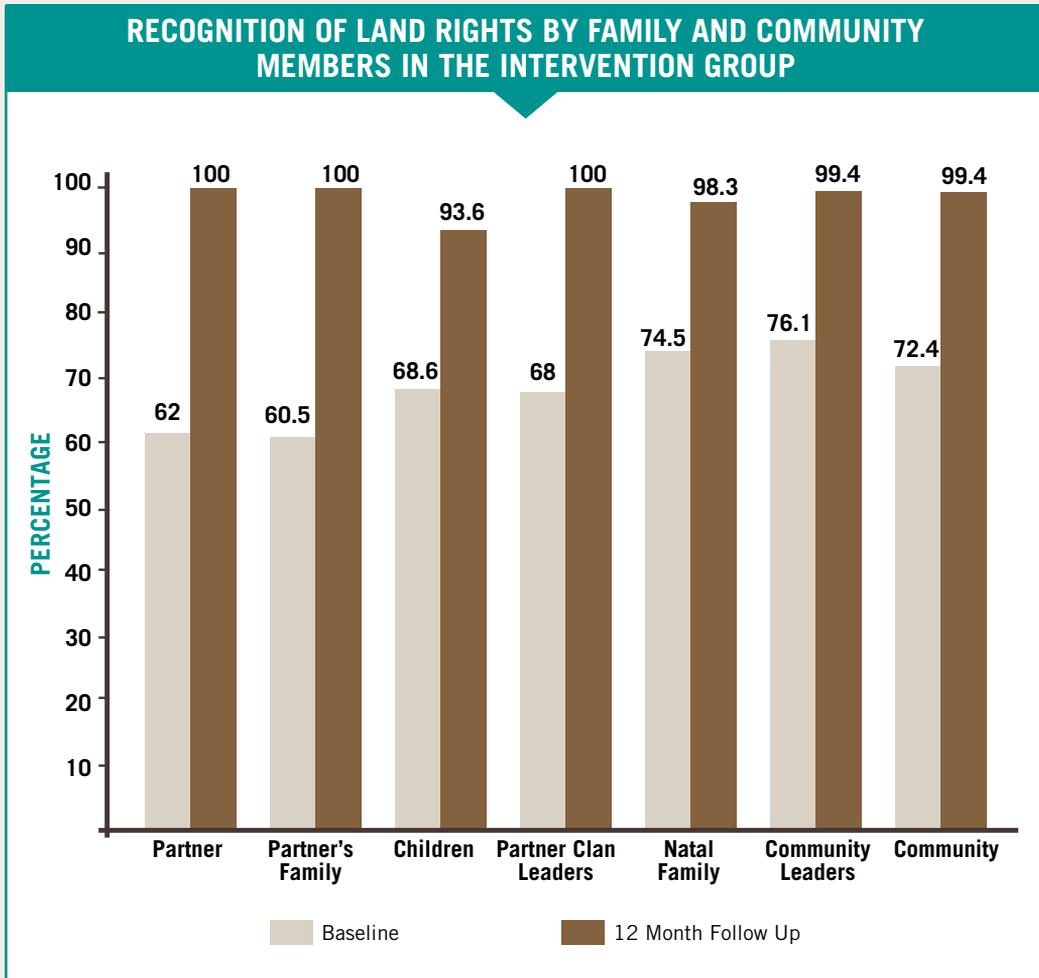
- › An increase in the legitimacy of women's land rights in target area
- › A decrease in vulnerability to losing land rights because of changes in family structure in the target area
- › An increase in women's confidence in the ability to enforce their rights among target women
- › An increase in women's ability to exercise their rights to land (as evidenced by their influence over their family's decision-making)

Also, based on the baseline information, 32.5 percent of respondents saw an increase in amount of land they regularly use with an average of 3.0 more acres available to them through renting, borrowing, or reallocation of a husband's or partner's land. As a result of the project, Jacqueline understood her legal rights to the land. Through one of the project's facilitators, she was able to work with her husband's family to gain more secure rights to land and keep the livestock she owned. Once the community and family understood that she had a right to the land she once farmed with her husband, they worked together on a solution.

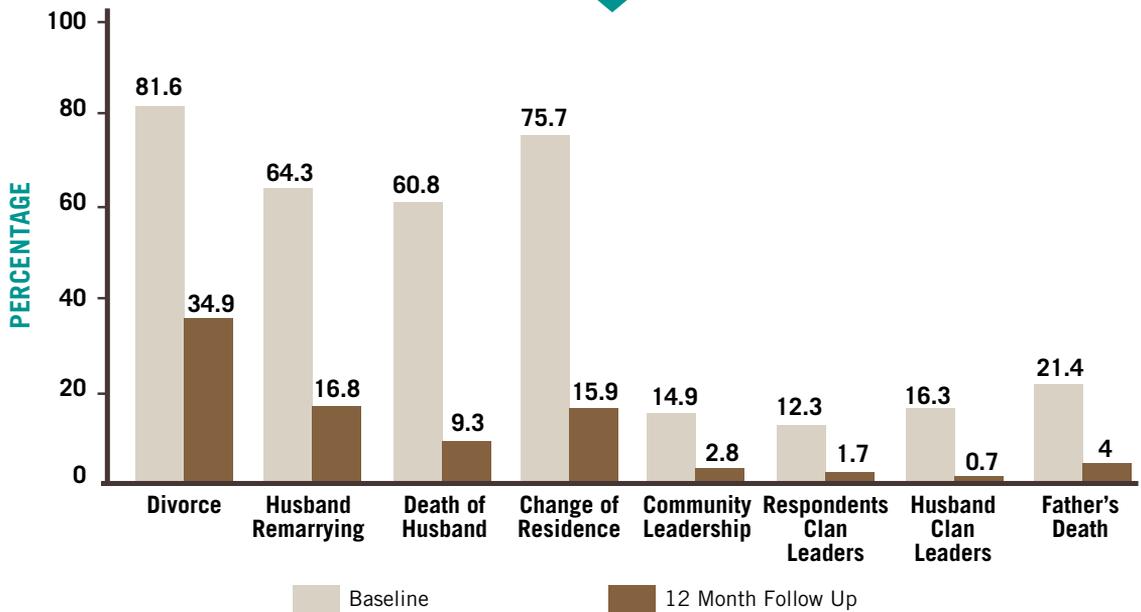
Stories like Jacqueline's are common through much of the developing world. Female smallholders must have information and access to justice systems to ensure that they are able to exercise their land rights within their country and also within the social structure in which they live. Once female smallholder farmers have secure land rights, they can make lasting impact upon their households, communities and

countries through increased incomes, better education and better nutrition.

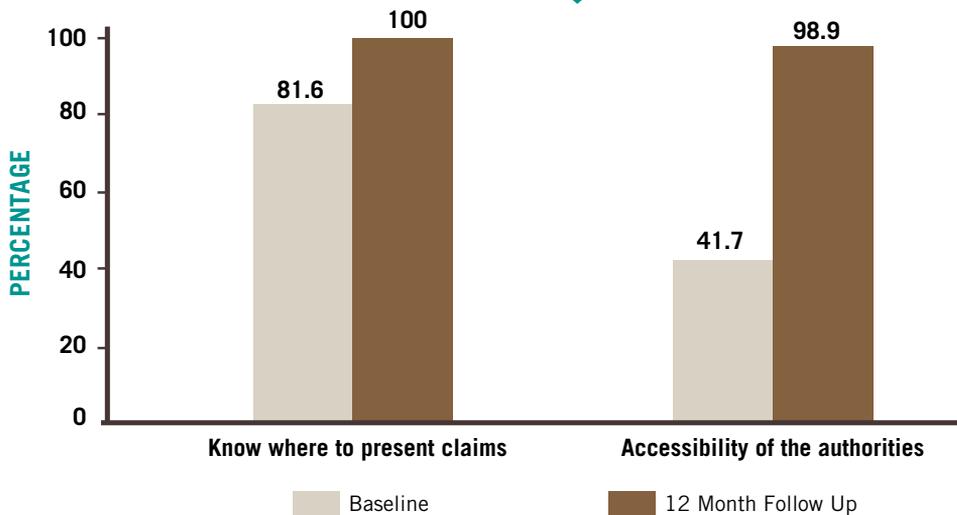
1 Her name has been changed to protect her privacy.



WOMEN'S VULNERABILITY TO LOSING ACCESS TO LAND DUE TO CHANGES IN THEIR FAMILIES OR COMMUNITIES



KNOWLEDGE OF WHERE TO PRESENT LAND RIGHTS CLAIMS



Rural infrastructure is fundamental to both production and productivity and market access and income generation. The FAO Round Table report outlines the challenges and possibilities in infrastructure development and the roles to be played by various stakeholders.

INFRASTRUCTURE

INVESTING IN MARKET-ORIENTED AGRICULTURAL INFRASTRUCTURE IN AFRICA: SUMMARY OF THE PROCEEDINGS OF A ROUNDTABLE MEETING

CONTRIBUTOR

Food and Agriculture Organization of the United Nations

The views expressed in this publication are those of the author(s) and do not necessarily reflect the views of policies of the Food and Agriculture Organization of the United Nations.

INTRODUCTION

The overall level of agricultural infrastructure development in most countries in Sub-Saharan Africa is lower than in other regions of the world and is one of the greatest constraints to increasing agricultural production. Infrastructure development is identified as a pillar of economic development under the Comprehensive Africa Agriculture Development Programme (CAADP). Development partners such as Africa Development Bank are paying increased attention to financing the necessary infrastructure for the development of the agro-industries sector. At the same time, and as agreed at the Maputo Summit in 2003, there is growing realization that ways must be found to increase the flow of private sector resources to augment public spending in the agricultural sector.



GEOFF OLIVER BUGBEE

A busy street in Uganda.

Of particular significance is investment in infrastructure at, or close to, farms, as well as in villages and towns where small- and medium-scale agro-industries are located. This represents the all-important link between rural communities and large-scale infrastructure developments and is a critical element of rural development and poverty eradication programs in sub-Saharan Africa. It connects production and input/output markets, thus reducing the risks of investment in agricultural development and providing greater security for producers. However, investment in market-oriented infrastructure is still not receiving adequate attention and priority in many development programs.

