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From the field: Empowering women to improve family food security in Afghanistan

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Abstract

Kitchen gardens may improve family food security and nutrition. While these gardens are the domain of women in Afghanistan, women face unique challenges accessing training and resources to maximize small-scale agricultural output. The University of Maryland's Women in Agriculture Project builds capacity among female extension educators to work with vulnerable women to implement and maintain kitchen gardens. Extension educators use experiential methods to teach vegetable gardening, apiculture, small-scale poultry production, post-harvest handling and processing, nutrition and marketing through workshops, demonstration gardens and farmer field schools. This paper explores contextual factors related to women's food security and agricultural opportunities, describes key project activities and approaches and discusses project success and challenges, sustainability and implications for future programs.

Key words: kitchen garden, food security, capacity-building, women, Afghanistan, development, farmer field schools

Introduction

Kitchen gardens have the potential to sustainably improve nutrition, food security and women's economic power, particularly when coupled with education and training in horticulture, food processing and nutrition. Because of women's limited mobility and access to resources, kitchen gardening may be particularly important in Afghanistan. This paper describes preliminary results from a food security and agricultural development project in Afghanistan, which aims to improve family food security and nutrition and increase women's economic opportunities through train-the-trainer programs with extension educators. First, we describe some contextual factors influencing Afghan women's agricultural opportunities, dietary quality and food security, followed by the project approach and activities. Given these, we discuss project successes, challenges and sustainability.

Women's role in agriculture in Afghanistan

For religious and cultural reasons, many Afghan women have been denied access to education or employment outside the home[1]. The average Afghan woman will have 6.6 children and live to be 44 years old[2]. Decades of conflict and the resulting displacement of the Afghan population has disrupted family life and further increased the burden of women. More than a million women in Afghanistan are widows[3], with 2% of households in Afghanistan headed by females and 4% headed by disabled males[2]. The restrictions on women's movement, education and property ownership mean that few income-generating options exist for women[2], leaving them and their dependent family members particularly vulnerable to economic hardship and food insecurity.

Because women comprise 65% of Afghanistan's agricultural workforce[4], the agriculture sector is a reasonable venue through which women could seek economic opportunities. Typically, women work in all stages of food processing and preparation within the home and are responsible for livestock care and kitchen gardens[5]. Universally, however, women do not participate in the market and are less likely to control income and spending than are Afghan men or women in other countries[5,6]. Additionally, women's contributions to agriculture in Afghanistan have been, and continue to be, systematically excluded in agricultural planning, production, record keeping and training[1,7].

Cultural restrictions concerning the interaction of women with non-familial males also restrict women's access to training and educational opportunities. As a result, very few women participate in higher education

and employment, including in the technical fields related to agriculture. Since women are responsible for many aspects of agriculture, the lack of training of women undermines the strength of the agricultural sector and has adverse implications for agricultural development, productivity and quality as well as for nutrition, food security and health[1,7,8].

Food security and dietary quality in Afghanistan

In 2012, the World Food Programme[9] reported that 30% of Afghans are food insecure, defined as consuming less than 2100 kcal day^{-1}. There are two groups of food-insecure Afghans, those who experience seasonal food insecurity due to preharvest food scarcity (February to May)[10] and those who are chronically food insecure due to poverty, with calorie and protein deficiency rates worsening in the spring and summer[11]. The Food Security and Agriculture Cluster of Afghanistan estimates 2 million people in 2014 will need food assistance and 1.65 million are in the chronic category[12]. Nearly two-thirds of children under five experience chronic malnutrition (stunting) and 8% experience acute malnutrition (wasting)[13]. Additionally, dietary variety is quite low, with staple foods comprising over 70% of daily calories[14]. Deficiency-related diseases are widespread[15], further undermining the well-being of women and families.

Food security and malnutrition in Afghanistan are often characterized as problems of low agricultural productivity due to traditional methods of production[16]. However, little correlation has been found between national food availabilities and food insecurity[17], which implies that programs simply aiming to increase national food production cannot address the challenges of chronic poverty, conflict-related disruption and household food insecurity. Conflict and insecurity, rather, are at the root of the population displacement that weakens both the academic and informal agricultural knowledge bases[4]. These factors, coupled with the trend of centralizing agricultural production, have led to poverty-related food insecurity. Afghanistan also has substantial numbers of internally displaced people who lack the land access and cash resources necessary to obtain food on the market. Many more individuals are chronically food insecure due to extreme loss of livelihood assets[12]. Food insecurity is expected to increase in 2014 as a result of recurring drought and natural disasters[12] and ongoing instability.

