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Technical Note #83

Agriculture Extension with Community-Level Workers:

Lessons and Practices from Community Health and Community Animal Health Programs

What's Inside:

Prepared by Brian Flanagan as a USAID-funded Modernizing Extension and Advisory Services (MEAS; www.meas.illinois.edu) project.

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Figure 1: *Farmer sharing with others in his community (source: Brian Flanagan).*

Introduction

Purpose of the document

Active learning and exchange of knowledge are key to farmer adoption of beneficial agricultural innovations. Community health worker (CHW) and community animal health worker (CAHW) programs have led to a rich body of knowledge about extension, much of which is applicable to efforts aimed towards small-scale farmers. Drawn from the literature on these programs, this document captures key lessons and practices relevant to developing, implementing, and sustaining effective community agriculture extension endeavors. The objective of this paper is to inform and strengthen agricultural extension programs that provide services through community-level workers (Fig. 1).

Overview of agriculture extension and advisory services

Historically, the concept of agriculture extension was developed around the practice of "extending" research-based knowledge to farmers in rural areas so as to improve their lives (Davis 2008). In this top-down approach, researchers developed new technologies and innovations, which extension workers then passed along to farmers. Extension services disseminating information to farmers were often managed by governments.

Now a wide array of organizations are providing an increasingly broad range of extension and advisory services (EAS) to farmers and others involved in agriculture value chains. Organizations now involved in EAS include governments, research centers, universities, civil society, non-governmental organizations (NGOs) and the private sector (Sahlaney et al. 2015). Dr. Kristin Davis, the current Executive Secretary of Global Forum for Rural Advisory Services, wrote in 2008, "Today's understanding of extension goes beyond technology transfer to facilitation, beyond training to learning and includes assisting farmer groups to form, dealing with marketing issues, and partnering with a broader range of service providers and other agencies."

Many of these organizations providing EAS are shifting away from the top-down approach to a more holistic approach that includes a better understanding of how and where farmers get their information and technologies (Swanson and Rajalahti 2010). In efforts to improve EAS services in hard-to-reach, rural smallholder communities, and to gain a better under-

standing of local resources and needs, organizations might consider EAS programing facilitated by community agriculture extension workers and modeled after CHW and CAHW programs with proven success.

Overview of community health worker and community animal health worker programs

Figure 2: *Community health worker weighing a child at a rural clinic (source: Keith Flanagan).*

The term "community health worker" (CHW), before being coined in the 1980s, was often referred to by various other names such as: health auxiliary worker, heath promoter, health volunteer, community health aide, village health worker, etc. (Frankel 1992; UNICEF 2004). One of the earliest and most successful examples of a CHW program was started in China in the 1920s. Illiterate farmers were trained to record births and deaths, vaccinate against smallpox and other diseases, and provide basic first aid and health education talks. The CHWs were originally known as "farmer scholars" but later referred to as "barefoot doctors." It is estimated that by 1972, one million barefoot doctors were serving a rural population of 800 million people in the People's Republic of China. In the 1960s, the barefoot doctor approach gained the attention of the world as the modern Western medical model of trained physicians was not able to meet the needs of the rural poor in the developing world (Lehman and Sanders 2007; Perry et al. 2014). There are examples of CHW programs being implemented globally (Bhutta et al. 2010), providing services related to health promotion (Fig. 2) as well as disease prevention and treatment. These services are usually rendered by CHWs who visit people in homes or other community locations such as clinics (Crigler et al. 2013).

The term "community animal health worker" (CAHW) encompasses a range of names used for primary-level veterinary workers, including community-based animal health workers (Fig. 3), para-vets, and barefoot vets (Martin Curran and MacLehose 2011). The CAHW concept is thought to have stemmed from observations within the human health sector of approaches such as the barefoot doctor method used in China. One of the first CAHW pushes occurred in the 1970s as the World Bank encouraged livestock producers associations to use grassroots level para-veterinarians to attend to rural livestock. Subsequently, various NGOs and governments have been using and refining the model to meet communities' animal health needs (Tunbridge 2005). This model grew quickly in the 1990s and has often been adopted by NGOs (Leyland et al. 2014). In 2003, a comprehensive study estimated that CAHW programs have been implemented in 47 different countries with all continents represented (Grahn and Leyland 2005). Like CHW programs, CAHWs provide a range of community services depending on their training and the material resources available to them. CAHWs often provide preventive, diagnostic and curative services relevant to the most pressing animal health problems that communities face (Catley et al. 2002).

Figure 3: *A pair of community animal health workers vaccinating a pig (source: Keith Flanagan).*

CHW and CAHW programs around the world differ depending on factors such as funding, local culture, the degree of government involvement, the level of community participation, available resources and needs. The specifics of the services provided, as well as the framework in which CHWs and CAHWs operate, can vary greatly by project. Overall, CHW and CAHW programs are based on the assumption that: 1) the community workers live---and probably grew up---in the local community they serve, and 2) they have a basic level of training in the services and knowledge they will be sharing with the community (Catley and Leyland 2002; Lehmann and Sanders 2007). It has also been noted that both programs work best in rural communities that lack reliable access to professional health and animal health services, linking rural communities to larger systems, i.e.; hospitals or veterinary practices (Peeling and Holden 2004; Leyland et al. 2014; Perry and Crigler 2013; Berggren 1974). Throughout the literature, examples are found of both successful and failing CHW and CAHW programs. Because of the popularity of these programs, academics and practitioners have studied both to evaluate what aspects have worked and what have not.

Framework of the paper

This paper reviews CHW and CAHW case studies, peer-reviewed articles, guidelines and project reports for purposes of identifying lessons and practices that could enhance the effectiveness of community extension worker programs. Lessons learned, as well as specific ways (practices) to apply those lessons, are identified for each of six developmental stages that the author found were characteristic of successful CHW and CAHW programs and relevant to agricultural community extension. Those six stages are: 1) designing a program, 2) recruiting and selecting of community workers, 3) training of community workers, 4) supervising of community workers, 5) scaling-up programs, and 6) sustaining programs over time. Key lessons and practices for each stage are listed in table form and then elaborated upon in the text.

Designing a community agriculture extension worker program

Preview

Proper design, the first stage of program development, provides the organizational structure in which community workers can serve effectively. For many years, programs were established using the afore-mentioned top-down approach, with little community input. Over time, project organizers have increasingly involved the community in the design phase of agriculture extension programs (Black 2000). Table 1 lists key lessons and practices that are especially helpful to those using participatory approaches in designing their programs.

Table 1. Lessons and practices for designing a community agriculture extension worker program.

Lessons learned	Best practices
Communities are made of diverse groups of people with a variety of resources and needs.	Identify and include the various stakeholders in the planning of an extension program.
Participatory methods encourage community ownership.	Train program staff in the use of participatory approaches.
	Use participatory approaches to assess community resources and constraints.
	Use participatory approaches to identify the services to be offered.
Programs should be in step with professional and governing entities within the national context.	Stay informed of national policies related to agriculture.
	Involve the local government in the planning process when possible.
Roles and responsibilities of the stakeholders should be established.	Identify and document roles and responsibilities of all stakeholders early on.

Lesson: Communities are made of diverse groups of people with a variety of resources and needs

When starting a community-based project of any kind it is important to realize that with the influence of factors such as social class, communities are not "homogenous entities" in which everyone lives the same way or has the same interests and aspirations (Frankel 1992). Rather, people within a community have varying perspectives, needs and ideas. This diversity should be accounted for in the initial project development stages (Catley 1999), so it is important to identify and include the various stakeholders (Box 1) in the planning of a program. One guide to establishing CAHW programs suggested identifying which groups have a "stake" in the project and ask the question: "How will each of these different groups benefit or suffer from the project?" (Catley et al. 2002).