MAIN ISSUES

Facilitating Policies, Institutions and Regulations

It is essential that governments recognize the importance of market-oriented infrastructure and investment and prioritize and target it at all levels as well as for inclusion in budgets. Resources from donors and development partners should be mobilized accordingly. Harmonization and coordination of the implementation of government policy must be strengthened across relevant ministries and institutions, as well as with stakeholders, including donors and development partners. It will be necessary to establish appropriate regulatory mechanisms and ensure that all stakeholders are aware of them. The roles and responsibilities of the different actors must be clarified and clear rules of the procedure, provided.

Multi-sector planning will be needed, with the focus on market-oriented infrastructure and the involvement of all relevant stakeholders in order to build on synergy and complements. Any political bias in the planning and implementation of development programs involving market-oriented infrastructure should be restricted.

Direct Public Sector Investment Programs and Financial Support

Governments should increase direct investment in basic market-oriented infrastructure for the public good, such as water, marketplace infrastructure and rural roads. The issue is that the private sector is unlikely to invest in areas requiring heavy investment, where it is difficult to make direct charges and

where quick returns may not be guaranteed. Direct investment is needed in support services such as telecommunications, rural electrification, rural finance, health care and security, all of which help to establish an environment conducive to business. Rural finance and credit facilities at reasonable interest rates need to be made available to encourage and enable small farmers and businesses to borrow and invest. Development of institutional capacity in rural areas is needed to sustain the growth of social capital for farmers' organizations and marketers.

Incentives for Private Sector Investment

While the physical infrastructure should be set up by the public sector, the operational aspects and business issues should be left to the private sector, which is more able to manage and operate efficient public amenities such as markets and water facilities while charging affordable user fees. Credit and market guarantees and tax relief should be provided for private businesses to borrow and invest in market-oriented infrastructure, given that the recovery period for such investment might be long term. There could be co-financing between government and local authorities and the private sector via a shareholder arrangement. The question is whether the private company has a majority shareholding in order to make timely business decisions, but with the government ensuring equity of service provision. The procurement and acquisition of land by government would be allocated as the share capital to private businesses intending to invest in market-oriented infrastructure, combined with subsidies for construction materials and equipment.

Public-Private Models as a Means of Investment

The government builds, owns and maintains the infrastructure but then contracts the private sector to provide the utility services for it. For example, this could apply to rural roads, where the government builds and owns the roads but the private sector tractor service providers are contracted for maintenance and general transport tasks. Appropriate regulatory mechanisms should be provided to ensure quality standards and protect the public from exploitation by companies adopting unscrupulous business practices.

ROUNDTABLE RECOMMENDATIONS AND PRIORITY ACTIONS

Investment: Linking Infrastructure Development with Agricultural Development

Investment in the rural infrastructure value chain (storage, processing and marketing) should not be concentrated on individual aspects, but rather on the integration of all individual components for maximum utilization of infrastructure. Failure to do so may result in inefficient investment and possible financial losses.

For example, in order to maximize returns from investment in water management infrastructure, it also may be necessary to invest in the development of other infrastructures such as storage, rural electrification, telecommunications and roads. Inputs from different sectors such as water, power, processing, markets and roads may be bundled to create a “bankable” project that is sufficiently large to be economically viable and attract private sector investment. It may be efficient and necessary to link this investment with general agricultural development activities such as production-enhancing technologies as these are likely to increase input/output market access demand and associated infrastructure.

Investment in market-oriented agriculture also could be stimulated by having agricultural finance institutions improve access of private entrepreneurs to loans with favorable terms. Hence the need for a frontal approach, preferably led by the planning ministry, in planning and implementing different components of agricultural value chains and promotion of agriculture as a business. Central and local governments should create an appropriately enabling and locally empowering policy and regulatory framework, with local players such as farmers, traders and communities able to make decisions on local infrastructure development issues.

Development of Public-Private Partnerships

Public-private partnerships (PPPs) should be developed to enhance infrastructure investment in water management, storage facilities, marketplaces and rural roads. Successful PPPs will require the establishment of appropriate policies,

and institutional and regulatory frameworks such as provision of land and investment support through loan guarantees, tax holidays, tax relief, concessionary packages, bundled investments, subsidies and performance-based contracts. These should include legal safeguards for private sector investment. Governments may consider investing in major infrastructure and having the private sector operate on a cost-recovery basis. Business models like contract farming should integrate provision, management and maintenance of infrastructure, with communities and community-based organizations being encouraged and empowered to participate in infrastructure development and management. This creates both ownership and employment in rural areas.

Capacity Building and Institutional Strengthening

Capacity building and institutional strengthening will accelerate investment in market-oriented infrastructure and necessitate the coordination of all ministries concerned with development, planning and administration of marketplace infrastructures—agriculture, land, trade, cooperatives and local governments and councils. Governments and donors should strengthen national capacities to integrate the planning and implementation of agricultural interventions that go beyond merely increasing production, but include market-oriented infrastructure at community, district, regional and national levels, forming the basis for prioritization and budgetary allocation at all levels. Ministries of Agriculture, for example, will need to develop new capacities to deal with emerging constraints in the agricultural value chain in a market-oriented agricultural system. Key agricultural planners will need to be exposed to marketplace dynamics in order to recognize the essential role of a comprehensive, functioning market infrastructure.

Governments and donors also should train and empower local service users and providers in the management and maintenance of market-oriented infrastructure effectively. These measures should be complemented by robust stakeholder organizations (producers, marketers, processors, service providers and consumers) which should become mechanisms for enforcing accountability, demand articulation and advocacy, and be able to lobby, advocate and create awareness among decision-makers and policy-makers at all levels.

Maximizing the Benefits Arising from Increased Investment in Infrastructure

The establishment of market-oriented infrastructure has a revolutionizing impact in that it increases choices on the establishment and development of high-value farm enterprises and off-farm agribusiness. Good utilization and maintenance of this infrastructure should result in sustainable linkages between input and output markets. Full and maximum utilization of existing and new infrastructure should be fostered in order to increase returns on investment. Support infrastructure and services such as rural finance services, telecommunications, domestic water supply, sanitation and health care need to be provided in order to encourage the emergence and expansion of rural centers and increase opportunities for rural employment. Government policies should ensure that there is always fair competition in the pricing of goods and services.

SPECIFIC ACTIONS

Agricultural Water Management Infrastructure

The aim should be to maximize the productivity of water use through optimizing benefits obtained from investment in existing and future agricultural water management (AWM) infrastructure. Schemes that are economically valid should be rehabilitated and supporting infrastructure like roads, electrification and markets put in place. Farmer organizations



OLIVIER ASSELIN

The lack of access to water is a significant handicap to agricultural development, forcing a dependence on rain-fed agriculture.

and water user associations should be promoted and strengthened as well as links to operation and maintenance organizations. The establishment of an African Water Academy should ultimately be pursued.



GEOFF OLIVER BUGBEE

Infrastructure such as milk cooling tanks have been critical to extending the market reach of perishable products like milk.

Storage Infrastructure

Building storage facilities enhances market opportunities. However, these facilities ought to be carefully and appropriately planned, both in terms of spatial distribution as well as in technical design. This will ensure maximum and properly effective utilization. These can be built on a basis of build-operate-own, or, build-operate-transfer, depending on the country. Post-harvest handling training at farmer level will be required. Storage operators also will require training in storage technology and practices in order to attain high quality products.

Market Infrastructure

Maximum benefits can be derived from market infrastructure through rational utilization by having well-managed maintenance and rehabilitation programs that comply with safety and hygiene standards. Access by roads, mobile phone and Internet is important and calls for an integrated planning approach.



RUSSELL POWELL

Poor road conditions make geographic access to market a challenge for rural producers and increase post-harvest losses.

Rural Roads

In order to maximize benefits from existing and future investments, it is essential for rural road networks to be linked to the main road networks and for both routine and any major maintenance to be carried out at appropriate intervals. Low-cost, but effective repair methods are to be used in road repair and maintenance. Road access may be restricted for heavy load vehicles that are likely to cause damage. Local and community-based contractors and groups are to be given priority when awarding contracts for feeder road repairs. At district level, performance-based contracts may be given. Local authorities should have capacity to keep an up-to-date database of their roads and their current conditions. At the community level, training will be needed to raise awareness of basic road maintenance techniques.

Africa has an overwhelmingly young population. However, Africa's young people do not choose agriculture as a profession. This has serious implications for the future of Africa's agriculture. Mpule Kwelagobe examines this challenge and suggests a broad partnership of targeted transformative training, and modernization of agriculture, to create appeal for long-term agricultural sustainability.

YOUTH

HARNESSING THE YOUTH DIVIDEND FOR AFRICA'S AGRICULTURAL TRANSFORMATION

CONTRIBUTOR

Mpule K. Kwelagobe is the founder and CEO of the Institute for Endogenous Development, a Pan-African think tank that researches agriculture, agribusiness and agro-industries development, champions inclusive economic growth and works to advance gender equality and youth empowerment in Africa's agricultural development.

Africa's population is currently estimated to be 1.1 billion people, 60 percent of whom are young people under the age of 35. Sub-Saharan Africa has the youngest and fastest growing population in the world. The region is home to almost 200 million youth, ages 15 to 24, who constitute more than 20 percent of the population. Young people represent Africa's best development asset and also its greatest challenge. The urgent need to unlock productive employment opportunities for this youth demographic is one of the continent's major challenges.

Across Sub-Saharan Africa, a disconcerting majority of youth face high unemployment and underemployment. Africa is struggling to create necessary jobs needed to absorb millions of young people entering labor markets every year. Many African youth lack the relevant education, skills and job experience, and access to capital, assets and other empowerment opportunities to fully develop and realize their potential. This situation is even more pronounced among rural youth.

Africa's agricultural sector has the potential to generate immediate solutions to the problems of youth unemployment, especially through development of sustainable agricultural value chains. Agriculture is the backbone of Africa's economy. About 70 percent of Africans—and roughly 80 percent of the continent's poor—live in rural areas and depend on agriculture for their livelihood. According to the World Bank, the value of food on domestic markets in Africa will be worth \$1 trillion by 2030. Modern agricultural value chain development coupled



JAKE LYELL

Recent evidence suggests that youth disinterest in agriculture is heavily influenced by their parents who encourage them to pursue other professions.

with the changing dynamics of agri-food markets offer new opportunities for creation of high-quality jobs.

In the decades to come, agriculture will be the most promising sector of decent employment and entrepreneurship opportunities for young people. African youth can contribute to economic growth and poverty by playing a critical role in agriculture and rural development. Since the majority of rural poor depend directly on agriculture for their livelihoods, education and vocational training programs will be critical to unlocking young people's potential. The enormous challenges among this demographic are causing mass migrations.

