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AMAP BDS Component A: Clients and Markets Accelerated Micro Enterprise Advancement Project

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Accelerated Microenterprise Advancement Project (AMAP) is a four-year contracting facility that USAID/Washington and Missions can use to acquire technical services to design, implement, or evaluate microenterprise development, which is an important tool for economic growth and poverty alleviation.

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PREFACE

This document describes the research plan for the Guatemala Country Study, which was conducted under AMAP BDS K&P Component A (Clients and Markets). It was written primarily as an internal document for the purpose of planning and coordinating the methods used by the members of the research team, both in the US and in Guatemala. It is being published in order to make available as much detailed documentation on the research methods as possible. Every effort has been made to retroactively revise the protocol to reflect last minute adjustments made in the field. However, if any discrepancies remain between this document and the final report on the findings of the Guatemala Country Study, then the final report should be considered authoritative.

LIST OF ABBREVIATIONS

AGEXPRONT	Asociación Gremial de Exportadores de Productos No Tradicionales
AMAP	Accelerated Microenterprise Advancement Project
EPA	United States Environmental Protection Agency
EU	European Union
FDA	United States Food and Drug Administration
GAP	Generally Accepted Agricultural Practices
MSE	Micro and Small Enterprises
PIPAA	Programa Integral de Protección Agrícola y Ambiental
RDS	Respondent Driven Sampling
SPS	Sanitary and Phyto-sanitary Standards
USAID	United States Agency for International Development

RESEARCH PROTOCOL AMAP COMPONENT A COUNTRY STUDY GUATEMALA

I. INTRODUCTION

Many USAID programs have the two-fold objective of achieving improved economic growth, while at the same time reducing poverty. One strategy for promoting broad-based economic growth is to harness the growth potential of large numbers of micro and small enterprises (MSEs) and integrate them into productive value chains. The overall vision for the AMAP BDS Knowledge and Practice project is to promote the development of MSEs and to increase their participation in productive economic sectors at the local, national, regional, and/or global levels: “AMAP BDS is about creating wealth in poor communities and promoting economic growth by sustainably linking large numbers of MSEs into productive value chains.”

The focus of Component A is to develop a better understanding of the ways that MSEs are integrated into value chains and the effects of this integration on both MSEs and value chains. The outcome of this research will be important in developing a strategy to more effectively link MSEs into productive value chains. The primary focus of the research is to develop a better understanding of the following: 1) the factors influencing MSE owners' decisions to participate in value chains and upgrade their businesses in ways that enhance their competitiveness, and 2) the relationships between MSEs and other firms in the value chain, and the effect of these relationships on the structure and competitiveness of the value chain.

This focus has been translated into a set of research hypotheses, which are

presented in section II. In addition to contributing to knowledge about the integration of MSEs into value chains, the research under Component A will also help to advance methodological approaches to data collection and analysis, by developing and testing a sampling approach for reaching hard to locate populations. This sampling approach is discussed in more detail later in this document.

II. RESEARCH HYPOTHESES

There are three groups of hypotheses to be tested in the field research. The first group relates to enhancing vertical relationships between firms at different levels in the value chain. The second group relates to enhancing horizontal relationships between firms at the same level of the value chain. The third group relates to ways to encourage business upgrading among MSEs operating in the value chain. A basic statement of these research hypotheses is provided below. A more detailed version of the hypotheses is included in appendix A. Conceptual definitions of the terms and variables used in the hypotheses are provided at the end of this section. Additional definitions that are specific to each value chain are provided in section III.

A. ENHANCING INTERFIRM COOPERATION AND COORDINATION

1. Vertical Relationships

A.1. Risk in vertical relationships can be reduced by strengthening governance.

A.2. Trust in vertical relationships can be increased by improving information.

A.3. Lead firms will be more willing to form vertical relationships with MSEs if the transaction costs can be reduced.

2. Horizontal Relationships

A.4. MSE owners will be more willing to form horizontal relationships if the transaction costs can be reduced.

A.5. Trust in horizontal relationships can be increased through organizational innovation and improvements in human capital.

A.6. Social capital plays an important role in the successful formation of horizontal relationships between MSEs.

B. ENCOURAGING BUSINESS UPGRADING AMONG MSEs

B.1. MSE owners base their upgrading decisions on their assessment of the expected returns and risks to upgrading.

B.2. Upgrading can be encouraged by strengthening the linkages between firms.

B.3. Lack of information is a critical bottleneck to upgrading.