Box 1. Likely stakeholder groups to be found in community agriculture extension programs (adapted from Catley et al. 2002).

The following groups of people can potentially be impacted by an extension program and should be considered and consulted during the planning process.

Farmers: This stakeholder group includes a wide range of people, from low-income women farming less than a hectare to large-scale farmers who own substantial amounts of land and hire labor to work their holdings.

Agronomist/agriculture technicians: Those in this group include government staff, NGO technical staff, or community members who have formal agriculture training.

Suppliers of agriculture products: These people are often small-scale shop owners and larger agrochemical companies who may be based in the area.

Program management staff: This group includes support staff employed by NGOs or the government who may not have formal agriculture training.

Lesson: Participatory methods encourage community ownership

Throughout the literature on CHW and CAHW programs, there is an emphasis on community involvement (Fig. 4) in the planning process. Community members benefit as they begin to take ownership of the program early on, increasing the overall sustainability of the project (Mariner et al. 2002). Simultaneously, program implementers are better informed of local needs (Ghirotti 1994). It is important to note, however, that the level and type of community participation can vary greatly. Without a full understanding of a community's capacity to participate, community involvement can at times be something that happens only in word and not in action, causing more harm than good (Frankel 1992). Participatory methods enable project planners to gain much-needed base-line knowledge, while also allowing the community to take an active role in the planning process (Mungunieri et al. 2004).

Figure 4 : *A meeting in which community members, local government officials and NGO personnel are all participating in discussing a community program (source: Brian Flanagan).*

To be effective in encouraging community participation, staff should be trained in the use of participatory approaches (Catley et al. 2002). Participatory approaches have been used in CAHW programs since almost the start (Tunbridge 2005). There are various participatory methods and tools that are available (Table 2). It should be noted that this approach is not

Table 2. Participatory tools helpful in gaining insights pertaining to various types of information (adapted from Guijt 1998; Catley et al. 2002).

Information needed	Participatory tools*
Sociopolitical	Social maps, Venn diagrams, semi-structured interviews
Livelihoods	Natural resource maps, wealth ranking, seasonal calendars, labor calendars

*See the Further Reading section for more information about each of these tools.

just about methods and tools but requires staff to be respectful, sensitive, and open to working with and listening to community members (Schreuder and Ward 2004; Maphorogo et al. 2003).

Participatory approaches can also be used to assess local resources and constraints and to identify services to be offered. Examples of the type of information that can be gathered at the start of a project are shown in Box 2.

Box 2. Findings of a CAHW case study, showing categories of data collected in communities (Grandin et al. 1991).

The Intermediate Technology Development Group (ITDG) implemented the Kenya Livestock Programme (KLP) which was involved in over a dozen CAHW projects in Kenya. In a three-year review of KLP, ITDG found that data collection activities were a vital part of the program's goal of achieving a "socially sensitive" technical approach which identified the poorest people in the project area and built upon their existing expertise. In assessing community needs, the KLP gathered data focused on the following types of information:

Sociopolitical: A description of the average household detailing divisions of production/consumption, levels of socio-spatial community organizations (e.g., compounds, neighborhoods, villages), the main types of cross-cutting ties (e.g., clans, age sets, religious affiliations), functioning groups within the community, and egocentric networks (e.g., in-laws, mother's kin).

Livelihood: An assessment of the main sources of livelihood and cash income in which elements of the general agricultural production system are described. These elements include items such as access to land, labor, capital, markets, crops grown and their functions, as well as the types of livestock kept and their importance. This information should be gathered from various agro-ecological zones within the project area and from households representing different wealth ranks. Information on gender roles should also be gathered within households.

Livestock: A clear understanding of the importance of animal health, detailing the most important diseases and farmers' understanding of the diseases.

Conclusion It was determined that because of the lack of well-developed methods for rapid appraisal of rural social structures, KLP was often hampered in its ability to gather detailed social organizational information. ITDG also cautioned that even though project partners can serve as valuable informants, it is important to be aware that their feedback might be biased; partners may directly benefit from the program, thereby influencing their input. Obtaining reliable feedback may require reframing the questions asked to get more accurate assessments. ITDG also recommended that the questions require farmers to look beyond the constraints that they currently live with (which may or may not be the overall priority over the long term) and expand the focus to include multiple time frames within the past year.

Lesson: Programs should be in step with professional & governing entities within the national context

Much of the current literature on CHW and CAHW programs is based on the need to integrate their activities into the larger national health and animal health frameworks of the countries in which they serve (Perry and Zulliger 2012; Leyland et al. 2014). Both CHW and CAHW programs have struggled with a lack of recognition by the professionals or government authorities in their respected fields. The effectiveness of extension workers is reduced when they cannot operate within the larger system that provides rural communities with essential health-related services, such as legal access to pharmaceuticals and formal referrals. This is not always the fault of professional or governmental agencies, as programs are often developed outside of their influence (Mugunieri et al. 2004; Stoufer et al. 2002; Walker et al. 2013). If integrated properly, as many CAHW programs are, the community workers can be a vital communication link between communities, professionals in their field, and the government (Bhandari and Wollen 2008).

Likewise, the staff of agriculture community extension programs should plan and implement their projects within the parameters of existing authority structures. This can be done by staying informed of national polices related to agriculture and involving the local government in the planning process when possible (Mugunieri et al 2004; Walker et al. 2013). Difficulty arises in cases of political instability or lack of political will. However, leaders in CHW and CAHW fields find that governmental support is required and important for long-term sustainability as well as for scaling up their programs to have an impact at the national level (Perry and Zulliger 2012; Leyland and Catley 2002).

Lesson: Roles and responsibilities of the stakeholders should be established

Early on in the development of a program, after confirming that it is feasible to start a project in an area, it is important to identify and document the roles and responsibilities of all stakeholders. Stakeholders likely to have roles and responsibilities in a program are community members, the community extension workers, other project staff, other organizations involved in the project (local or international), and government agencies. It is useful to discuss the community worker's roles with residents during the early assessment of the community and when developing the roles and responsibility agreements between the various stakeholders. The specific roles

of community workers will depend on the problems that the project attempts to address, the needs of the community, and possibly government priorities (Catley et al. 2002).

Detailing stakeholders' roles and responsibilities in a written document ensures that everyone agrees with and understands their duties within the project. This document can then serve as a reference if, later on, there are misunderstandings and claims that individuals or groups were not aware of their responsibilities (Catley et al. 2002).

Recruitment and selection of community-based agriculture extension workers

Preview

Another important aspect of program development is the recruitment and selection of community workers. Worldwide, agriculture extension programs have struggled to find staff that are technically trained and also willing to accept assignments in rural locations (Axinn 1988). This has also been a struggle that the public and animal health sectors have faced (Perry and Zulliger 2012; Leyland et al. 2014). Although CHW and CAHW programs address this issue by recruiting local community members, program success depends heavily on proper candidate selection. This lesson, along with related practices (Table 3), are discussed below.