New needs for urban agriculture in Afghanistan

Urban populations in Afghanistan have increased substantially since 2001, due to the post-conflict return of refugees as well as migration for economic opportunities and security. These changes have intensified the dependence on peri-urban agricultural production[16] and rendered food security linked primarily to income and market access. These circumstances particularly disadvantage women, who typically have limited access to income and capital.

As the academic agriculture, extension and non-governmental organization (NGO) communities receive funding and support for small-scale agriculture projects, kitchen gardens have emerged as suitable means to promote home food production among women. The kitchen garden typically includes a diverse selection of plants and livestock that are well adapted to local microclimates and maintained with a minimum of purchased inputs[18]. The kitchen garden supplements the diet with vitamin-rich vegetables and fruits, energy-rich vegetable staples, animal protein and herbs that may be otherwise unaffordable. It may also provide access to decision-making power and earnings for women[19–22], which tends to produce spending on children's health and nutrition[23,24]. Evaluations have shown that kitchen gardens increase garden size, dietary variety and household income and reduce vitamin A deficiency[19–22,25].

Kitchen gardening is accessible to the very poor, as it requires minimal inputs, uses low-risk technology, and can be implemented in urban or hostile growing environments. A garden could be the principal source of household food and income during periods of stress by providing direct access to food on a daily basis[26]. In Afghanistan, gardening and livestock production are culturally appropriate activities for women and can generate more income than most activities in which women are currently involved[1].

The Women in Agriculture (WIA) Project

The WIA is one of four initiatives of the Afghanistan Agriculture Extension Project (AAEP), a USDA-funded effort to help Afghanistan strengthen its agricultural extension system. WIA, led by the University of Maryland, aims to strengthen the capacity of female extension agents with the Home Economics Department of the Ministry of Agriculture, Irrigation and Livestock (MAIL) and the provincial Directorates of Agriculture, Irrigation and Livestock to teach vegetable gardening, beekeeping, small-scale poultry production, post-harvest handling and processing, nutrition and marketing. In February 2013, WIA established the WIA Training Center in Kabul, which maintains 5000 m^2 of organic demonstration gardens, an apiary and a poultry production unit. Since March 2013, WIA has facilitated the horticultural and livestock Farmer Field Schools (FFS) at the Training Center, reaching 32 extension educators each week. By April 2013, each extension educator had established at least one kitchen garden FFS in the villages of Kabul's peri-urban districts, working with an average of ten community women.

The 5000 m^2 of land at the WIA Training Center has been divided into 100 demonstration plots, 75% of