C. CONCEPTUAL DEFINITIONS

Buyer Firms (“Buyers”): Firms that buy the product for resale, including firms that buy the product from MSE producers. Buyer firms may resell the product in national and/or international markets. These firms may also participate in activities at other levels of the value chain, including supplying raw materials and production.

Expected Return: Projected returns (profits) under conditions of uncertainty; calculated as the sum of the returns from each possible outcome multiplied by the probability that each outcome will occur (i.e., the sum of the weighted returns from each possible outcome).

Governance: The patterns of vertical relationships between firms in a value chain, which are characterized by a) the level of control that one firm exercises over another and b) the flow of information between firms. The three general types of governance, in order of increasing strength, are the following:

1. Market relationships: arms-length transactions with little information exchange between firms.
2. Network relationships: some firms in the chain exert a degree of influence or control over the operations of other firms, information flows between firms are more extensive, and suppliers supply products according to buyers’ specifications.
3. Hierarchical relationships: value-added functions are vertically integrated under the ownership of a single firm.

Horizontal Relationships: Market and non-market interactions between firms operating at the same level of the value chain.

Input Suppliers: Firms that provide raw materials and inputs used in production.

Lead Firms: Firms that play central roles in the value chain and are involved in a significant percentage of total sector sales. Because of their market share, they have an effective influence on governance patterns within the value chain.

MSE Producers: Firms that produce the product and have fewer than 25 full-time and part-time employees. Producers in the handicrafts sector are weavers and tend to be indigenous women living in rural areas (although men also weave on the foot loom). Producers in horticulture are farmers and tend to be men living in rural areas (although other family members assist with cultivation). For the purpose of this study, MSEs producers need to be either currently producing the product (handicrafts/horticulture), or have produced and sold the product in the past six months to be included in the survey.

Risk: A loss or the chance of a loss.

Suppliers: Firms that sell the product to other firms.

Social capital: The institutions, relationships, attitudes, and values that govern interactions among people; norms and networks that facilitate collective action. A high level of social capital is generally seen as a positive asset, since it can lead to more productive communities through higher levels of trust and shared information, lower transaction costs, and greater networking. However, it is possible for social capital to divide a community and exclude outside groups.

Trust: Willingness to expose oneself to risk in a business agreement with another person or firm (“*confianza*”).

Transaction Costs: Non-price costs associated with a transaction, including the costs of gathering information, the costs of negotiating a

contract, and the costs of enforcing the terms of a contract.

Upgrading: Innovation that increases value added. There are five specific categories of upgrading:

1. Process upgrading: increasing efficiency (more output for same level of inputs).
2. Product upgrading: improving product quality.
3. Functional upgrading: moving to a new level in the value chain.
4. Inter-chain upgrading: moving to a new marketing channel in the value chain.
5. Inter-sectoral upgrading: moving to a different subsector or value chain.

Value Chain: Describes the full range of activities that are required to bring a product from its conception to its end use and beyond, including activities such as design, production, marketing, distribution, and support to the final consumer. The activities that comprise a value chain can be contained within a single firm or divided among different firms. Value chain activities can be contained within a single geographical location or spread over wider areas. Global value chains are divided among multiple firms and spread across wide swaths of geographic space, hence the term “global value chain.”

Vertical Relationships: Market and non-market interactions between firms operating at different levels of the value chain.

Wholesalers: Firms that do not produce the product and do not sell to the final consumer. In the most direct case, these firms buy from MSE producers and sell to retailers. Examples include exporters, distributors, brokers, and intermediaries.

III. RESEARCH CONTEXT

Guatemala has been selected as the first country in which to launch the AMAP Component A field study work. It has a population of a little over 14 million people, making it one of the most populous of the Central American countries. The agricultural sector accounts for about one-fourth of GDP, two-thirds of exports, and half of the labor force. While GDP per capita is US\$ 4,100, income is distributed unequally, with 75 percent of the population below the poverty line.

Two value chains were selected for the research in Guatemala: textile handicrafts and horticulture. These value chains were selected because of the large numbers of MSEs that are engaged in those sectors and because of their global relevance. Currently, at least 700,000 Guatemalans operate as MSE weavers in the handicrafts sector. Similarly, an estimated 250,000 MSEs work as producers in the horticulture sector. Information about how MSEs contribute to and benefit from these value chains will be broadly applicable in other countries, since handicrafts and small-scale agriculture are significant sources of income for low-income households around the world.