Table 3. Lessons and practices for recruiting and selecting community agriculture extension workers

Lesson learned	Best practices
Identifying the right community extension worker is important to project success	Involve the community in the recruitment /selection process of finding extension workers.
	Identify the appropriate selection criteria for deciding which candidates are the best fit for the program and community

Lesson: Identifying the right community extension worker is important to project success

The selection of quality CHWs and CAHWs was identified in much of the literature as the process most critical to the success or failure of a program. Having the right fieldworkers maximizes the number of beneficiaries reached, improves the quality of services provided and even increases the retention rate of community fieldworkers (Catley et al. 2002; Perry and Zulliger 2012). In finding workers who will meet the needs of the community while encouraging community ownership of the program, a best practice is to involve the community in the recruitment and selection process. (Crigler et al. 2013; Peeling and Holden 2004; Gebrian 1993). To what extent the community is involved in the recruitment and selection process depends on the specific program.

Figure 5: *Veterinarian meeting with a group of selected community animal health workers (source: Jan Flanagan).*

In selecting fieldworkers, one approach is to choose them from within the community (Fig. 5), with limited community involvement in the selection process (Perry and Zulliger 2012). Another is to involve the community in determining the criteria to be used in recruiting fieldworkers (Catley et al. 2002). Grahn and Leyland (2005) went further by discussing an approach in which the community is involved in the entire selection process.

If the community is involved in the selection process, staff should be aware of possible favoritism and ensure that ethnic minorities or the marginalized and poorer groups in the community are not excluded from the process (UNICEF 2004).

Box 3 highlights several methods used to select community fieldworkers.

Box 3. Recruitment processes used by each of three different community health worker (CHW) programs (Scheiff 2014).

Iran's CHW program	India's CHW program	Rwanda's CHW program
A formal process is used, involving recruitment committees in each district. Appropriate candidates are recruited from the district, making use of local media. The candidates then take a written exam and are interviewed by the committee.	This program has three types of CHWs, with each type having different roles and levels of training. The two with roles that require less training are selected by their village. The CHW that requires more training and responsibility are selected by the district health administration.	The CHWs come from the village they will be working in. Village members elect the CHWs by voting "with their feet". This voting process involves community members lining up in front of the person they support. The person with the most support is selected.

Another practice, highlighted in the literature as being key to the recruitment process, is to identify the appropriate selection criteria for deciding which candidates are the best fit for the program and community (Bhutta et al. 2010); Peeling and Holden 2004). Community

involvement in shaping the selection criteria helps to ensure that the chosen candidates will meet the needs of the community (Mungunieri et al. 2002; Perry and Zulliger 2012). Examples of community-selected criteria for CAHW programs are listed in Box 4.

As frequently highlighted in CHW and CAHW case studies and guides, finding the "right" community worker hinges largely on how helpful the selection criteria are in enabling project planners to screen candidates for personal characteristics that the community would like their field extensionists to have. This can be difficult, as many of the personal characteristics are hard to define and measure (Mugunieri 2002). The selection criteria are often based on residence, age, language ability, cultural understanding, literacy, and gender.

Box 4. Community-selected criteria for specific community animal health worker (CAHW) programs in Africa.

CAHW program in Southern Sudan (Tunbridge 2004)	**CAHW program in northern Malawi** (Hüttner et al. 2000)
Not a town dweller Livestock owner, someone who has lived his whole live with livestock Knows the taste of milk, not alcohol (not an alcoholic) Is physically fit and brave Someone you could send far away to take your bull somewhere, knowing that he will come back (someone you trust)	Literate Experience with livestock keeping Age (community members want elders who are respected, but the program also needs people who can complete physical tasks)

Residence of community workers

As mentioned, both the CHW and CAHW systems are based on the fact that the community workers are locally based. One weakness of the modern human and animal health care systems is that the services of doctors and veterinarians do not often reach the isolated rural poor. Recruiting community-based fieldworkers, therefore, greatly increases the local population's access to services (Hüttner 2000; Gebrian 1993). If for any reason the person selected is from outside of the community, then the community should be in agreement with the selection decision (Perry and Crigler 2013). In the case of CAHW programs, where payment is often required for the treatment of animals, the use of local people decreases overhead costs of services offered to the community (Peeling and Holden 2004). It is also thought that community involvement in the selection of locally-based personnel brings more accountability for workers to follow through with their commitments (Bhutta et al. 2010; Catley et al. 2002). Furthermore, as was the case with a CAHW program in Afghanistan, workers who are already established in each community are able to continue providing services during times of conflict when access by outsiders is impossible (Schreuder and Ward 2004).

Age of community workers

Community members typically want someone who is considered an elder because they trust them more than a younger person. Considering the physical demands of the job, it is also important that the worker not be too old (Hüttner 2000). Although some have concluded that older workers are better than younger ones (Peeling and Holden 2004), this view is often opposed. As pointed out by Munguneiri (2002), there is little research to show that younger workers cannot perform as well as older workers. Also, there have been case studies documenting solid performance by younger workers (Catley et al. 2002). In the case of CHW programs, it has been noted that young women workers frequently move away to either get married, follow a spouse, or take another job in town.

Perry (2013) suggests recruiting workers across a range of ages. The resulting mix of younger and older workers ensures that a program benefits from the energy of youth as well as the respect that communities have for seasoned workers with years of experience. This approach also has the effect of minimizing the loss of personnel due to younger workers looking for other career opportunities and older workers transitioning to retirement.

Language and cultural understanding

In regions where multiple languages are spoken, it is important to have community workers who can communicate and relate to the group of people they are working directly with. They not only need to speak the language but also understand the local culture so that they can most effectively serve that specific community (Knowles 2007; Mugunieri et al. 2004). In many places, local recruitment is all that is needed to make sure that community workers possess the necessary language and cultural skills/understanding. However, multiple community workers may be needed in countries where a broad diversity of ethnic groups is found in a small geographic region (Perry and Crigler 2013).

Literacy levels

This issue of whether or not community workers must be literate is often debated, with cases to be made for both sides of the argument (Mariner et al. 2002; Mugunieri et al. 2002). The advantages and disadvantages of literate and illiterate CAHWs are shown in Box 5.

Gender

A mixed team of men and women can meet a wide range of needs with both genders involved in the community development process (Catley et al 2002). For instance, CHW programs often recruit female workers because many of their efforts are focused on women's and child health (UNICEF 2004). In many of the CAHW programs, recruitment is geared towards men (Mugunieri et al. 2002), presumably

Box 5. Advantages and disadvantages of literate and illiterate CAHWs (Catley et al. 2002).

Illiterate CAHWs are:	Literate CAHWs are:
Likely to have spent long periods of time caring for livestock, accumulating a wealth of indigenous knowledge	Able to read written training materials and write reports on their activities
Likely to be more accepted by livestock keepers, because they may also be illiterate and because illiterate CAHWs are often older than their literate counterparts	Less likely to be acceptable to livestock keepers because they may be considered an outsider for having attended school
Less likely to use their position to get another job	More likely to be drawn to an urban lifestyle than a rural livestock-rearing way of life
Less able to understand written instructions or provide written reports, but can benefit from effective training methods for illiterate CAHWs and make use of well-established and widely-used pictorial reporting formats	

because many CAHW programs focus on livestock that men raise. In cultures with profound gender biases, and in which programs tend to focus on areas that only concern men, it is still important that female voices are heard so that the vital role of women in a specific sector is not overlooked.

To encourage female participation in the program, women should first be included in the assessment process of the community, helping the program staff to better understand local gender roles and how those roles relate to program activities. Provision should also be made for involvement by women in the recruitment process, as it is otherwise unlikely that men will decide on their own to select female community workers (Catley et al. 2002). In some programs, to encourage gender equality, the implementing organization puts a quota on the number of men and women to employ, or they may provide training for husband and wife teams (Peeling and Holden 2004; Scheiff 2014).