Young Africans are reluctant to pursue agriculture-based livelihoods and often do not consider agricultural employment as a viable career. They consider many agricultural jobs to be seasonal. Underemployment and precarious employment are also prevalent in the sector. Additionally, the fact that Africa's farmers constitute the poorest, most hunger-prone populations makes agriculture unattractive to youth. In this light, large numbers of rural young people are leaving farms, opting instead to migrate to urban areas in search of better livelihood opportunities.

Young people are turning away from agriculture due to the poor economic returns resulting from low productivity of smallholder farms. Lack of access to inputs for production, especially land and credit, also constitute a major challenge.

A report by the World Bank revealed that agriculture education and training is often mismatched with labor market demand in terms of knowledge, practical competencies, basic management and problem solving.

Access to capital and credit is a chronic problem for smallholders in general, but the problem is magnified for young people. Youth are often considered farm laborers or unpaid family farm workers, instead of as capable farmers and agro-entrepreneurs. Land tenure security and financial access are critical factors to arresting rural youth migration and attracting Africa's young people to the agriculture sector.

African agriculture is currently dominated by elderly farmers, posing a serious challenge for the future of agriculture, food security and poverty reduction in the continent. Innovative public-private partnerships in agribusiness education and training will be necessary to solve the complex task of developing youth in agriculture.

Modern agricultural value chains require a broad range of skills and training. Africa's youth face the challenge of gaining an appropriate education that provides them with the right set of skills and knowledge required by the modern value chains and labor markets. Especially true in the agriculture sector, the transition from education and training to work is often unsuccessful, leaving many young people either unemployed or underemployed.

YOUTH AND INNOVATION

There has been a rapid adoption of information and communication technologies in recent years. Growth in innovative applications like e-banking, e-business, e-agriculture and an increase in mobile markets serve as evidence. The

rapid spread of mobile phones and other information and communication technologies in agriculture further alters the nature of the skill sets required. Post-primary agricultural education and vocational training institutions need to prepare young people to work in a modernized, digitized agriculture sector. Capacity building and knowledge management will be critical elements to achieving this paradigm shift.

New models of collaborative programs, which foster innovation and entrepreneurship between agricultural universities, research institutions, technical colleges, vocation schools, extension agencies, NGOs and the private sector, need to be implemented to empower and develop youth in agriculture. African agricultural capacity building institutions need to engage with multi-stakeholders at all levels, from smallholders to the private sector to assess skills required to unleash productivity of agricultural systems. The agribusiness private sector should co-develop curriculum in partnership with agricultural universities to ensure that labor market needs are met. By creating strong linkages, local, national and regional stakeholders and universities will be better equipped to educate entrepreneurs who can unleash the enormous potential of African agriculture. This will transform agricultural education and training institutions into agribusiness innovation hubs. An example of this type of innovative thinking is the partnership between the Association of African Business Schools (AABS) and the African Agribusiness Consortium (AAC), which is comprised of six business schools in Africa that are championing agribusiness management education.

Advancing agribusiness incubation to spur agro-entrepreneurship is also critical to supporting youth in agriculture. Training young people to create enterprises should be a key mission of agricultural universities in partnership with local financial institutions such as banks, cooperatives and microfinance organizations. This will facilitate the creation of competitive agribusiness enterprises through technology development and commercialization and support start-up entrepreneurs with business services they need, from conceptualization to implementation and scaling up.

The Forum for Agricultural Research in Africa (FARA) in partnership with the Royal Danish Ministry of Foreign Affairs—DANIDA—launched UNiBRAIN, an initiative to advance agribusiness incubation and improve agribusiness education in Africa. The aim of the initiative is to link university education, agricultural research and business in sustainable agriculture.

AFRICAN AGRICULTURE AND GENDER

Gender mainstreaming is critical to closing the gender gap in African agriculture. Female rural youth face additional barriers linked to persistent gender inequalities perpetuated by discriminatory societal and traditional norms. In Africa, this poses a challenge because women play a larger role in agriculture than men especially at the smallholder level. If the agribusiness sector is to integrate well with the smallholder farming community, it needs to include more women and be sensitive and aware of gender dimensions. There are not enough women included in the different layers of agribusiness education and training. Currently, agribusiness management is not an attractive option for female students enrolling at universities and vocational institutions. There is a significantly smaller proportion of women in agribusiness and agricultural economics departments compared to other fields and disciplines. Conscious efforts need to be taken to recruit and retain female students and instructors in agricultural academic centers.

Across Sub-Saharan Africa, agriculture directly contributes to 34 percent of the GDP and 64 percent of employment. With 65 percent of Africa's population living and working in rural areas, agriculture and the rural economy play a substantive role in the lives of many millions of Africans, including young people, and will continue to do so into the future. By 2040, Africa will have the largest workforce in the world, surpassing both China and India, offering an unrivaled opportunity for economic and social development. Significant human capital development is required to fulfill the growing need for skills and expertise to exploit the opportunities and address the aforementioned challenges.

THE YOUTH DIVIDEND

Africa can harvest the "youth dividend" by accelerating the transformative change in agriculture that simultaneously raises productivity, reduces real food prices, boosts rural incomes and



OLIVIER ASSELIN

Young people possess the energy necessary to improve production in Africa's labor-intensive farming system.

creates jobs. The youth demographic bulge offers the possibility of a growth dividend, a rapidly growing workforce that can be combined with capital and technology to unleash a uniquely African green revolution. Given our dependence on smallholder farming for food production, food security and its capacity to absorb labor, how we invest in agriculture and farming, how youth are supported and respond to farming opportunities and whether farming, including small-scale farming and the evolving agrifood sector, can meet young people's aspirations will be critical for both future food security and employment. Access to land, financial services and other factors of production, innovative agricultural education and training, and agribusiness incubation hubs that are coupled with enterprise development support, advice and mentoring will be needed—in light of the limited experience of young people—to harness the youth dividend for agricultural transformation.

THE ONE HEN CAMPAIGN

In 2010, University of Nairobi (Kenya) students had a hard time securing corporate internships required to fulfill their academic program. At the same time, there were numerous stories in the media that featured people who had started small businesses and succeeded regardless of their level of education. Four students, ages 25 to 27, had one thing in common: success in rearing chickens and thus, the One Hen Campaign was born.

With micro-savings from their student loans and five chickens each from their family home, the group mobilized youth, children and women into registered self-help groups. Each member of the group receives one local hen and a cage in addition to training on poultry management, agribusiness, financial management, adapting to climate change and conflict resolution. After six months, members make a one-time donation of two pullets for onward lending to other members in the community.



ONE HEN CAMPAIGN

Young people vaccinate chickens before they are provided to project beneficiaries.

The four founding members of One Hen Campaign operate in three counties, Nyamira, Kisii and Narok, and are as determined as ever as they witness high unemployment rates, escalating hunger, a high ratio of dependents in families,

especially those with only a male parent or guardian and a growing need to train young people to embrace agriculture as it is the backbone of Kenya's economy.

By 2013, the One Hen Campaign had grown to serving over 50,000 members, employed eleven people and won numerous awards including the World Bank and the United Nations' "Connect4Climate Change" competition in South Africa. Additionally, the organization has received grants from Pan Africa Agribusiness and Agro Industry Consortium, Equity Bank, the Turkish Cooperation and Coordination Agency and USAID Kenya.

According to James Makini, one of the founding members of One Hen Campaign, youth participation in farming and agribusiness is low due to lack of access to capital, lack of appropriate hands-on training and schools not promoting agriculture entrepreneurship.

Beatrice Nyaboke, a 33-year-old single mother, went from receiving one hen and a cage to having 30 chickens in a year and a half, allowing her to pay school fees for her four children. Beatrice used her micro-savings through the project to establish a hair salon and donated two chickens back to the cause, to be given as a loan to another in need. Today, the One Hen Campaign is exploring setting up a local feed manufacturing factory, chicken processing plant, a hatchery, agrovet employment and an organic manure manufacturing plant.



ONE HEN CAMPAIGN

Chickens and cages are distributed to rural youth as investments in their agricultural pursuits.

Climate change is no longer a phenomenon projected to some distant future. Regions like the Sahel are already experiencing the devastating effects of climate change with the disappearance of pastureland and mass deaths of livestock as a result of droughts. Some countries like Ghana may experience a decline in food production leading to food insecurity by 2050.

THE ENVIRONMENT

CONTRIBUTORS

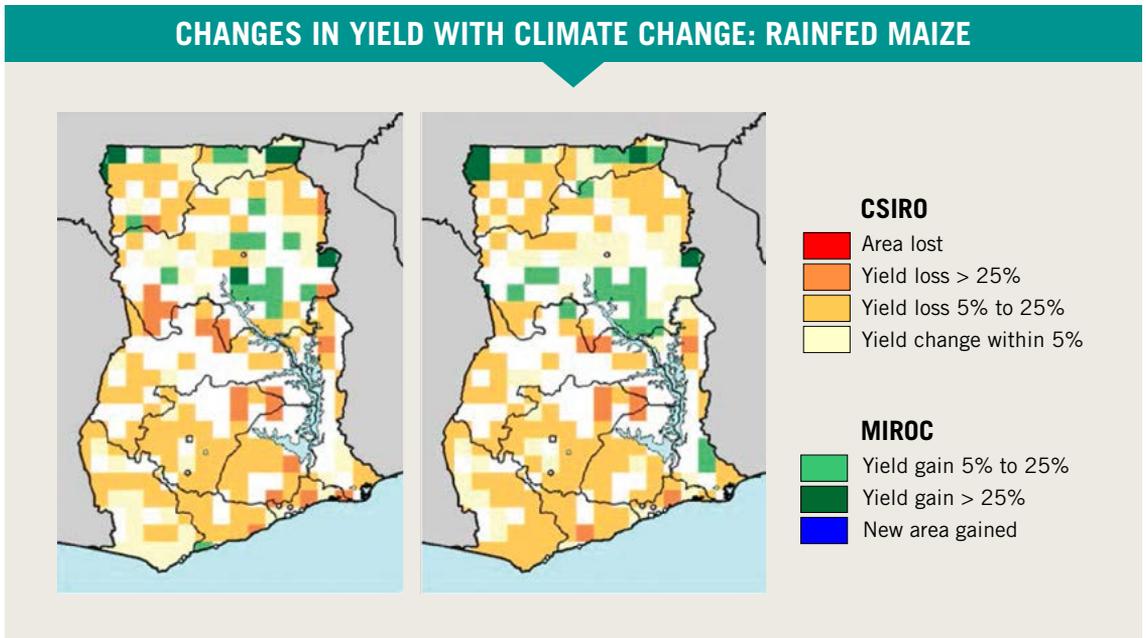
Nutsukpo, D.K., A. Jalloh, R. Zougmore, G. C. Nelson and T. S. Thomas. *West African Agriculture and Climate Change: A Comprehensive Analysis*. International Food Policy Research Institute. 2013.