The survey research focuses on the barriers and opportunities for growth for MSEs in these two sectors, specifically looking at the potential for MSE upgrading. The survey research also looks at the effects of social capital and trust, information, and risk preferences on business relationships and decisions to upgrade. Preliminary qualitative research has provided considerable background information on the handicrafts and horticulture value chains, the firms in these two value chains, and how the firms relate to each other. Some of this background information is presented in this section, including value chain maps for each sector and a discussion of upgrading opportunities,

vertical relationships and horizontal relationships. In addition, a set of context-specific definitions is provided for each value chain.

A. GUATEMALAN TEXTILE HANDICRAFTS VALUE CHAIN

1. Value Chain Map

The value chain map for Guatemalan textile handicrafts (figure 1) indicates the four basic levels of the value chain: 1) input supply, 2) production, 3) wholesale, and 4) retail. Micro and small enterprises are the predominant type of firm at the production levels: virtually all of the estimated 700,000 to 900,000 producers in the value chain are MSEs. Most of the artisan-brokers at the wholesale level are also MSEs, as are many of the retailers in the popular and tourist markets.

The value chain has three main market channels, as indicated at the retail level (at the top of the map). For two of the market channels, the retailing of textile handicrafts occurs within Guatemala, in 1) exclusive shops and 2) popular and tourist markets. There are approximately 30 exclusive shops, mostly concentrated in Antigua. Their main customers are upper and upper-middle class Guatemalans, but they also sell to well-to-do tourists from Central America, the U.S., Europe, and Japan. These shops offer high-quality products, often based on exclusive designs created personally by the shop owner.

The popular and tourist markets comprise the second domestic retail channel. This market channel includes traditional market places, small shops, and street vendors. There are several thousand firms in the popular and tourist markets category, and the majority of these firms are MSEs. In some cases, weavers self-market their own products through this channel. In many cases, the shop or market stall owner sells some self-produced

handicrafts alongside products purchased from other artisans. Larger shops sell products made from many different producers.

In the third market channel, textile handicrafts are exported and sold in retail outlets internationally. There are two types of exporters. First, there are approximately 100 full-time exporters who reside in Guatemala. These “resident exporters” sell their products to foreign importers. The second type of exporter is the “traveler-exporter” who lives outside of the country, but comes to Guatemala one or more times a year to purchase handicrafts and ship them back home. Some traveler-exporters buy inventory to stock their own stores, while others sell the handicrafts to retail outlets and small stores.

There are several different ways that the production and retail levels of the value chain can be linked. One way is for exporters and domestic retailers to purchase products directly from the weavers who produce them. However, when a larger volume of product is involved, the exporter or retailer usually works through some type of intermediary at the wholesale level. As indicated in the value chain map, there are two types of intermediaries operating at the wholesale level: 1) artisan-brokers, who are MSE owners, and 2) leaders of producer groups, who represent their members operating at the production level.

2. Upgrading Opportunities

a. Process Upgrading

Low labor productivity, defined in terms of the output of woven cloth per unit of labor input, is a major constraint on the global competitiveness of the value chain. The technology for the back-strap loom is very labor intensive, producing approximately an 18-20 inch length of woven cloth in the typical workday of five to six hours. There are two types

of process upgrading that can increase labor productivity:

1. Moving from the back-strap loom (*telar de cintura*) to the foot loom (*telar de pie*), which can increase labor productivity but has several other implications.
2. Reducing the density (*textura*) and or complexity of the weave on the back-strap loom.

The incentives for moving from the back-strap to the foot loom are that a) men can become involved in weaving; b) wider pieces of cloth (e.g., for tablecloths and bedspreads) can be produced; and c) more cloth can be produced per hour of labor input. The disincentives for moving from the back-strap to the foot loom are that a) the foot loom requires a large initial capital investment; b) it takes up a large space, which may not be available in the dwelling; c) it is not mobile, so it can not be combined with other activities in different locations; d) the technique is not well-known in all areas, so training may be required; e) women are not considered strong enough and/or big enough to utilize the maximum width capacity of the loom; f) some of the most intricate designs can not be produced on the foot loom.

It is unclear whether moving to the foot loom is a good long-term strategy for improving the global competitiveness of the value chain. Although foot-loomed products can be produced more cheaply (due to less labor input), they are still not cheaper than similar fabrics produced in India, China, and Indonesia. Guatemala's long-run competitive advantage may be based on the more intricate products created on the back-strap loom, or on the combination of high-cost products created on the back-strap loom with lower cost, foot-loomed products.

b. Product Upgrading

Product upgrading in the context of weaving refers primarily to changes in colors and designs that are a response to changing global fashion and taste. In addition, product upgrading can occur at the assembly stage in terms of the type of finished product made from the woven cloth (e.g., new styles of purses in women's accessories).