The training of community agriculture extension workers

Preview

Training agriculture extensionists is key to the implementation phase of any agriculture extension program. Be aware that courses held in large cities or abroad are likely to be more theoretical and less practical, in terms of equipping workers to reach their target communities, than training conducted within the local context (Adams 1982). CHW and CAHW training programs have focused on developing the required skills for community workers to complete the tasks required for their roles and responsibilities (Bhutta et al. 2010; Catley et al. 2002). This section looks at CHW and CAHW lessons and practices that can strengthen the training component of a community agriculture extension worker program (Table 4).

Table 4. Lessons and practices for training community agriculture extension workers.

Lesson learned	Best practices
Properly trained extension workers are essential to the provision of successful program services.	Consider gender, timing, location and length of each course as well as the trainees' level of education.
	Teach content based on the role and responsibilities of the community worker.
	Adapt the curriculum for a specific geographic region as required.
	Use participatory training methods to teach extension trainees.
	Provide refresher courses to help reinforce the initial training.
	Conduct evaluations of the training both during and after a training event.

Lesson: Properly trained community workers are essential to the provision of successful program services

According to much of the literature on CHW and CAHW programs, the ability of community workers to perform the tasks asked of them is significantly influenced by the quality of training they receive. With proper training, community members have been found to be able to do their jobs well, even if they received little or no previous formal training (Admassu et al. 2005).

To be effective, community workers need to learn the subject matter and skills pertaining to their area of service, as well as maintain an attitude conducive to learning and relating appropriately to those they serve (Bhutta et al. 2010; Haines et al. 2007). Trainings should be adapted to the needs of the trainees, the job, the tasks they will be required to perform and the context in which they will be working (Perry and Crigler 2013). This section outlines key factors to consider when planning trainings, developing content, and selecting methodologies and strategies to enhance trainings.

Training preparation

When planning trainings, carefully consider gender, timing, the location and length of each course as well as the trainees' level of education. These five factors can greatly influence the effectiveness of training events in terms of how well they equip community workers to fulfill their respective roles.

Gender

To ensure benefits to the whole community, program planners should aim to achieve gender balance in their trainings. In some cases, equality has been encouraged and accepted to the point where women are involved in roles that were previously only reserved for men (Kagiko 2002).

In mixed-gender trainings, there can be a tendency for men to dominate discussion, thereby limiting the participation and contribution of women trainees. Where this is likely to occur, consider holding separate training sessions for men and women (Catley et al. 2002). In some cases, female trainers may be needed for training women, as was the case for a CAHW program in Afghanistan (Schreuder and Ward 2004). Training organizers should also consider venues and timetables which are favorable to women and their daily routine (Kagiko 2002).

Timing of the course

In farming communities, time of year should be considered as many of the trainees may be involved in farming activities that require their attention (e.g., harvesting). Planning should also account for major cultural events and religious holidays. As much as possible, trainers should also work around the daily schedule of the trainees. For example, ending a training earlier in the day could enable trainees to return home in time to care for livestock (Catley et al. 2002).

Location of the course

It is best to hold the course near the community of trainees when possible (Frankel 1992). This not only simplifies travel logistics, but also provides a realistic setting in which the community can observe the ongoing training. If a local venue is not feasible, select a location with conditions similar to those that trainees face in their home communities as this helps to ensure the applicability of practical aspects of the course (Bhutta et al 2010; Catley et al. 2002; Frankel 1992).

Length of training

The amount of training the workers receive varies depending on factors such as the tasks they will be asked to perform, whether they are paid staff versus volunteers (who often can only attend trainings a few days at a time), and available funding. The time over which trainings are held can range from just a few days to several months (Mungunieri et al. 2002; Rubyogo et al. 2005; Stoufer et al. 2002), as described in the examples below:

The CAHW program of The United Mission to Nepal (Stoufer et al. 2002)

- The CAHWs complete a two-week course. At the end of the training, the trainer and CAHW jointly set goals for the CAHW to meet in the next six months.
- Six months later, the trainer and CAHW review the work completed and the trainer provides feedback. If at least 80% of the set goals are met, the CAHW receives a certificate.
- Those who receive the certificate are eligible to take the government's national skills test after a minimum of one year of experience.
- Most CAHWs also take a four- to five-day refresher course prior to the five-day national skills test.

The CAHW program of ITDG-EA, in Transmara District, Kenya (Kagiko 2002)

- A one-week long training is conducted in the classroom for the trainees.
- The initial classroom training is then followed with two weeks of practice in the field.
- A final week of training is held in a classroom setting.
- Annual refresher trainings are held to fill in any knowledge gaps.

The CHW program in Luandu, Angola (Giugliani et al. 2014)

- The initial training lasts 42 days, with 10 of those days devoted to theoretical activities and the remaining 32 days allotted for practical activities.
- Weekly evaluation meetings are held between the CHW, supervisors, and coordinators. After the first year, the frequency of these meeting decreases.
- The case study noted that the CHWs and managers of the program saw a need for regular refresher courses.

The Zanmi Lazantés CHW program in Haiti (Bhutta et al. 2010)

- An initial training program lasts seven days, during which participatory approaches are used to facilitate the teaching and learning.
- After completing the initial training, a new CHW joins a veteran CHW in conducting patient visits, providing practical experience for the new CHW and developing a support network between fellow CHWs.
- The CHWs receive continuing education for one year or more on new topics not discussed in the initial training.

As already mentioned, many illiterate community workers can become effective CHWs and CAHWs if properly trained (Arole et al. 1994). When training illiterate community workers, care should be taken to use teaching methods that are appropriate. Participative training techniques are especially helpful when working with illiterate communities (Catley et al. 2002). It may be necessary to create pictographic training manuals that can be used as reference tools (Najafizada et al. 2014).

Training content

Content should be taught based on the roles and responsibilities of the community worker (Catley et al. 2002; Frankel 1992). This involves developing workers' skills in observation, communication, and decision-making. It also entails equipping and instilling within them the knowledge, work ethic, and mind-set it takes to carry out specific tasks to completion while treating coworkers and beneficiaries with dignity and respect. Curriculum for a specific geographic region should be adapted as required, providing training that relates directly to the situation the worker will encounter and to community needs (Perry and Crigler 2013; Stewart 2002).

Training methodology

Participatory training methods

Participatory training methods should be used to teach extension trainees, as such methods have been used quite effectively in the CHW and CAHW fields. For example, in training adult livestock keepers, a participatory teaching approach has been found to be more effective than more formal methods in which large amounts of information are shared and students are asked to study during their free time (Catley et al. 2002). Participative trainings are based on principles of adult learning, building off of what people already know (Bhutta et al. 2010). When teaching adults, it is important to create an environment in which they learn best. Catley et al (2002) identified conditions for an optimal, participatory learning environment as one in which:

- adult trainees understand the objective of the training;
- the content is relevant to their daily lives;
- their attendance and participation is voluntary;
- they are given opportunities to share their own experiences through discussion;
- they are encouraged to share their own experiences through discussion;
- they are encouraged to share their own problems freely;
- they are encouraged to analyze problems and find their own solutions;
- they are taught practical skills;
- the subject matter and activities fit with their local culture;
- the trainer uses a mix of methods to communicate teaching points (e.g., discussions, pictures, plays, song, drama, exercises, visual aids).

On-the-job training

As recognized by several CHW programs, on-the-job training, which inherently involves a high level of participation, is a key element of instruction. (Giugliani et al. 2014; Bhutta et al. 2010; Shah et al. 2010; Berggren 1974). An example of effective on-the-job training in a CHW program is highlighted in Box 6.