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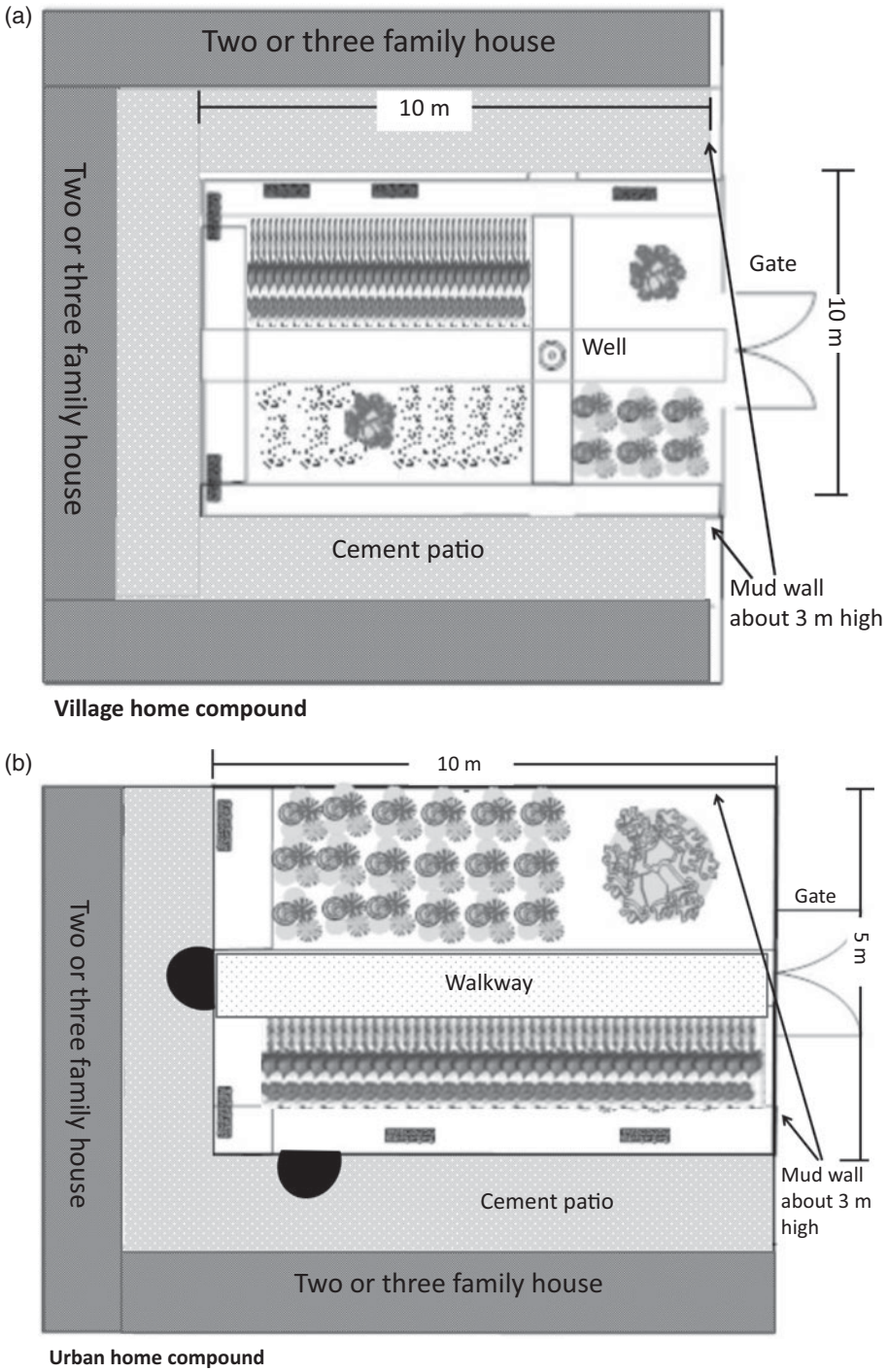

Figure 1. Typical home compounds: (a) village home compound; (b) urban home compound.

which are 100 m^2 and 25% of which are 50 m^2. The smaller plots reflect a typical compound size in the area (see Fig. 1), whereas the larger plots are used to demonstrate particular horticultural concepts. The AAEP–WIA Training Center farm compares new and traditional horticultural techniques side-by-side. For example, one plot demonstrates companion planting with an array of companion vegetables, whereas another plot groups foes together. As the season progresses, FFS students can easily observe the results of these planting schemes.

Extension agents receive training in teaching numeracy and accounting, developing appropriate materials for their target audience, tracking process and outcome data, preparing demand-driven proposals for MAIL funding and establishing cooperatives. Needs assessments and discussions with extension educators and student interns determine the bulk of the content of demonstrations as

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Table 1. WIA training topics.

Area	Specific topic
Preparation and planting	Seedling selection, planting, labeling, germination testing
	Garden planning: companion planting, square foot gardening
	Bed preparation, soil assessment and amendment, composting, mulching, vermiculture
	Rotation, succession, cover crops
	Microwatering
	Pest identification and management
	Season extension, early and late planting, cool weather crops, winterization, perennial gardening, hoop house design and construction
Harvest and post-harvest	Proper harvest and storage of vegetables
	Food processing for nutrient preservation and quality
	Food preparation for nutrient preservation and quality
	Dairy processing
	Food safety
	Dietary diversity
Specific crops and animals	Herbs: drying of herbs, medicinal value of certain herbs, processing mint extract
	Fruit trees: setting up a certified tree nursery, fruit tree pest management
	Saffron: planting and harvesting
	Poultry: breeding, vaccination, housing, hygiene, feed formulation, egg production
	Beekeeping: hive set-up, inspection, feeding, mite treatment, honey harvesting, winterization, culling
Business and marketing	Developing an association
	Numeracy, accounting and budgeting
	Marketing: pricing, quality, cooperative marketing
	Proposal writing, program planning, record keeping
	Technology use
	Planning demonstration farms with an FFS focus
Evaluation	Household survey data collection techniques
	Tablet-based survey administration