The agricultural sector in Ghana is mostly rainfed and includes crops, livestock and fisheries. More than half of the country's workers are employed in agriculture. Cocoa remains the single most important cash crop in Ghana, while the two most important food crops are cassava and maize.

Moving from the rainforest zone in the south to the Sahel in the north, rainfall generally decreases and temperature increases. The share that agriculture contributes to gross domestic product (GDP) has continued to decline, while per capita GDP has increased. Improvements in access to formal education are reflected in the 2007 adult literacy rate of 65 percent. Life expectancy rose from 45 years in 1960 to 57 years in 2009. Malnutrition, estimated at 19.9 percent in 2008, is one of the lowest in the region. However, poverty is endemic in the three northern regions, where more than 95 percent of the population lives on less than \$2 a day. Moreover, the large increase in population anticipated by 2050 is a concern for food availability and conservation of the natural resource base.

The maps on the right depict the results of the Decision Support System for Agrotechnology Transfer (DSSAT) crop modeling software projections for rainfed maize, comparing crop yields for 2050 with climate change to yields with 2000 climate. The results for the Commonwealth Scientific and Industrial Research Organisation (CSIRO) model are very similar to those of the Model for Interdisciplinary Research on Climate (MIROC). They show a general loss in yield over almost the entire country, with most losses between five and 25 percent. DSSAT also computed crop yields for rainfed rice and rainfed groundnuts. The yield projections were very similar to those for rainfed maize.

CHANGES IN YIELD WITH CLIMATE CHANGE: RAINFED MAIZE



CLIMATE CHANGE SCENARIOS AND THEIR POTENTIAL EFFECTS ON YIELDS

The four downscaled global climate models (GCMs) from the Intergovernmental Panel on Climate Change's Fourth Assessment Report (IPCC AR4) showed diverse projections for changes in annual rainfall by 2050. The Centre National de Recherches Météorologiques (CNRM) and ECHAM (developed by the Max Planck Institute for Meteorology) models predict little change in annual precipitation throughout most of the country. However, the ECHAM model showed an increase in the southeastern part of Ghana. The CSIRO model predicts a general reduction in annual rainfall of 100–200 mm in the middle belt, 50–100 mm in the northern savanna and 50 mm or more in the southwestern corner. Similarly, the MIROC model predicts decreased precipitation in the south but increased precipitation in the north. These last two scenarios would pose significant challenges for agriculture in Ghana.

The climate model results show a range of potential increases in the average daily maximum temperature during the warmest month by 2050. The CNRM model predicts a uniform increase

of 2–2.5°C across Ghana, while the ECHAM model predicts an increase of 1.5–2°C over most of the country. The CSIRO model predicts an increase of 1.5–2°C in the north and 1–1.5°C in the south, while the MIROC model predicts an increase of 1–1.5°C over most of the country.

CLIMATE CHANGE AND FOOD SECURITY SCENARIOS

Designed by the International Food Policy Research Institute, the IMPACT model examines alternative futures for global food supply, demand, trade, prices and food security.

The research used the IMPACT global model for food and agriculture to estimate the impact of future GDP and population scenarios on crop production and staple consumption, which can be used to derive commodity prices, agricultural trade patterns, food prices, calorie consumption and child malnutrition. Three GDP-per-capita scenarios were used—an optimistic scenario with high per capita income growth and low population growth, a pessimistic scenario with low per capita income growth and high population growth and an intermediate (or baseline) scenario.

In the optimistic scenario, Ghana's per capita GDP reaches about \$5,000 by 2050, while the baseline and pessimistic scenarios project GDP of \$2,800 and \$1,000, respectively. The optimistic scenario is the only one in which Ghana achieves its goal of attaining middle-income status by 2020, with per capita GDP of \$1,000. Any condition that reduces economic growth rate or increases the population growth rate will impede the achievement of this development goal.

IMPACT projects that maize yields will grow by 60 percent between 2010 and 2050 under all scenarios. There is very little difference in yield projections between climate models, suggesting that technological improvements and consumer demand are driving the growth in productivity. Harvested area is not anticipated to grow by more than 10 percent. Together, the growth in area and yield lead to increased production of almost 80 percent.

With consumer demand growing with increasing populations and income, net exports will likely rise through 2035, and then



OLIVIER ASSELIN

Francisca Manuse Amenuku with her nephew and son in the family's cassava field.

level off and perhaps drop a little through 2050. The world market price of maize appears to rise throughout the period, doubling (on average) between 2010 and 2050.

The productivity effects for cassava are less than those of maize, with yields rising only by 30 percent. Harvested area will grow an estimated seven percent, and production will rise by a third. While this will keep pace with demand until around 2025, after that point demand will outstrip supply, and imports will increase.

For yams and sweet potatoes, IMPACT predicts that yields will increase by 54 percent on average. In the intermediate scenario, there are some differences between climate model surfaces, with an almost 30 percent difference between the lowest yield and the highest yield from different climate models. The harvested area is projected to expand by only five percent, implying a 60 percent increase in total production between 2010 and 2050. As for maize, this means that exports will rise for a time, then level off and fall off slightly as demand outpaces supply by 2050.

The groundnuts yield will grow by around 37 percent, but area is expected to decline by eight percent, leading to a sluggish growth in production of 27 percent, which only keeps up with increased demand until 2020, at which time net imports will increase.



OLIVIER ASSELIN

Children in Ghana share a meal of banku, a local dough made from corn.

The number of malnourished children under the age of five years will decline under the intermediate and optimistic scenarios, but will rise slightly under the pessimistic scenario.

Once population growth is taken into consideration, we note that the percent of children who are malnourished will decline even under the pessimistic scenario.

The per capita calorie consumption parallels that of the number of malnourished children, with calories rising in the intermediate and optimistic scenarios, and falling slightly in the pessimistic scenario. The latter case reflects food price increases outpacing income increases.

This was reprinted with permission from the International Food Policy Research Institute: Nutsukpo, D.K., A. Jalloh, R. Zougmore, G.C. Nelson, and T.S. Thomas. 2013. "West African Agriculture and Climate Change: A Comprehensive Analysis — Ghana." Excerpted from *West African Agriculture and Climate Change: A Comprehensive Analysis*, edited by Jalloh, A., G.C. Nelson, T.S. Thomas, R. Zougmore, and H. Roy-Macauley. 2013. Washington, DC: International Food Policy Research Institute.

PASTORALISTS IN SAHEL LOSING THEIR WAY

CONTRIBUTOR

Jocelyn Edwards is a freelance journalist who has been based in Kampala, Uganda, for the past three years. She has written for Reuters, the *Toronto Star*, *The Daily Beast* and other international outlets from around East Africa. You can read more of her writing at jocelynedwards.com.

DJIBO, Burkina Faso - It's at the meeting point of the savannah and the Sahel, just steps from the beginning of the red dunes that stretch north from Burkina Faso into Mali, that Samba Dicko, 66, lives with his wife, eight children and mother-in-law. Of the nomadic pastoralist Fulani ethnic group, they are one of the last families of one of West Africa's largest tribes remaining in the area.

Others were driven away by the advancing desert and the disappearance of pasture. But the family remains here, they say, because they don't have anything worth saving.

"Animals are dying all the time now, not just in the dry season," Dicko said. His bright orange robes covered in geometric patterns belie his family's poverty. Over the past five years, they lost all but two of their 70 cattle: 40 were lost to drought and disease, the others sold to buy food for the family.



ANNE ACKERMANN

Where the savannah meets the Sahel desert close to the town of Oursi, sand dunes start stretching from northern Burkina Faso into Mali.



ANNE ACKERMANN

Samba Dicko with one of his goats outside his home.

For centuries, nomads like Dicko followed the rains across West Africa, sometimes moving hundreds of miles to find pasture to feed their herds, and when conditions started to get tough in Burkina Faso, the family went to Mali. But there, they found the same problem—too many people and not enough pasture.

It's the result of a string of recent droughts in the Sahel, the transition zone between the Sahara desert and the tropics of Sub-Saharan Africa that the United Nations' Environmental Program (UNEP) has dubbed climate change's "ground zero."

Winding north from Burkina Faso's capital, Ougadougou, trees dried bone-white start to appear and the patches of red dust blown in from the desert get wider and wider; they are the signs of a lowering water table and increased soil erosion.

Precipitation in the area is down. In recent years, Dicko watched the waters of the Mare d'Oursi, a shallow lake nearby, recede to the point where it is little more than a swamp. "Before, if you came here, you would find hippopotamus, elephants and hyenas: many wild animals. But today, there is nothing," he said.

Climate change in the Sahel is impoverishing Fulani like Dicko and threatening their way of life. "We are suffering a lot. For us Fulani, we don't know any other way besides keeping animals: cows, goats and sheep. This is our work," said Dicko, who is left with only five goats and some chickens, which he is



ANNE ACKERMANN

Malnourished cows are a sad reminder of the dire conditions created by climatic changes. The cows are not Heifer International animals.

selling off one by one to buy food. After the goats are gone, “(Only) God will help me.”

HOT ZONE

Stretching in a band across Africa from Senegal in the west to Sudan in the east, the Sahel region is tagged by scientists and environmentalists as one of the world’s global warming hot spots. Its location south of the Sahara and the dependence of its people on agriculture and livestock renders it particularly vulnerable to climate variability.



And while people in many parts of the world peer into the future trying to determine what the effects of a warming world will be, in the Sahel, its first consequences are already being felt. Precipitation dropped between 29 percent and 49 percent in the region between 1968 and 1997, according to the International Panel on Climate Change.

In Burkina Faso specifically, a United Nations Environment Programme report revealed a temperature increase of between 0.5 degree Celsius and 1 degree Celsius from 1970 to 2006. The country also experienced an increase in extreme weather. Within the years of the study, most areas of the country suffered seven or eight floods. “The old people say there are phenomena [they] have never seen before,” said Dabire

Koffi Emmanuel, the director of the department of environment and sustainable development for Burkina Faso's Oudalan province, a predominantly pastoralist zone.