Box 6. The on-the-job training of community health auxiliaries in Haiti (Berggren et al. 1981)**.**

Hospital Albert Schweitzer in Dechapelles, Haiti trained health auxiliaries (equivalent of CHWs) from rural farming areas to provide preventive services---including vaccinations and lessons in health and nutrition---in their home communities.

When the auxiliaries were recruited, they received on-the-job training under the supervision of a health professional. They were employed on a daily basis for several months and given one task to learn at a time (e.g., weigh and report weights of child at an under-five clinic). Once they mastered one task, they were then given another until they had learned all of the required tasks needed to perform the full duties of a community health auxiliary. This process ensured that the auxiliaries learned each task well and provided time for supervisors to evaluate the auxiliaries' competency and desire to do community health care work.

Training of trainers

If a participatory approach is used, there is also a need for trainers to learn participatory training methods (Fig. 6). For trainers to be most effective, many case studies and training manuals highlight the need for trainers themselves to receive proper instruction and possibly additional technical knowledge (Rubyogo et al. 2005; Bhutta et al. 2010; Leyland et al. 2014). Some CAHW and CHW manuals and case studies have also stated the importance of Training of Trainers courses in improving instruction (Bhutta et al. 2010; Catley et al. 2002).

Training enhancement

Training refresher: Refresher courses should be provided to help reinforce the initial training. Follow-up trainings are needed and often requested by the community workers themselves (Mockshell et al. 2013; Mugunieri et al. 2004; Crigler et al. 2013; Lehmann and Sanders 2007; Najafizada et al. 2014). Further training can be done in multiple ways including an invitation to all of the community workers to come

Figure 6: *Training of trainers activity (source: Jan Flanagan).*

back for follow-up training in a formal setting. Or a supervisor may prefer to provide supplemental training in a one-on-one setting with a community worker in the field. Periodic community worker meetings, workshops or refresher courses allow for new or updated material to be shared and for trainers to get feedback from the field (Giugliani et al. 2014).

Training evaluation: To gauge how well the trainees understand the material being taught, it is important to conduct evaluations of the training both during and after the event. The trainer should evaluate the community worker's knowledge of the subject matter and ability to perform the required skills as well as behavior and attitudes toward the community they are working with. During the course, the trainer can ask questions of individuals and observe how well each trainee performs tasks and skills. It is the role of the trainer to make sure everyone is actively learning, as opposed to just a few participants responding or performing the exercises. After the community workers have worked for several months, the trainer should assess their knowledge and skills again, asking the same questions of all the community workers; this feedback helps direct future refresher courses (Catley et al. 2002).

Supervision of community agriculture extension workers

Preview

Supervision of agriculture extension workers is an important aspect of everyday project programming. In both the health (Walker et al. 2013; Hopkins and Short 2002; Perry and Zulliger 2012) and agriculture (Adams 1982) sectors, supervision is described as being difficult to implement but key to the success of extension programs.

Table 5. Lessons and practices for supervision of community agriculture extension workers.

Lessons learned	Best practices
The objectives of supervision are to provide quality control, to gather and share information and to create a supportive environment.	Supervisors need to have the required tools to monitor the performance of extension workers.
	Conduct supervisory visits every one to three months.
	Supervisors and community workers should meet with the community and make home visits together.
	Supervisors should ask community workers to submit reports of their activities.
	Supervisors should use the data from collected reports to strengthen problem-solving skills and provide any needed instruction or guidance.
	Supervisors should share updated information with the community workers.
	Train supervisors in supporting the community workers they serve.
	Supervisors should be well known by the workers and communities they serve.
Key policy makers, stakeholders and program managers must agree upon the elements of a supervision strategy.	Build upon resources and systems that are already in place.
	Use a bottom-up approach, allowing community-level participation.
	Intentionally plan and monitor the implementation of a supervision strategy.
	Engage and involve people at all levels of accountability and authority.
	Develop capacity in data management, teamwork and problem solving.

Though discussed more frequently in CHW than CAHW literature, the need for supervision of CAHWs by professional staff, as well as from the local community, is highlighted in several studies (Allport et al. 2005; Catley et al. 2004; Leyland and Catley 2002). Programs are often hindered by ineffective community worker supervision; usually the result of poorly motivated supervisors, inconsistent leadership approaches, and/or a failure to clearly define and explain organizational roles (Frankel 1992). Because of its importance to program success, special attention should be given to ensure effective supervision (Haines et al. 2007). This section covers the lessons and practices used in CHW and CAHW programs that are relevant to community agriculture extension worker programs (Table 5).

Approaches to supervision

Some approaches to supervision which have been used in CHW and CAHW programs are described below.

External supervision

External supervision is usually provided by professional staff connected to a larger program (i.e., a health care facility). In this way, the community workers and the services they provide are linked to the formal system, helping to ensure that workers have the prerequisite

technical skills (Perry and Crigler 2013). In the health field, this often means using doctors or nurses, whereas in the animal health sector, veterinarians act as supervisors.

It has been noted that both good communication and respect between professionally trained supervisors and community workers is important. There have been cases of professional staff in supervisory roles looking down on community workers, making their supervisory role ineffective (Frankel 1992; Bhutta et al. 2010). To avoid the top-down approach that is commonly associated with the placement of professional staff in supervisory roles, some have suggested recruiting and employing community members (instead of professional staff) as supervisors (Bhutta et al. 2010). This approach has the best chance of success if the community member is trained in methods of supportive supervision.

Group supervision

In some programs, a supervisor provides oversight to a group of community workers as they meet to discuss problems, collect data or receive instruction as part of continuing education activities. In many CHW programs, community workers gather on a monthly basis (Bhutta et al. 2010). These meetings are opportunities for community workers to learn from each other (Perry and Crigler 2013) and for project supervisors to provide any needed guidance.

Community supervision

This approach engages local organizations as they play a significant role in providing feedback and guidance to community workers (Catley et al. 2002). While its application varies depending on the local context, this method of supervision typically involves participation by community members in deciding and clarifying: 1) the kinds of services that extension workers are expected to provide, 2) how community workers should respond to issues that arise, and 3) how the community will be involved in the program (Perry and Crigler 2013).

Peer supervision

This is a method in which community workers supervise each other. In doing so, the focus is on learning from each other and assessing the quality of each other's work (Perry and Crigler 2013). Examples of this approach are the following:

- Peers (fellow community workers) observing and providing feedback to each other as they perform consultations (Bhutta et al. 2010).
- Seasoned community workers supporting less-experienced colleagues (e.g., through on-the-job training [Fig. 7]). In some cases, the less-experienced community worker shadows the more experienced worker (Bhutta et al. 2010).
- Well-performing workers mentoring others who are having difficulty (Perry and Crigler 2013).
- Peers discussing issues and problem-solving with other community workers during meetings (Haines et al 2007).
- CHWs being promoted to supervisory roles (Shah et al. 2010).

Figure 7: *Community health workers conducting home visits as a team (source: Robin Flanagan).*

Lesson: The objectives of supervision are to provide quality control, gather and share information and to create a supportive environment

Program planners should set priorities for each objective and develop indicators for tracking their effectiveness as they are put into practice by supervisors (Perry and Crigler 2013).