well as the FFS weekly topics. The farm also demonstrates several low-cost methods such as micro-watering techniques using recycled buckets, plastic grocery bags and bicycle inner tubes. The FFS curriculum addresses a range of food production topics including seed germination, soil preparation, drip irrigation, integrated pest management, proper harvesting and marketing of products (see Table 1). A few plots contain experiments developed by the WIA staff directly, including a low-tech hydroponics demonstration using fermented compost tea and carbonized rice hulls, planting saffron at higher density (100 kg/100 m^2 versus the traditional 22 kg/100 m^2) and pruning melons for higher quality production. A typical FFS day begins with a farm tour to observe and discuss developments, problems and solutions. Then, participants plan for village FFSs, engage in experiential workshops and complete farm maintenance. The content of the village FFSs is similarly based upon what the extension educator and her students decide, based on particular problems and interests.

In Afghanistan, water is chronically limited, soil conditions are very poor, organic and conservation farming methods are nearly unknown. Moreover, the dangers of pesticide use in kitchen gardens are particularly acute. Therefore, in an effort to communicate the most progressive ideas to the agricultural technology toolbox and emphasize concepts of environmental stewardship in agricultural development, the University of Maryland project staff decided to use organic and conservation farming methods in demonstration plots.

An important feature of the FFS approach is the bidirectional flow of teaching and learning. FFSs provide an alternative to the conventional top-down extension approach used widely in Afghanistan by emphasizing participatory methods, experimentation and fluid problem solving (see Waddington et al.[27] for a comprehensive FFS theory of change). The FFS facilitator can choose from the techniques presented at the AAEP–WIA Training Center and apply those that seem appropriate or experiment with modifications using a combination of local experience and new knowledge. By supporting the village FFSs with some inputs, WIA removes the risk of trying new ways of gardening. The WIA master trainer mentors the extension educators, visiting the village FFSs and the student gardens to address technical challenges and understand the extent and technical accuracy of the information transfer. The train-the-trainer model used in the WIA project reaches over 250 women, many of whom have never been reached by other programs due to restricted mobility and security concerns. After the end of the first FFS season, AAEP–WIA will focus on refining the technical transfer techniques, improving the

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bidirectional flow of information and introducing business skills that will improve the potential of kitchen gardening as an income-generating activity.

The WIA project benefits from partnerships with long-established NGOs and associations such as the Dutch Committee for Afghanistan, Physiotherapy and Rehabilitation Services for Afghanistan (PARSA), which manages the Afghan Red Crescent Society, the Afghan National Nursery Growers Organization and the Afghan National Horticultural Development Organization. These partnerships foster the sharing of resources and expertise to strengthen the reach and effectiveness of each organization. WIA also provides internships for women who are seniors with the Faculty of Agriculture at Kabul University.

Successes and Challenges

While many projects address home food production and provide technical assistance in agriculture, the WIA project features a number of key elements that focus on sustainability and the empowerment of women. One of the core elements is targeted, effective training of women by women. As women do much of the practical work in horticulture and livestock, improvements in these areas of agriculture depend upon the proper training of women by women. Within the constraints of the cultural norms, the WIA project utilizes women as project staff and village FFS facilitators, which enables more meaningful interaction and training to occur. It also empowers women to openly express needs, which is key to demand-driven extension services. Additionally, WIA and extension staff mentor women in their homes on a weekly basis, applying experiential teaching techniques and providing technical knowledge in key topic areas. The informal, hands-on and interactive style of training works well for women with limited literacy and classroom experience. This investment in education and consideration of gender-specific issues is more likely to produce nutrition improvements[28]. Not only is this sustainable, it is also easily replicable and scalable.

A core value of the WIA project is the encouragement of self-reliance. Home food production allows women to gain control over food security and nutrition for their families while also providing opportunities to participate in the market. Through participation in FFS trainings, the extension educators are empowered to work alongside other women in the fields, find appropriate and creative solutions to challenges they face and model these behaviors as community leaders. Few materials are provided through FFS, so women must find ways to get seeds and garden tools. For example, some women have chosen to aggregate very small amounts of money to collectively purchase seeds and other inputs, which they divide among themselves. Others have opted to use low or no cost technologies such as drip irrigation using plastic bags.

The WIA program has trained 12 extension educators to collect food security and dietary diversity data to teach needs assessment and evaluation skills. The extension educators learned to use computer technology for data collection, knocked on doors in villages far from home and interacted with women of different ethnic and socioeconomic backgrounds. This process heightened the awareness of and commitment to ameliorating challenges faced by Afghan women in their communities.