The area he oversees experienced an increase in sandstorms, droughts, floods and freak weather events. "Last Wednesday evening, it [hailed]. It knocked down gates and bushes and pierced three people. The old people said that they had never seen this before. We just told them it was climate change," Emmanuel said.

For the pastoralist Fulani, climate change represents a particularly acute threat. As a minority in every country they inhabit except for Guinea, they already occupy a precarious position at the margins of society.

While in theory, the areas in northern Burkina Faso are set aside for pastoralism, in practice, this policy is rarely enforced. Recent years have seen significant encroachment by agriculturalists into formerly pastoralist zones.



ANNE ACKERMANN

A girl carries a bowl of milk. Together with millet and meat, milk is the staple food of the Fulani. Due to the climatic changes and the decrease in livestock, milk is becoming scarce and Fulani people say they have started eating food without milk.

As Burkinabe professor Issa Diallo stated in a report for the International Working Group for Indigenous Affairs, "The nomadic pastoralists have absolutely no land security at all, in a rural environment in which land conflicts are becoming increasingly common and ever more violent."

SYNGETA – DAIRY INSURANCE

Launched in 2008 in Kenya, Kilimo Salama insures farmers against drought and excess rain becoming the largest agricultural insurance program in Africa and the first in the world to reach smallholder farmers using mobile technology. An automated solar-powered weather station installed in East Africa collects weather data and automatically transmits measurements to the Kilimo Salama cloud based server in 15 minute intervals. The program covers a wide range of risks, most of which are planned. The initial model was based on retail transactions either through microcredit officers or agrovets. When insurance is purchased by a farmer it is registered by scanning a code using a specially developed mobile phone application that sends a message to a cloud-based server that then administers the policy number and is followed by an SMS being sent to the farmer with his or her policy number.

At the end of each growing season, the weather data is collected and compared to an index based on historical weather data. If the season's rainfall is either 15 percent above or below the average, the insurance payout owed to the farmer is calculated and sent via an automated mobile money payment system. Since Kilimo Salama does not visit the farmers and has no claims process, the administrative cost is reduced enabling an affordable premium price to millions of smallholder farmers, most of whom are in rural areas. By October 2013, Kilimo Salama was insuring over 150,000 farmers in two countries.

More than 700 million people globally, more than half in Sub-Saharan Africa, depend on contaminated and often limited water to survive and support their crops and livestock. It is a problem with significant consequences for health, productivity, and prosperity, and water shortages have severe implications in conflict prone areas.

WATER

CONTRIBUTOR

Mary Renwick is a water resources specialist with more than 20 years of experience developing, managing and implementing water resource projects, programs and initiatives. She has led Winrock International's Water Innovation Program since 2005 and has worked in Sub-Saharan Africa, South and Southeast Asia, and in the U.S. with a number of Native American tribes. Prior to joining Winrock, Renwick was a senior fellow in water policy and economics at the University of Minnesota, and an adjunct professor in applied economics. She was also a Fulbright Visiting Professor in interdisciplinary water resources management at Khon Kaen University in Thailand and visiting scholar at Cornell University's International Institute for Food, Agriculture and Development. Renwick holds a Ph.D. and master's in applied economics from Stanford University.

MULTIPLE-USE SERVICES: WATER FOR HEALTH, WEALTH AND FOOD SECURITY

The need for clean and reliable water has been the focus of development initiatives for decades and much has been accomplished in many parts of the world. But, the conventional approach to water services focuses on water for a single-use—typically for drinking or irrigation—and often ignores the multiple water uses families need to thrive. Once water is available, not surprisingly, people use this water to meet all of their needs. Drinking water systems are used for livestock watering, food production and small water-dependent enterprises. Irrigation schemes are used for drinking, bathing and other unplanned uses such as livestock and home gardens.

These diverse, unplanned demands on single-use services are a widespread phenomenon that often lead to unintended yet serious consequences—spread of disease, overuse, conflict and system breakdowns. The disconnect between the way the people use water and the way services are provided ultimately undermines the intended goal of water services for the poor—improved health and livelihoods. It is also a major cause of sustainability problems for water services and resources. Single-use water services miss a valuable opportunity to maximize the

poverty impacts of water services and increase system sustainability.

By contrast, multiple-use water service (MUS) approaches are changing the way water is delivered to people living in poverty and enhancing health, improving food security, increasing incomes and reducing workloads for women and children in the process. MUS examines how people use water for various needs, who uses it and identifies what renewable supplies are available. This information forms the basis for development of a water delivery and management plan that balances needs and water resources, and that is created using a participatory process with local communities.

Across Sub-Saharan Africa, families are enjoying better access to the water they need—for drinking, hygiene, sanitation, irrigating crops, watering livestock and water-dependent enterprises. They no longer have to devote hours each day carrying water from a distant community water point that may be miles from their home and intended for a single purpose (domestic uses, irrigation or livestock). They are healthier thanks to access to potable water coupled with improved hygiene and sanitation practices, and they are earning greater income because they have enough water and skills to expand their agricultural activities or jobs resulting from new water services.

In the past 15 years, a growing body of evidence has revealed that planning and managing water for multiple uses can enhance health, improve food security, increase incomes and reduce workloads for women and children. Systematic cost-benefit analyses of single-use versus MUS indicate that while MUS approaches may initially cost more, they offer wider benefits and significant advantages in the long term making MUS a cost-effective investment.

Studies have shown that multiple-use water services offer significant advantages because they:

- › Generate more income and benefits (improved



WINROCK INTERNATIONAL

A drill team is trained in Tanzania.

health, nutrition, time savings, food security and social empowerment) for a wider range of poor people than most single-use water services

- › Decrease vulnerability and increase resiliency by allowing more diversified livelihood strategies
- › More effectively reduce poverty by simultaneously addressing the multiple dimensions of poverty
- › Increase sustainability of services—productive water use generates enough income to cover ongoing operation, maintenance and replacement costs of multiple-use systems. Because they better meet the water needs of communities, MUS increases returns on community investment and decreases conflict related to water access as well as damage to infrastructure caused by “illegal” or unplanned uses

The MUS approach places people at the center of planning, financing and managing integrated water services. While technology and infrastructure are important, a key focal point of MUS is building the capacity of communities, governments and the private sector to develop and manage water services for multiple purposes. This democratic collaboration among a variety of stakeholders contributes to greater participation and support for water programs and other development initiatives. In many instances, families contribute to construction and maintenance of the systems they rely on. In Burkina Faso, multigenerational families are investing an average of \$235 to upgrade existing household wells within their compounds to meet their multiple water needs. The upgrade involves deepening the wells to increase water availability, adding rope pumps to ease water lifting, covering and disinfection to make the water potable.

Training is an integral part of MUS projects that addresses local priorities as well as fundamental aspects of water services. Introduction of basic hygiene practices such as hand washing, safe water storage and improved sanitation complements improved access to potable water that limits the spread of contamination and disease. Simple changes in daily activities can result in a dramatic drop in illnesses, particularly for children.

Water users are introduced to improved farming techniques

and new technologies such as drip irrigation that help them efficiently maximize the benefits of newly available water. They also learn about improved crop and livestock practices, and new opportunities for farm income realized from the diversification of crops and alternatives made possible with improved water services, like raising fish. Training and support is provided for long-term sustainable management of the water services focusing on effective local governance and decision-making structures and ensuring financing for ongoing operations and maintenance of the system. Efforts also focus on ensuring availability of post-construction support and strengthening the local supply chain of water-related products and services.

“The impact of MUS is truly remarkable. By developing integrated services that sustainably meet people’s water needs for drinking, sanitation, growing food, and earning an income, we see visible improvements in health and livelihoods.”

- Mary Renwick, Ph.D.,
Winrock International
Director, Water
Innovation Program



WINROCK INTERNATIONAL

Women and children in Niger wash their hands.



WINROCK INTERNATIONAL

Multiple-use services include water provision for livestock.

Multiple-use water services are a proven and practical answer to addressing the need for safe and reliable water supplies for some of the world's most hungry and impoverished populations. Winrock International, a private nonprofit organization that works globally, implements MUS programs across Sub-Saharan Africa and South Asia, helping the rural poor access one of the most fundamental resources on which so much depends.

THE MUS APPROACH IN NIGER

Hadiza Ali used to walk nearly two hours every day carrying 20 liters of water for her family on each of six trips to an open well that served people and animals. When it rained, runoff carried contaminants into the well contributing to proliferation of a wide variety of water-borne diseases. Her husband Ali Maman had a shallow well in their small farm plot, but it was difficult work hauling up water and carrying it plant by plant to ensure that not a drop was wasted. Not only was their labor grueling, but their ability to earn income was constrained. They could barely sustain a small number of plants which kept Hadiza and Ali from growing more crops.



WINROCK INTERNATIONAL

Innovations in sourcing water are helping farmers forgo long walks and improving plant health.

Multiple-use water services have changed their lives and those of their neighbors. A new, clean water source has been installed much closer to their home. Using a rope pump fitted on a manually drilled borehole, Hadiza is able to easily access clean water for family use and forgo the long walks to retrieve polluted water. She has extra time to devote to more meaningful tasks. Ali purchased a treadle pump and learned

how to build small irrigation canals to irrigate his garden. Because he received training in vegetable production and has to spend less time moving water, Ali has expanded the garden in size and diversity of crops which now includes onions, cabbage and lettuce for home use and for sale.

In Hadiza's village of Kabori and the surrounding communities in the Zinder region of Niger, MUS projects offer information and training tailored to meet local residents' needs. Guidance in improved hygiene and sanitation practices coupled with clean, abundant water reduces the potential of disease and keeps families healthier. Farmers are learning how to increase their yields and earning power through improved farming practices and water management. Better access to water has opened up other opportunities. Aquaculture is now an option to increase food supply and supplement a traditional diet based on limited protein. Reliable access to water results in longer growing seasons and increased resiliency to the risks presented by climate changes.

Also in the Zinder region, technical and business training is provided to local enterprises that are building rope and treadle pumps and manually drilling boreholes. These enterprises provide a ready source of equipment and technical expertise to local areas while increasing income and employment opportunities. The locally manufactured pumps have proven to be more sustainable than traditional hand pumps that have been installed in other areas and in other countries. Hand pumps provide safe water but can be difficult and expensive to maintain. Some replacement parts for the hand pumps that are common in Niger cost over \$500, far beyond the resources of most villagers, many of whom survive on less than \$2 per day. Even if the funding is available, the lack of local supply chains makes it difficult to find parts. In contrast, repairs to the new Zinder-manufactured rope pumps can be made by local metalworkers, with spare parts costing under \$25. Low costs and easy maintenance help ensure that water systems function properly into the future.