Quality assurance

Often the supervisor is the only contact the community worker has to the larger system they are part of. For example, health supervisors may be the single link between a CHW and the formal health system. Consequently, supervisors need to make sure that the CHWs understand their tasks and how to perform them at acceptable standards (Perry and Crigler 2013). To be effective at this, supervisors need to have the required tools to monitor the performance of extension workers. One such tool includes pre-made checklists, used to better ensure that community workers are following predetermined procedures and providing quality services (Crigler et al. 2013).

Supervisor visits should also be conducted every one to three months so that they can give feedback as needed (Crigler et al. 2013). Supervisors and community workers should meet with the community and make home visits together, as this allows supervisors to

observe community workers each conducting tasks and interacting with the community. This provides managers and advisors with opportunities to give direction and encouragement as needed (Bhutta et al. 2010). However, care should be taken, however, to provide feedback so in a productive way that does not affect the credibility of the community worker in front of the community.

Gather and share information

An important aspect of supervision is open sharing of information between the community worker and the supervisor (Bhutta et al. 2010). Supervisors should ask community workers to submit reports of their activities. They should then take opportunities to meet with their respective workers and, during those teachable moments, use the data from collected reports to strengthen problem-solving skills and provide any needed instruction or guidance. The gathered information informs the supervisor of the work that is being completed and gives a picture of the local situation so that he or she can better advise the community worker. Since many community workers may have limited education or are illiterate, the supervisor may need to spend time helping the worker write reports or use visual and/ low- literacy methods to report on their work (Crigler et al. 2013). Supervisors should share any new information with the community workers that would help keep them informed of technical and program-related updates (Perry and Crigler 2013).

Supportive environment

The final objective of supervision is to provide support to the community worker. This is important, as workers are often isolated and required to work under difficult conditions. A supervisor should be available to provide encouragement and coaching (Haines et al. 2007). Programs should ensure that supervisors are trained in supporting the community workers they serve (Bhutta et al. 2010). Supervisors may require specialized training to adequately support community workers serving in areas of conflict. It also helps to have advisors who are well known by the community workers and communities they serve. Such supervisors usually have good relationships with both groups (Perry and Crigler 2013).

Lesson: Key policy makers, stakeholders and program managers must agree upon the elements of a supervision strategy

- Those involved in a program must agree and be aware of the supervision strategy which will be implemented. Based on literature from the CHW sector, project planners should consider the following five practices:
- Build upon what exists. Be aware of any existing supervision in place and learn how it works. It is generally best to build upon what is already in place and not create any parallel systems (Walker et al. 2013; Perry and Crigler 2013).
- Use a bottom-up approach. Involve the community and community workers in the process of developing the supervision approach. Participation in the process will encourage their involvement (Perry and Zulliger 2012).
- Intentionally plan and monitor the implementation of a supervision strategy. Often supervision becomes a low priority to program implementers (Frankel 1992). To keep it from becoming an afterthought, supervision needs to be made a priority both in the planning process and in the implementation of the program (Perry and Crigler 2013).
- Engage all levels of accountability. Supervisors at all levels, as well as community-based workers and their communities, should share in the process of supervision and be accountable for its implementation (Perry and Crigler 2013).
- Develop capacity at all levels in data management, teamwork and problem solving. It is important that everyone, including community members, be equipped at some level with skills pertaining to information (data) gathering, problem identification/prioritization, and conflict/problem resolution (Crigler et al. 2013; Perry and Crigler 2013). Increased capacity in these areas will enable supervisors, as well as those being supervised, to fulfill their roles in managing the project well.

Two examples of CHW programs approach to supervision are highlighted in Box 7.

Box 7. Supervisory approach used in each of two national community health worker (CHW) programs.

CHW program in Afghanistan (Najafizada et al. 2014)

The CHWs are supervised by community health supervisors (CHS) who are employed and based at a health facility in their local district. CHSs have a high school education and good communication skills.

Supervisory input occurs on a monthly basis as CHW health-sector activities are reviewed by the CHS. This is a time that CHSs can assess and improve the knowledge and skills of the CHWs, encourage them and restock their medical supplies. It is important that CHSs have good rapport with the community and the CHWs so that they can help resolve any issues that arise.

CHW program in Indonesia (Scheiff 2014)

The nearest sub-district level health center provides each CHW with technical guidance and support, but the CHW is ultimately accountable to the village health committee that appointed him or her and supports their work.

This program has a community-level system used to monitor the health posts held by the CHW. The indicators are simple enough for the community to track progress and give feedback on the CHW's work, while also providing useful information to the formal health care system. When staff from the health center visits the CHW at their health post(s), they are not there to directly supervise but are present as respected colleagues showing their support of the CHW to the local community.

Scaling up community agriculture extension worker programs

Preview

When a small program is working well, there is a tendency to expand for greater impact. However, as CHW and CAHW program experience has shown, what works on a small scale should not be assumed to be effective on a larger scale (Perry and Crigler 2013; Haines et al. 2007). Careful analysis and planning should precede any efforts to scale up a program. Lessons and practices in the CHW and CAHW fields can help guide community agriculture extension worker programs when expansion is considered (Table 6).

Table 6. Lessons and practices for scaling-up community agriculture extension worker programs.

Lesson learned	Best practices
Develop a scale-up plan for realizing a desired vision while minimizing common pitfalls.	Craft a scale-up plan that is flexible, allowing for adjustments to be made as needed.
	Start with a pilot phase.
The goal of scaling up should not just be to achieve scale but to also maintain it.	Ensure the scale-up initiative meets the needs of end-users.
	Gain the support of key stakeholders and opinion leaders.

Pitfalls of scaling-up

There are many pitfalls that can hamper the scale-up of a program. Below is a list of five that are common in CHW programs that can also occur in community agriculture extension programs.

Inappropriate pilot programs

Start-up programs often require a level of input, in areas such as training and supervision, which cannot be maintained when scaled up. This usually happens when a pilot program is conducted under conditions different from those that would be encountered when services are delivered at scale. Unsuccessful pilot programs are also the result of inadequate attention to issues such as feasibility, scalability, and sustainability (Perry and Crigler 2013).

Too rapid a pace of geographic spread

A rush to expand a program, with little thought as to how that expansion should be implemented, often leads to reduced impact or none, despite major efforts and financial inputs. The push to quickly expand a program is often triggered by pressure to show results within a specific time frame as dictated by funding stipulations (Berman et al. 1987; Perry and Crigler 2013).

Envisioning scale-up simply as a training cascade

In CHW programs, scaling up frequently involves a cascade approach to instruction in which those being trained also become trainers of trainers. This works if a community can be adequately reached by simply equipping community workers with basic knowledge and a specific set of skills. However, additional programming elements are often needed for effective scale-up of community outreach. Examples include expanded supervision, incentives for community workers and perhaps a reassessment of community involvement. Therefore, training alone, even if conducted properly, may not be enough to effectively scale up extension services (Perry and Crigler 2013).

Failure to ensure the quality of training

Excellent training requires high-quality instructors, which in the case of CHW programs have been difficult to find. As a result, the quality of training must be monitored. Often times, large-scale, rapid, cascade-model training results in a compromised level of instruction due to the lack of skilled trainers and failure to monitor their performance. Poor training can also lead to a reduction in the quality of services below accepted standards (Rubyogo et al. 2005; Perry and Zulliger 2012).

Scaling up without ensuring long-term sustainability

Some scaled-up CHW initiatives succeed initially but then decline or fail shortly thereafter. This happens when a program is scaled-up without ensuring its long-term sustainability. Larger-scale programs should be planned with a 10-year vision. This can require a high level of commitment from key partners and organizational capacity (e.g., staff, well-functioning lines of authority, physical infrastructure) that can support expansion. Additionally, the procurement of secure funding is required to not only support scale-up but also ongoing, longer-term efforts needed for program stability (Haines et al. 2007; Perry and Crigler 2013; UNICEF 2004).