Despite successful implementation of WIA, many challenges to implementing agricultural training and educational programs for women in Afghanistan remain. Three primary challenges include the politics of collaboration, gender-specific restrictions on rights, education and mobility, and the generally poor infrastructure and security. With a large number of foreign governments and NGOs and heavy reconstruction investment, many projects have duplicative or competing goals and target audiences. As project funding ends, often too do successful initiatives and partnerships. Moreover, local and national organizations frequently adapt their priorities based on these projects and availability of funds, rather than need alone.

An unfortunate but common corollary of development conducted by some aid agencies is that political or personal financial gain often interferes with organizational leaders' capacities to collaborate with stated agendas and national strategic goals[29]. Limited managerial and organizational capacity further undermines functional partnerships, cooperation and outcomes. Thus, negotiating expectations for project activities, division of responsibilities, resource contributions of partners and other elements is challenging and frequently politically motivated. In Afghanistan, tying ministry staff compensation to workshop attendance rather than performance or outputs is widespread, which has undermined staff commitment and success. Similarly, because many aid donors and NGOs operate in crisis mode and focus on handouts (e.g., seed distribution) rather than capacity building, a condition of learned helplessness is often perpetuated. In contrast, MAIL has recognized the WIA project as a successful way to extend agricultural knowledge, funding the enrollment of 900 families into the program for next season. Farmers and extension agents in the provinces of Tahar and Kunduz have also requested projects such as WIA. In addition, the WIA project does not provide compensation for workshop attendance nor for work at the FFS, which has not hurt workshop attendance and may have improved attendee participation and investment.

While women are legally permitted to work in Afghanistan, family and community norms may prevent women from leaving their homes, obtaining education and employment, and seeking economic self-sufficiency. Women who do work outside of the home are often

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subject to marginalization and discrimination and may be targeted for violence. Even in urban areas, commerce is male dominated, which prevents women from being active participants in selling excess yields directly to consumers. Low literacy and numeracy skills make women vulnerable and increase transaction costs[8]. Knowledge transfer between women and men is often restricted or impossible, particularly in rural areas. The result is a diminished pool of candidates with whom to work and a diminished number of women represented in the extension service throughout Afghanistan. Women's underrepresentation limits the pace of improvements in agricultural techniques and the voices of women in the community and agricultural development of the country[30].

Implications for Future Projects

Implementing development projects that target women is particularly challenging in a country such as Afghanistan that struggles with security and major infrastructure deficiencies. Furthermore, the marginalization of women limits the quality, rate and focus of development. Oftentimes, the need to focus on these fundamental issues detracts from the capacity of individuals, communities and organizations to invest in the future. However, many projects have framed these challenges as opportunities to enable creative and sustainable solutions.

The WIA project has benefitted from local support, which ensures cooperation and collaboration during the project and increased odds of sustained programs, funding and impact beyond the project period. The WIA project has a flexible structure, which has allowed it to integrate with different departments of MAIL and other agencies as opportunities arise. While project implementation often requires patience and flexibility in such a challenging environment, these challenges often produce approaches and adaptations that strengthen learning and problem-solving skills in a train-the-trainer model and define unique roles for program participants. For example, the WIA extension educators have improved their reach to vulnerable women by meeting in their homes, which allows teaching, learning, listening and sharing to occur more freely and spontaneously. Training women as teachers of women utilizes community networks to naturally spread knowledge and fosters a powerful sense of cooperation and productivity uncommon in Afghanistan.

The WIA project has challenged extension educators to be responsive to cooperative leaders and women farmers, focusing on topics and skills they identified as areas of need and interest. The project has produced great enthusiasm from extension educators. These features alone have positively impacted the opportunities of many Afghan women. Some women have gardened for the first time with results that have encouraged them to continue next season.

While initial outcomes are promising, extensive improvements in the broader contexts are needed to sustain positive changes. The extension service needs many years of support and capacity building to transform its top-down approach to extension and its deficit of capable female extension educators. Women need continued support in the management of kitchen gardens to reduce food insecurity and diet-related health problems. Furthermore, they are in need of basic literacy and numeracy skills to support the development of food production ventures. Such educational and economic opportunities would serve not only as culturally appropriate livelihoods, but also as catalysts of empowerment and self-reliance in many other realms.

Supplementary Material

For supplementary material accompanying this paper, visit http://dx.doi.org/10.1017/S1742170514000209.

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