Use of information communication technology (ICT) in African smallholder agriculture is currently limited. However, the Grameen Foundation's work with Community Knowledge Workers shows that ICT is set to revolutionize African smallholder farming through transmission of precise, targeted and current information from weather, inputs, production knowledge and markets.

TECHNOLOGY

CONTRIBUTOR

John Tull, the CEO at the Farm Gate and Director, Mobile Agriculture Innovation, leads Grameen Foundation's global mobile agriculture initiatives.

One of the great paradoxes facing African farmers is that they face more life-affecting decisions daily than the average Fortune 500 CEO, but with only a fraction of the resources and services that we take for granted. Decisions about crop management can literally mean life-or-death, with pests, diseases and increasingly erratic weather threatening food supply across the community. Smallholder farmers who produce cash crops are often exhorted by industry leaders to start treating "farming as a business," without regard for the limited resources available to them, including access to information.

Technology provides one of the best channels for reaching the "last mile" – remote or rural communities that have access to few resources. The opportunities for using mobile phones, in particular, have expanded as the availability of handsets has risen dramatically over the last decade.

By early 2014, there could be just over seven million mobile phone subscriptions, with almost 75 percent of them coming from the developing world – a seemingly ripe opportunity to deliver goods and services to the people that need it most.

Persistent obstacles remain, however, that reinforce this "digital divide" for the remote and rural poor: the affordability of phone handsets and services, network coverage and literacy.

But technology by itself is not enough. Grameen Foundation believes that technology can best be used to create opportunities for farmers if it is combined with local knowledge and reach of trusted community-level agents. These agents help to bridge that



JAKE LYELL

Omari Sadani with eggs laid by his Heifer chickens in the coastal region of Tanzania.

“last mile” with person-to-person, knowledge-based advice and services that can be delivered within the local context to address the needs of each individual farmer.

Grameen Foundation believes that services that are designed with the farmer’s livelihood and well-being in mind can be transformative. To test this theory, we’re researching and developing evidence-based learning models that can be scaled to achieve greater impact. Throughout all of our work in agriculture, health and financial services, there are two common denominators: mobile technology and a focus on creating access and opportunity for the rural poor.

A primary test of that theory is Grameen’s Community Knowledge Worker (CKW) program in Uganda. Launched in 2009 with funding from the Bill & Melinda Gates Foundation, the program grew out of our earlier initiatives in Africa with Google that explored the feasibility of using the mobile phone as an information channel.

eRWANDA

The eRwanda Project, a World Bank funded Information Communication Technology (ICT) for Development project being implemented by the Rwanda Information Technology Authority (RITA), remedies a critical information gap with the use of ICT through its e-SOKO Project that seeks to empower farmers to enable them to make more informed market pricing decisions and ultimately more successful farming. This Agricultural Market Pricing Information System significantly enhances the Ministry of Agriculture's interaction with the farmers and traders as well as the planning function. Farmers are trained on the use and maintenance of the eSoko System equipment whereas Ministry of Agriculture field staff are equipped with smart phones enabling collection and entry of pricing information in the databases.

Launched in 2010, iCow is a mobile software application that enables dairy farmers in Kenya to access information on feeding, disease prevention, milking methods and calf management, creating a simple digital solution for dairy farmers looking to improve the way they manage their livestock. The application fills the gap that currently exists between farmers and the agricultural extension officers after a hiring freeze and lower budget support diminished the advisory services, especially in rural areas.

Farmers register their cows for free through an iCow portal and receive regular text messages for a fee of \$.35. The app provides a calendar, advice and veterinary information to dairy farmers. The calendar enables farmers to track a cow from insemination through development of the calf to delivery. Additional services include contacts for veterinary and insemination officers in the farmer's locality.

Su Kahumba, the iCow creator, says the app was originally designed to function via SMS making it available on any phone. The app is available in both English and Kiswahili and has seen farmers using it grow from 300 in 2011 to 45,000 in 2013.

In Ghana the e-switch money transfer system serves small-scale financial institutions allowing customers in rural areas to use biometric cards for payment operations.

BIOGAS POWERS HOMES IN UGANDA

Participants in Heifer Uganda's biogas project turn animal waste into energy, which lights homes and powers stoves. The benefits of biogas are many, including improved family health, less cutting of trees for firewood and faster cooking times. The connection between our work with livestock and this technology is complimentary: farmers can use what might otherwise be a source of pollution as a fuel for cooking and lighting. The byproduct of the process is an already composted material perfect for fertilizing home vegetable and fruit gardens.



JAKE LYELL

Margaret Namirembe, Hajara Mbabazi and Joyce Namuyanja work in their kitchen with a biogas unit in Wankoea Village, Uganda.

A UGANDAN CASE STUDY

The Community Knowledge Worker (CKW) model is based on the principle of providing poor farmers with information and services that are truly “ACTA” – Accessible, Current, Trusted and Adoptable. Only information services that combine all four of these characteristics have a strong chance of improving the decision-making behaviors and livelihoods of large numbers of farmers. The CKW, armed with a smartphone or tablet and agricultural content that can be accessed both online and offline, is proving to be an effective way to achieve this. Each CKW is a local farmer who has been selected by the community because he or she is literate, trustworthy and has an aptitude for providing suitable guidance in their local dialect. This addresses key challenges that have traditionally shut out poor farmers from better livelihoods: illiteracy, a plethora of local languages, conflicting advice from various sources (including those with vested interests) and inadequate instructions to ensure the adoption of new farming practices.

Empirical evidence from Uganda indicates that the multichannel and multiservice capabilities of CKWs can rapidly generate measurable adoption rates at scale. Since 2009, Grameen Foundation has deployed a network of more than 1,200 CKWs that have delivered services to more than 209,000 Ugandan smallholder farmers through more than 1.5 million advisory interactions. This has generated more than \$1 million in earned income over a two-year period for customized services conducted on behalf of commercial and multilateral parties, with much of that money going directly to the CKWs as performance-based incentive payments.

LEARNING BY DOING

Grameen’s experience in Uganda has taught us the following valuable lessons about what works when you use mobile technology and human networks in this way:

- › Engage the community upfront (especially in nominating CKWs) to keep the social mission as a central component of the program
- › Use a bundled approach that includes selection, training and the provision of equipment (cell phone, applications, solar charger, etc.) supported by a sound business plan that ensures long-term sustainability
- › Provide incentives and use rigorous performance management tools
- › Incorporate human-centric design for information and other related services, e.g., mobile financial services product development with corporate partners
- › Enable older farmers and, especially female farmers, to embrace technology as CKWs and as end-users
- › Capture local knowledge and make it independently available on handsets after it

- has been verified by external experts, giving farmers more choices
- › Complement mobile data with video and radio to reinforce the message
-

Several other techniques, outlined below, did not work as well:

- › Using bicycles to expand the radius of coverage of each CKW; it was found that the bicycles were not necessary as there was already strong demand from nearby farmers. Grameen Foundation decided to recruit more CKWs in more distant areas to serve the farmers there.
 - › Grameen initially hypothesized that the young farmers would naturally adopt the technology more easily and would be better advisers. In some communities, however, age represents authority and farmers were less likely to accept information from younger farmers.
 - › Initially, we underestimated the social dynamics of the household; 35 percent of CKWs (approximately 400) are women, serving women. This generally works very well, but some husbands resisted this shift in the power and increased status of the wife.
-

While our research generally shows benefits to farmers, to be truly transformative, we need to demonstrate with hard evidence what works and under what conditions. A recent independent impact assessment of the Uganda program, conducted by the International Food and Policy Research Institute, showed that CKW services resulted in a 51 percent increase in access to agriculture extension, a 17 percent increase in the adoption of defined “good agricultural practices,” and a 22 percent increase in the market prices farmers received, relative to control group rates in the same period.

TRANSFERRING KNOWLEDGE

Our more recent initiatives build on our Uganda experience and how lessons and insights from these types of initiatives can be transferred and localized in other countries. Learning transfers help projects save time and money by using best practices and avoiding or anticipating known pitfalls.

As part of a USAID TIME project in Kenya, Grameen Foundation is addressing a chronic problem for many smallholder farmers. The seasonal agricultural cycle can cause cash flow pressures, which often forces farmers to sell at the wrong time when prices are low. We have developed an integrated, mobile-based e-warehouse system to help smallholder farmers properly store and manage their post-harvest crops and virtually store their grain in bulk during harvest time. This allows farmers to sell when prices increase. The system also links them to a financial institution to provide partial advances against the value of their stored crop.



GRAAMEEN FOUNDATION

Mobile phone penetration in Africa is wide-reaching. It holds great potential for transforming business transactions and social interventions.

Our most recent engagement is in Cote d'Ivoire where the CKW model is being adopted by CocoaLink Plus to improve the sustainability of farming practices among cocoa farmers through mobile technology. The CocoaLink Plus service will support the technology to reach the most rural, "last mile" villages by employing a network of CKWs and by making the services available to government extension officers.

We also have transferred the program to Colombia, where the CKW model is being deployed to revamp coffee production and to help women entrepreneurs grow and market vegetables through a collaboration with the provincial government of Antioquia.

At its core, our work is guided by the needs of individual farmers. We believe we can best serve them by building robust service platforms that drive wider impact and reduce the unit cost, enabling them to improve their livelihoods and the lives of their families. This is particularly important for farmers like Lydia Kyokunda in Uganda. Until a few years ago, she used the traditional planting calendar and season patterns to tend to her tomato fields. Severe changes in the weather patterns made it much harder to manage her crops. She lost tomatoes when no rains came –and she lost them when rains came unexpectedly.

With the help of her CKW, Lydia now uses forecasts from the Ugandan Department of Meteorology to plan her farming schedule. She also learned about water harvesting, which allows her to control her farming patterns all year long – and earn better prices for her crop.

That's the goal of Grameen Foundation's work: to test and develop practical solutions to the intractable problems facing the rural poor—and share them widely for the benefit of all.

The successful transformation of African smallholder agriculture into a robust commercial enterprise depends on the policy architecture of African countries. Ritu Sharma highlights the need for policy approaches that are flexible, broad-based and simple. At a continental level, as noted by ONE, the African Union has already created a policy framework through the Maputo Declaration of 2003, and the subsequent CAAPD. This framework prioritizes agriculture for funding by national budgets, and generally creates support mechanisms for agricultural planning and investment.