Lesson: Develop a scale-up plan for realizing a desired vision while minimizing common pitfalls

Advance planning (Fig. 8) is vital before undertaking any efforts to scale up a program. A plan must account for many of the possible pitfalls mentioned above and show how the desired vision of the program can be reached (Table 7).

A scale-up plan should be crafted that is flexible, allowing for adjustments to be made as needed. A good plan is a work in progress and will need to be adapted as scale-up occurs. When expanding, it is best to start with a pilot phase; a realistic, reasonably large-scale practice run which is monitored closely so that learning can occur with respect to key operational issues. An example would be to start by providing community worker services at a district level before attempting to provide the same services nationally (Perry and Crigler 2013).

Figure 8: *Community members conducting an exercise in analyzing and planning (source: Brian Flanagan).*

Table 7. The planning process for scaling up a community worker extension program (Perry and Crigler 2013)**.**

Desired vision (questions/ issues)	Planning steps to undertake
What does a vision for the future look like?	Describe the vision for a scaled-up program in terms of its: • Long-term impact • Impactful coverage (e.g., area or number of communities/beneficiaries reached) • Services and service delivery methods • Program implementation methodology
What conditions need to be satisfied to accomplish this vision?	Describe what needs to be put into place to ensure that: • Methods used to provide services can realistically be tested and adjusted • Policy, systems, and operational conditions are in place to enable 1) access to required materials, 2) training and equipping of personnel and 3) well-functioning supervision and monitoring
What needs to be done now and in the future to meet these required conditions? How will we get there, and what are the priority initial tasks	Identify who will be responsible for developing: • Roles and responsibilities • Work plans and budgets • Coordination, planning and oversight Assign tasks accordingly

Lesson: The goal should not just be to achieve but to also maintain scale

When planning to scale-up a program, think beyond first steps and envision what must be undertaken later on to ensure long-term provision of services (Perry and Zulliger 2012). Recognize that program momentum can decrease over time. Reasons for this include withdrawal of support from key stakeholders and funding constraints as well as poor management and supervision (Perry and Crigler 2013).

To maintain program momentum, it is essential to ensure that the scale-up initiative meets the needs of end-users. Formative research can be used to determine the end users' current practices, viewpoints, and preferences in reference to the particular new services planned. When designing a new approach, strategy, or product, program staff must start where the user currently is and then "bridge from the known to the new." Strategies and messages for scaling up should be geared to the current situation of the community. Program staff and community members must also be made aware that it is not realistic for a program to meet every need of the community. Instead, the program should accomplish what is possible while addressing certain needs (Perry and Crigler 2013).

For lasting success of a scaled-up project, it is also important to inform and gain support of key stakeholders and opinion leaders early in the process. They can be "won over" through informational meetings and the exchange of views. To maintain their support, working groups should be formed with key partners that allow for their ongoing and meaningful involvement in directing the program's initiatives. These groups should hold regular meetings in which action points are identified and follow-up is carried out accordingly (Walker et al. 2013; Perry and Zulliger 2012).

Sustainability of community agriculture extension worker programs

Sustainability, as discussed in the literature on CHW and CAHW programs, is a multifaceted issue. The definition of sustainability depends on the ultimate goal of the program. Many program developers view sustainability in terms of community workers becoming self-sufficient, with little or no financial support from the "outside" (Catley et al. 2002). Others look at how services can be sustained as they are scaled up - whether regionally, in number of staff, or services provided - or connected to the larger national health system (Perry and Crigler 2013; Catley et al. 2002). This section highlights these various issues of sustainability as they are relevant to establishing a community agriculture extension worker program. Whereas many of the lessons and practices highlighted in this section (Table 8) were previously mentioned in this paper, they are also key to the overall sustainability of community worker programs.

Table 8. Sustainability lessons and practices for community agriculture extension worker programs.

Lessons learned	Best practices
Community workers should be able to conduct their tasks independently of day-to-day program support Solicit participation by community stakeholders during the establishment phase of the program.	Solicit participation by community stakeholders during the establishment phase of the program.
	Select the best-suited community workers for a given project or situation.
	Provide services, through the community worker, that are appropriate to the community.
	Train community workers well.
	Inform the community as to how program finances are handled.
	Provide stakeholders with a clear understanding of their roles and responsibilities.
Strive for long-term financial sustainability.	Carefully account for full costs of the program and create a plan for adequate, fair and sustainable financing.
	Involve community stakeholders in financial discussions from the start.
	Establish a strong base of governmental and donor funding support.
There should be a continuation of the system within which the community workers serve.	Align the system/program in accordance with national policy and legislation.
	Collaborate with other entities, avoiding competition with them.
Services required for a functioning community worker program must remain consistent.	Establish mechanisms for refresher training of current community workers and the future training of new community workers.
	Establish a supportive system for the supervision of community workers.
The services community workers provide should not have a negative impact on the environment.	Carefully select which services are offered to the community in light of potential environmental impacts.
Broader issues affecting sustainability should be accounted for in the program.	Identify the fundamental problems by using participatory analysis at the start of the program.

Lesson: Community workers should be able to conduct their tasks independently of day-to-day program support

While supportive supervision is essential, a program cannot be sustained over the long-term unless community workers are able to function independently of day-to-day program support. Community workers should be able to accomplish their tasks without constant supervision and managerial support. Their ability to do this enhances long-term program stability and increases the likelihood of sustained services once a program comes to an end.

Six practices have been identified as important to helping community workers gain this level of independence. They are as follows:

- Solicit participation by community stakeholders during the establishment phase of the program. As discussed in the "designing a program" section of this paper, because communities are diverse, there is a need to identify and include the various stakeholders during the project planning process. They should be involved in defining problems, proposing solutions, and implementing the program (Catley et al. 2002). Though not equally effective, there are several ways in which stakeholders can participate in program implementation. As, it is important that program staff and designers are aware of the various types of community participation and specifically which approaches they should consider or use (Box 8). Healthy community participation during the establishment of a project increases the relevance and impact of subsequent extension work and raises the community's stake in the program (Catley 2004). With the community worker's activities focused on tasks that matter to the community, the need for outside program staff to mediate between the community and community worker is lessened. Also, a strong sense of local ownership and control leads to services that are more likely to be sustained over the long-term (Catley et al. 2002).

- The best-suited community worker should be selected. Careful selection (see earlier section on the recruitment and selection process of community fieldworkers) of community extension workers increases the number of beneficiaries reached, improves the quality of services provided and even increases the retention rate of community field workers. The right community worker is then more likely to be able to work independently of day-to-day program support (Perry and Crigler 2013; Catley et al. 2002).

- Provide services, through the community worker, that are appropriate to the community. By using participatory approaches the program can be informed about services that will be appropriate to the community (Stewart 2002). If the community worker is offering such appropriate services, he or she will be better able to do their job without daily program support. Participatory approaches help program planners make certain that the community worker's services are indeed appropriate to the community (Leyland 1994).

- Provide excellent training for community workers. As discussed in the "training community worker" section, the effectiveness of the community worker is significantly influenced by the quality of training they receive (Mockshell et al. 2013; Hüttner et al. 2001). Well-trained community workers require less day-to-day program support than those who lack training.
- Inform the community as to how program finances are handled. This is especially true where community members are paying for services. They need to know what their payment covers and what is being subsidized from other funding sources. Clarity in this will make the community worker's daily interaction with the community much easier, decreasing the need for program staff to be involved in explaining why some services are charged and others not (Catley et al. 2002).