POLICY

ETHICS FOR AGRICULTURE POLICY

CONTRIBUTOR

Ritu Sharma is Co-Founder and President of Women Thrive Worldwide, an advocacy coalition that raises the voices of women and girls in poverty to powerful decision makers in the United States and around the world.

The women farmers of Africa know exactly what they want and it's incredibly simple: They want to make decisions themselves. They are no different from the women, or men, farmers in Asia, Latin America, and the rest of the world.

But too often the decisions about how to farm are made for them in distant cities by people who don't, and can't possibly, know all the variables a small farmer is balancing such as soil quality, weather patterns, water flows, local pests, and a hundred other considerations. These people are not ill intentioned. They are development professionals and policymakers trying to figure out how to deliver efficient programs on a global scale. Naturally, they make rational choices about what options to offer the farmers they seek to help. Since resources often limit options, whoever brings resources to the table becomes part of the intervention suite.

Over the years, I have been lucky to sit with and come to know some African women smallholder farmers. When I ask women which farming methods they prefer, I am heartened when their answers are all over the map. And I get suspicious if they all recite the same agriculture recipe consisting of a short list of ingredients: for example, chemical fertilizers, certain seeds, and specific pest control methods. Why do I like inconsistency? Because when the list is always the same, it is likely those were the only interventions they were taught by a government extension agent or well-meaning aid program. Those might be the right things to do, or they might not be. If they are not, it's the farmer and her family that bear the consequences. The best and most sound agricultural interventions offer options, lots of them.



JAKE LEVELL

Women inspect corn growing in their family farm.

In mid-2013, I visited several sites where the World Food Programme was conducting its Purchase for Progress initiative with women farmers. When I asked my usual question about what methods the women liked, the answers were varied. Some of the women wanted to plant a hybrid variety of corn to increase their yields quickly. Others wanted to use only natural methods without chemicals or hybrid seeds. All of them said that they greatly valued the training they got in all different kinds of methods from agro-ecological to high-tech, high-input. They knew how to use chemicals properly, in the right amounts with protective clothing. They knew how to improve their soil naturally and conserve water with simple land management techniques. Very importantly, the group had experimental learning plots to try out different techniques and see the results for themselves. Most of all, it was clear in the way they spoke that they felt fully empowered to make the decisions.

In this example are valuable lessons for global agricultural policy makers. If they focus on meeting the following criteria, they will be more likely to succeed and avoid the pitfalls of limited-option interventions.

› **All options on the table**

Farmers deserve to know about and understand the entire suite of techniques available to them, especially those that are low-cost given their constrained resources.

› **All choices informed**

Farmers must understand exactly how to use the various methods, along with their risks and benefits, both long term and short term.

› **All information shared**

Even if the science proving risk or impact of specific techniques lacks complete consensus, all possible risks and benefits must still be shared.

› **Do no harm**

Interventions should not create dependencies on particular techniques or interventions. In addition, farmers should be able to try out methods on experimental plots before applying it to their own crops.

› **Power to choose**

When all the options are available, understood and tried, farmers must have the power to choose. They need to have the money, insurance or other means to realistically take advantage of a technique. Power to choose is particularly important for women. If they know about a technique, but they do not own the land or their husband makes the decisions about farming, they essentially do not have the ability to choose.

RIPE FOR CHANGE

CONTRIBUTOR

ONE Campaign (2014). ONE is a campaigning and advocacy organization of more than 3.5 million people taking action to end extreme poverty and preventable disease, particularly in Africa.

After decades of economic stagnation, African economies have been growing rapidly: real gross domestic product (GDP) grew by nearly 5 percent per year between 2000 and 2012.¹ Not all of this growth (particularly in oil, gas and minerals) has been broad-based or contributed to poverty reduction. Agriculture, however, is a sector that involves two-thirds of Africans south of the Sahara, providing jobs, income and food security. It accounts for a third of the continent's GDP and in some countries (such as Ethiopia, Sierra Leone and Liberia), its contribution is as high as 50-60 percent of GDP.² The potential for economic transformation and development is enormous, but many African countries have not given sufficient attention to the sector, or maximized its benefits. Unless this is addressed, Africa will face enormous challenges in achieving its goal of poverty eradication.

The need for greater investment in African agriculture has never been more urgent. Farmers across the continent face mounting challenges: land degradation, rapid population growth and changing climate patterns threaten to imperil agricultural productivity and roll back progress on socioeconomic gains. At the same time, new approaches and innovations—commodity exchanges, advances in information and communications technology and new crop varieties—have opened up possibilities to manage farmers' risks, increase prices for their goods and strengthen resilience to weather-related disasters. In addition, fresh evidence of what works in narrowing the gender gap presents African policymakers with new opportunities for transforming the agriculture sector. Lastly, renewed attention to value addition, agro-processing and post-harvest management holds enormous potential to increase incomes and create employment opportunities.

In 2003, African leaders made historic commitments to grow their agriculture sectors in the Maputo Declaration: dedicate 10 percent of expenditures toward agriculture and achieve 6 percent annual growth in agricultural GDP. Ten years later, ONE's report, "Ripe for Change: The Promise of Africa's Agricultural Transformation," reflects on achievements made thus far and highlights the challenges that lie ahead. The following is a summary of this report.

The African Union (AU)'s 2014 Year of Agriculture and Food Security is a fresh opportunity for Africa's governments to renew their pledges. The AU can enable leaders to seize opportunities and manage the growing challenges in the agriculture sector which will determine the development prospects of countries across the continent.

REVIEWING MAPUTO'S PROMISE

According to the latest standardized and comparable statistics from IFPRI's Regional Strategic Analysis and Knowledge Support System (ReSAKSS),³ only eight countries (Burkina Faso, Ethiopia, Guinea, Malawi, Mali, Niger, Senegal and Zimbabwe) have consistently met the 10 percent target and only three others (Ghana, Madagascar and Zambia) have come close. Further, only seven countries (Angola, Equatorial Guinea, Ethiopia, Mali, Mozambique, Nigeria and Sierra Leone) have achieved average growth rates of at least 6 percent across the period.

While data is not available for all countries, the aggregate "Maputo deficit" (i.e., the difference between the target and the amount of public resources actually spent on agriculture) for Sub-Saharan countries that have not met the 10 percent figure was roughly \$25 billion in 2010 alone. This is an enormous sum that should be devoted to financing costly public goods such as infrastructure, scientific research and irrigation— all of which support agricultural growth and development.

Following the Maputo Declaration, governments received support to draw up their own context-specific agriculture development plans through the Comprehensive Africa Agriculture Development Programme (CAADP). In order to eliminate hunger and create wealth through agriculture, CAADP supported countries' efforts to achieve the Maputo target of 10 percent expenditure and that of 6 percent annual growth in agricultural GDP. As an entirely African-led and African-owned programme, CAADP addresses policy and capacity issues across the whole of the continent's agriculture sector. It prioritizes four "pillars" in order to achieve the Maputo commitments: (1) extending the area under sustainable land management; (2) improving rural infrastructure and trade-related capacities for market access; (3) increasing food supply and reducing hunger; and (4) encouraging agricultural research and dissemination and adoption of technology.

As a supporting entity, CAADP guides countries through a robust process by first developing a country compact, then creating an investment plan reviewed by an independent party and ultimately convening a business meeting that investors can attend. Encouragingly, 43 countries have begun the CAADP process of developing national agriculture investment plans⁴ and, thus far, 38 countries have completed CAADP compacts, which lay the foundation for developing a national agricultural investment plan. Of these countries, at least 28 have completed the process by developing fully costed and vetted investment plans, which provide a road map for the resource allocations required to achieve comprehensive agricultural development.⁵ Several countries have used the process to demonstrate political commitment to agriculture and to meet significant financing gaps in plan budgets: Ethiopia, Kenya, Liberia, Malawi, Niger and Rwanda all have at least 60 percent of

their plans financed.⁶ In efforts to close financing gaps in their investment plans, Ethiopia and Kenya have used domestic resources to leverage additional resources from development partners— equivalent to about 30 percent of their CAADP investment plans.⁷

PROFILING SUCCESS

Globally, very few countries have achieved rapid economic growth without growth in agriculture either preceding it or accompanying it. A number of African countries have led the way in investing substantial public resources in agriculture, and they are reaping the rewards. Ghana, Ethiopia and Burkina Faso have met (or have come very close to meeting) their Maputo targets of 10 percent of government expenditure going to agriculture. We highlight the investments and reforms that each of these governments has prioritized and how these reforms have promoted wider economic development and poverty reduction (and also the challenges associated with these strategies). We also draw out key policy lessons that could be useful for other countries in Sub-Saharan Africa.

Ghana

Ghana has experienced some of the most rapid agricultural growth in the world, reaching a rate of more than 7 percent in 2008-09 and averaging over 5 percent annually over the past 25 years.⁸ While agriculture's share of total GDP has steadily declined (due to the rapid growth of services), it remains substantial at 23 percent.⁹ Agriculture is by far the largest provider of livelihoods, and most of those employed in the sector are smallholder farmers.¹⁰ The expanded cultivation of staple crops such as maize, rice, yam, cassava and plantain has driven agricultural growth in recent years.¹¹ Cash crops such as cocoa, cashews, cotton, palm oil and pineapples are valuable exports and an engine for growth for the whole economy.¹² Many describe cocoa, in particular, as the "lifblood" of the Ghanaian economy. It is the most lucrative source of export earnings (exports of cocoa beans, butter, powder and cake combined were worth \$2.4 billion in 2011), providing revenue for the government to pump into infrastructure and social services, and supporting the livelihoods of more than three million people (12 percent of the population).¹³ Ghana's investment in the agricultural sector has been substantial and has helped to drive overall growth; it has met, or has very nearly met, the Maputo agriculture spending target for at least the past six years.¹⁴ Ghana signed its Comprehensive Africa Agriculture Development Programme (CAADP) compact in October 2009. In June 2010, it finalized its investment plan and held a business meeting, the final stage in the CAADP process.¹⁵

During its agricultural boom over the past two decades, Ghana has seen an unprecedented decline in poverty and hunger.¹⁶ It stands out as one of few Sub-

Saharan African countries to have met (and indeed, far exceeded) the MDG target of halving the prevalence of undernourishment. It also has almost halved the proportion of people living on less than \$1.25 per day, lifting 1.6 million people out of poverty between 1992 and 2006.¹⁷

CONCLUSION

The Maputo Declaration placed agriculture back on the political agenda and created CAADP (the Secretariat and the process) to serve as a mechanism for stakeholders to mobilize around and support. CAADP has wide support as a notably African institution, and is a focal point for engaging domestic and international investors in agriculture. While progress has been made, many lessons also have been learned during the first decade since Maputo, including the need to measure the quality of agricultural spending, standardize what counts as resources for agriculture, recognize other linkages in the value chain and establish an effective accountability framework.

Moving forward, policymakers must seize the opportunities presented through transformations in the agriculture sector, the enhancement of public investment, strengthened ties with farmers, civil society and the private sector, and enhancements to the quality of public policy and spending. Right now, African leaders are putting together the African Common Position on the Post-2015 Development Agenda, which will replace the Millennium Development Goals. An overarching objective is to ensure the end of extreme poverty by 2030, as well as economic transformation, enhanced transparency and sustainable development. The time is now – if governments commit to the vision of a continent-wide strategy to boost agricultural progress, it could usher in a new era of growth and prosperity.

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- 1 World Bank. 2013. African Development Indicators. Sub-Saharan Africa, all income levels.
 - 2 Alliance for a Green Revolution in Africa (AGRA). 2013. "Africa Agriculture Status Report: Focus on Staple Crops." Nairobi, Kenya; World Bank. 2013. "African Development Indicators".
 - 3 Data goes up until 2010
 - 4 NEPAD/CAADP. 2013. "Countries with compacts/Investment Plans – 06 September 2013." https://twitter.com/NEPAD_CAADP/status/410666581715218432
 - 5 Joint Ministers of Trade and Ministers of Agriculture Conference. 2012. "Sustaining CAADP Momentum." Presentation
 - 6 S. Benin and B. Yu. 2013. "Complying with the Maputo Declaration Target", op. cit
 - 7 Ibid
 - 8 Overseas Development Institute (ODI). 2011. "Ghana's sustained agricultural growth: putting underused resources to work"; World Bank. World Development Indicators 2013
 - 9 World Bank. World Development Indicators 2013
 - 10 FAOStat. "Ghana Country Profile"; ODI. 2011. "Ghana's sustained agricultural growth: putting underused resources to work"
 - 11 Ministry of Food and Agriculture. 2013. "Facts and Figures 2012"
 - 12 FAOStat. "Country Profile: Ghana."
 - 13 Ibid.; Fairtrade Foundation. 2013. "Powering up smallholder farmers to make food fair". http://www.fairtrade.org.uk/includes/documents/cm_docs/2013/F/FT_smallholder%20report_2013_lo-res.pdf; World Cocoa Foundation. 2012. Moses Asaga Keynote Address. http://worldcocoafoundation.org/wp-content/files_mf/speech_ministerasaga.pdf
 - 14 S. Benin and B. Yu. 2013. "Complying with the Maputo Declaration Target," op. cit. Refers to the latest period for which data exists (up to 2010)
 - 15 Government of Ghana. 2010. "Medium Term Agriculture Sector Investment Plan (METASIP) 2011–2015." <http://www.resakss.org/sites/default/files/pdfs/ghana-agriculturesector-investment-plan-45359.pdf>
 - 16 ODI. 2011. "Ghana's sustained agricultural growth: putting underused resources to work."
 - 17 World Bank. World Development Indicators 2013. World Bank. "Poverty & Equity: Ghana Country Profile" <http://povertydata.worldbank.org/poverty/country/GHA>
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CONCLUSION AND RECOMMENDATIONS

THE WAY FORWARD

CONTRIBUTOR

Pierre U. Ferrari is President and CEO of Heifer International.

The role of agriculture and smallholder farming in the African economy is critical. Agriculture is the sector from which the majority of Africa's populations draw their livelihoods. A robust and highly productive agricultural sector will undoubtedly increase food availability and lower food costs, which translates to food security. Incomes of farm households will increase, impacting poverty rates. Economically speaking, this will in turn stimulate demand for non-farm goods and services, which is a multiplier effect on the broader national economy. In many African countries, this, however, remains an ideal and an aspiration.

The current reality is that food production continues to lag behind fast population growth, which is expected to double by 2050.¹ Farm productivity is still low. An aging population dominates African smallholder agriculture, though Africa has the youngest population in the world. There is massive youth urban migration and an increasing disregard of farming as an enterprise. This has negative implications for the adoption and sustainability of new agricultural approaches.

Women farmers, who are by far the majority, remain on the periphery of most policy initiatives. Research and technological uptake is still the lowest in the world. There are still huge funding gaps for agricultural development. Livestock, despite being a major component of the asset portfolio of most smallholders and playing a key role in crop production, is largely underfunded. Land access continues to be a challenge for many smallholder farmers, especially women and youth. Market access and participation in the entire commodity value chain needs both policy and strategic intervention. There is a need to resolve it in a manner that balances political, social and economic imperatives.

There is hope, however, that Africa's agricultural potential will be realized. The political will behind the Comprehensive Africa Agriculture Development Programme (CAADP) is a firm foundation for future development. By committing 10 percent of their annual national budgets to funding agriculture, Africa's leaders have taken responsibility and initiative to mobilize their own resources to finance agriculture. External resources are also being mobilized around this commitment.

Much more needs to be done to achieve this goal, but an important beginning has been made. By 2013, 34 African countries had signed the CAADP compacts, while 30 of these had developed formal national agriculture and food security investment plans, which have become their medium term expenditure frameworks for agriculture. The net effect has been improved agricultural planning. On average, public agricultural spending has risen by 7 percent per annum across Africa since 2003. Annual agricultural GDP growth has averaged 4 percent since 2003. However, on a country-by-country basis, the picture is less promising. Fewer than 10 countries have achieved or exceeded the 10 percent annual budget expenditure on agriculture. Only 10 countries have succeeded in realizing 6 percent annual growth in agricultural production. In some countries, agricultural expenditure has actually decreased; in fact, it is estimated that there is an annual shortfall of \$2.9 billion. The 2012 United Nations Millennium Development Goals (MDG) Report states that Africa is 41 percent "off" the first MDG poverty target versus 25 percent in South Asia and 6.1 percent in Latin America.

RECOMMENDATIONS

The transformation of African smallholder agriculture into a viable commercial enterprise is a multi-stakeholder undertaking. It requires contributions from governments, development partners, multilateral development banks, private sector, financial institutions as well as farmers themselves and community associations. Agricultural support ought to take into account the complex interconnectedness of various factors within the whole gamut of the value chain. For example, Information Communication Technology (ICT) promises to revolutionize agriculture through real time transmission

of agricultural information across distances. However, the successful application of ICT depends on other factors that address the rest of the value chain. These include access to inputs, finance and training. There is, therefore, a need for a policy and regulatory framework that is consistent, inclusive and dynamic. The program to transform smallholder farmers from subsistence to commercial farming will not be a short-term process of only a few years; it will be a long haul, taking even decades to become sustainable. A number of key areas are at a critical level of change for smallholder farmers and families in order to improve the status quo:

Value Addition

There is a need to invest in local processing of commodities. This value addition creates employment both at community and national levels. It helps with preservation of perishable products and reduces post-harvest losses.

Improvement of Infrastructure

Poor roads, poor handling and storage facilities and inadequate irrigation infrastructure contribute significantly to both losses and low production. Much of Africa relies on rain-fed agriculture and the development of irrigation systems. Irrigation is a game-changer.

Livestock Development

The majority of smallholder farmers in Africa own and depend on livestock, either as pastoralists, or in integrated/mixed farming. In fact, much of crop production relies on livestock (draught power, manure); yet government programs favor crop production over livestock. There is need for comprehensive and meaningfully funded plans for livestock production and development, including research, breeding and marketing.

Land

There is a need to ensure equitable access to land by all smallholder farmers, including women and young people. Beyond access, security of tenure will in turn encourage farmers to make long-term investment decisions. Issues around land have to be resolved in ways that balance social, political and economic demands of communities and countries.

Climate Change

The devastation in the Sahel is a poignant call to all of Africa to research and plan for both adaptation and mitigation measures. Climate change is a slowly creeping, but deadly disaster. It is a clear threat to humanity and requires urgent attention.

Access to Credit

Distance, lack of acceptable collateral and the general perception that smallholder farmers are not creditworthy contribute to the inaccessibility of credit, though many small and large scale interventions have dispelled this myth. There is a need to structure and package credit programs that are user-friendly, with farmers' groups and associations being key intermediaries within the lending matrix.

Farmer Associations

Farmer associations and unions are a major link between farmers and other stakeholders along the value chain. These need to be developed and strengthened as part of the program of transforming smallholder agriculture. The success of the National Smallholder Farmers' Association of Malawi in spearheading the commercialization of smallholder farming is there and is worth replicating across the continent.

Market Access

Governments in Africa have a responsibility to ensure that smallholder farmers have access to all markets locally, nationally and globally. This calls for the harmonization of agricultural policies with trade policies so that the two are mutually reinforcing and not contradictory.

All in all, the program of transforming smallholder agriculture and general agricultural development should overcome sectoral limits and be part of a broader rural and national economic development agenda. In this regard, off-farm economic activities should be actively pursued in tandem with the agricultural ones as the two are organically linked.

1. William, J et al., 2012.

REFERENCES

ASFG, *Supporting Smallholder Farmers in Africa: A Framework for an Enabling Environment*, July 2013

Bill & Melinda Gates Foundation, *A Case for Livestock*, Feb 2012

Garvelink, W.J. et al, *Smallholder Agriculture: A Critical Factor in Poverty Reduction and Food Security in Africa*, February 2012

Salami, A. et al, *Smallholder Agriculture in Africa's Changing Economy: Case Studies*, AFDB Development Research Brief, Number 3, April 2009

UNDP *Realising Africa's Wealth: A UNDP African Facility for Inclusive Markets Report*, 2013

Whiteside, W. *Encouraging Sustainable Smallholder Agriculture in the Context of Agricultural Services Reform*, ODI, Natural Resources Perspective, Number 36, July 1998

High Level Panel of Experts on Food Security and Nutrition, *Investing in Smallholder Agriculture for Food Security*, Report Number 6, June 2013

McMillan, M. *Africa's Quiet Revolution* at <http://www.thisisafricaonline.com/News-africa-s-quiet-revolution>

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