Box 8. Types of community participation in extension/development programs (Catley 1999)**:**

Passive participation: Communities participate by being told what has been decided or already happened. Program administration or management makes a unilateral decision without listening to people's input.

Participation in information giving: Communities participate by responding to questions. The process of gathering information is led by outsiders. The community has little opportunity to influence proceedings, and organizations are under no obligation to take in account the communities views.

Participation for material incentive: Communities participate by providing resources such as labor, in return for material incentives (e.g., cash or food). This is often called 'participation' although the services typically stop when the incentives end.

Functional Participation: Community participation is used as a method for achieving predetermined program objectives. The community may be involved in decision making, but only after the major decisions have already been made.

Interactive Participation: Communities participate in joint analysis, the development of action plans, and the creation and reinforcing of institutions. These groups take control over local decisions and determine how available resources are used.

Self-mobilization: People participate by taking initiatives, independently of external institutions, to change systems. They have control over resources and develop contracts with outside institutions as needed to obtain inputs and technical advice.

- Provide stakeholders with a clear understanding of their roles and responsibilities. This includes everyone having a full understanding of the roles and responsibilities of the community worker, the other program staff, and the community. As previously mentioned (see the "designing a program" section of the paper), it is important to document all roles and responsibilities to minimize misunderstanding (Catley et al. 2002).

Lesson: Programs must strive for long-term financial sustainability

Being able to maintain long-term funding is a challenge that many CHW and CAHW programs have struggled with over the years. Despite a surge of large-scale CHW programs in the 1980s, many of those projects did not last, due, in part, to the lack of long-term funding (Perry and Crigler 2013). An approach that has been tried within many CAHW programs is to provide services that community members are willing to pay for, making the community worker mostly self-sufficient; challenges arise, however, as communities may pay for some services but not others (Catley et al. 2002).

Types of funding

Those studying large-scale programs in the CHW field have identified three main sources of funding for programs: the community, the government, and external donors (Perry and Crigler 2013).

The community

There are several ways in which project funds can be generated from within the community. One method is to provide treatment of people or animals in exchange for payment by the community members receiving those services (Perry and Crigler 2013; Catley et al. 2002). This allows the community worker to purchase new supplies while also making profit. Such a model has limitations if the service provided is that of knowledge sharing as opposed to treatment or the prevention of illnesses. There are also concerns that the poor, who have the greatest need, may not be able to access services because of the cost.

The community can also help with funding by providing volunteer labor. A community, for instance, could provide labor to build a training center or volunteers for other services. The use of volunteer community workers can have mixed results. The concept often fails in programs where volunteers are asked for a large time commitment (Frankel 1992). There are cases, however, where volunteer workers providing only a few hours a week of service have continued to function for many years (Perry and Crigler 2013).

The Government

The advantage of this type of funding is that the program becomes integrated into the government system. This allows for the program to be recognized by the government branch overseeing that specific sector. The downside is that many developing countries lack sustainable funding. Additionally, with government-funding there is potential for cut backs which could harm the program (Perry and Crigler 2013).

The External Donor

One or more external donors will often fund, or partially support, a project for a limited period of time. Thus, external donor funding is usually not a long-term solution and will require a continual search for outside contributors (Perry and Crigler 2013).

Program staff should establish a strong base of support (community, governmental and donor) for long-term funding. Early success helps build long-term success as governments and donors are more likely to fund projects that have a track record of achievement. It is important to have a good monitoring and evaluation program in place that shows donors and governments the progress that has been made (Perry and Crigler 2013).

Transparency in the use of funds

In developing a community worker program there is need to carefully account for full costs of the initiative and create a plan for adequate, fair and sustainable financing (Perry and Crigler 2013). Additionally, an understanding of who pays for different layers or types of service (training, support, incentives for community workers, supervision) is required. There should also be discussions about any subsidies, hidden costs, or free services, as these can hamper the overall program if funding is pulled or reduced (Catley et al. 2002).

Much of the literature on CAHW programs recommends involving community stakeholders in financial discussions from the start. This ensures that everyone is aware of the true cost of any assistance and the extent to which the community will be paying for those services. Once services are provided free of charge, it becomes difficult to then require payment for programs that are no longer subsidized (Catley et al. 2002).

Lesson: There should be a continuation of the system within which the community workers serve

The ability to deliver a constant flow of services hinges on the durability or constancy of the system within which the community worker operates. To function well over time, as much as possible, align the system/program, therefore, in accordance with national policy and legislation. Program designers and implementers should be aware of any policies and legislation that impact the activities of the community workers and take proper steps to ensure that they and their efforts are legally protected (Mutambara et al. 2013; Leyland and Catley 2004).

There should also be collaboration with other entities, avoiding competition with them. These include governments, private companies, or other NGOs. It is also important to communicate with others involved in the same sector, as open sharing of information makes it easier to eliminate unnecessary overlap of services (Walker et al. 2013; Catley et al. 2002)

Lesson: Services required for a functioning community worker program must remain consistent

Hold refresher training courses for community workers. This strengthens the sustainability of a program as the knowledge and skills of community workers are assessed and improved over time (Mugunieri et al. 2004).

Establish mechanisms for future training of community workers (Fig. 9). Additionally, with turnover of community workers over time, there needs to be a system for training future community workers. Such a system also facilitates future expansion of an extension program (Catley et al. 2002).

Finally, establish a supportive system for the supervision of community workers (see the section of this paper on supervision). The longevity and quality of community workers' service is maximized under a supervision approach that facilitates needed correction within a supportive and encouraging work environment (Bhutta et al. 2010).

Figure 9: *Hands on training on how to make an A-frame for soil conservaion (source: Jan Flanagan).*

Lesson: The services community workers provide should not have a negative impact on the environment

Carefully select which services are offered to the community in light of potential environmental impacts. This should happen during the program planning process with representation from all the stakeholders. Be aware of hidden, less obvious effects of project activities on the environment.

For instance, the use of vehicles, fuel and natural resources can impact the environment depending on how efficiently they are managed by project personnel (Catley et al. 2002). This requires program management personnel who are aware of - and can evaluate - program activities in consideration of the environment.

Lesson: Broader issues affecting sustainability should be accounted for in the program

As no program operates in a vacuum, issues such as economics, politics, availability of resources, and cultural factors can impact a program's overall sustainability (Shediac-Rizkallah and Bone 1998). Though it can be difficult to account for all these factors it is important to identify fundamental problems by using participatory analysis (e.g., problem tree analysis, trend analysis) at the start of the program (Catley et al. 2002).

Conclusion

As a goal of agricultural extension is to have a lasting positive impact in rural, communities. This challenge is also shared by CHW and CAHW program planners. Over the many years that CHW and CAHW programs have been in existence, much has been learned and documented about how to provide extension practitioners services through community-level workers. Community-based workers are central to the success of these programs, largely because they live where they work and, consequently, are already familiar with local customs and how to cope with realities on the ground. Considering the issues and challenges common to both the health and agriculture sectors, agricultural extension planners can benefit greatly from what has been learned through CHW and CAHW programs. Lessons learned through CHW and CAHW programs are very much applicable to each developmental phase of an agriculture-focused, community extension program. Based on the lessons learned, specific practices can be implemented that enhance the contribution of community-based workers to the success of a program and, ultimately, to the betterment of the small-scale farmers served.

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