Information flows are very "thick" in the export channel. Importers tell exporters exactly what they want, sometimes sending their own designers to Guatemala to work with the exporter in developing the product. Thus, information on global tastes and preferences is communicated directly by importers, who specify what they want when they place their orders with exporters. Exporters usually work through artisan-brokers to transmit this color and design information to weavers.

There are high transaction costs related to conveying information on new designs. These transaction costs are associated with reducing the risk that a product might not match the buyer's specifications on design or quality. Information on new designs is usually provided visually (in two or three dimensions) and includes one or more face-to-face meetings. In order to avoid costly production mistakes with new designs, actors in the value chain often begin the process by developing prototypes (*muestras*). Several rounds of product development may be necessary before the producers are ready to create the product in the exact way the buyer wants. Products or designs that are purchased repeatedly are usually assigned a code or unique name that facilitates future communication about orders.

In the export market channel, exporters control product quality in several ways:

1. Specifying the exact colors and designs to be produced, often working with samples and prototypes (as described above).
2. Providing the raw materials (i.e., export-quality dyed threads) to the producers. This embedded service is typically provided by the artisan-broker. The exporter provides the artisan-broker with a cash advance worth 50 percent of the value of the order, and the artisan-broker uses the cash advance to buy export-quality thread in the correct colors.
3. Limiting the size of orders with new suppliers until the supplier demonstrates an acceptable level of quality.
4. Inspecting for quality at every level of the value chain.

Information flows are also thick in the exclusive shops market channel and a similar process for quality control is also followed. However, in this channel, the product is usually designed by the store owner. Production may also be organized in-house, representing vertical integration of the production and retailing functions.

c. Functional Upgrading

There are two main ways that MSEs can engage in functional upgrading within the value chain:

1. Moving from being a producer only to being an artisan-broker. Even more generally, a producer experiences functional upgrading as soon as he/she begins to sell products produced by other weavers.
2. Moving from being an artisan-broker to being an exporter. Both exporters and artisan-brokers are keenly aware of the potential that exists for artisan-brokers to engage in functional upgrading.

In general, all three of the marketing channels in the value chain offer the possibility of functional upgrading in

the sense of moving from selling products through an intermediary to direct marketing of products to the final consumer, the exclusive store owner, the exporter, or even the importer.

d. Inter-Chain Upgrading

It appears that many producers sell in more than one of the market channels, although the exact percentage is unknown. This also appears to be the case with the artisan-brokers, many of whom work both as intermediaries in the export market channel and as direct market vendors in the popular markets channel. Rather than specializing in one market channel, producers and artisan-brokers seek to exploit the advantages and manage the risks that are inherent in each channel. For example, unit prices are higher and cash flow is more predictable (steady) in the popular channel, but the volume of sales can be much higher in the export channel.

3. Vertical Relationships

a. Governance

Governance patterns vary, even at the same level of the value chain. The most predictable of the relationships is between exporters and artisan-brokers, which tend to evolve toward a network relationship. The following governance patterns were observed:

1. Between importers and exporters—Hierarchical, network, and market. A single exporter may have a balanced relationship with one or more importers and market relationships with others.
2. Between exporters and artisan-brokers—Network and market. Mature relationships are typically characterized by a close, balanced type of network governance. Captive relationships are rare, and considered undesirable by both

parties. Relationships usually begin as market relationships (see below).

3. Between artisan-brokers and producers—Network and market.

Relationships connecting artisan-brokers and exporters typically follow a predictable evolutionary pattern. They begin as market relationships, with initial transactions being limited in scale. The initial meeting often occurs when the exporter enters the popular store or market stall operated by the artisan-broker. As the artisan-broker demonstrates good performance, in terms of quality and on-time delivery, the buyer comes to trust the seller, and a balanced, network-type of governance relationship emerges over time, facilitating larger volume orders.

b. Coordination and Cooperation

Vertical coordination and cooperation between firms in the value chain appears to function fairly well. The most interesting aspect of vertical coordination is the unique role of the artisan-broker, who serves as a bridge between producers and exporters. The artisan-broker facilitates communication and successful commercial relationships between people of different social classes, languages/cultures, and education levels. In terms of social capital, the artisan-broker enjoys several types of social capital: linking social capital with exporters, bridging social capital with producers from different villages and ethnic groups, and bonding social capital with producers from the same village and ethnic group as the artisan-broker.

Producers typically lack information about levels of the value chain above the initial point at which they sell their products. For example, it is common for a weaver to sell to an artisan-broker without knowing which market channel the product will eventually enter. Lack of information about market channels prevents producers from creating aggressive and effective

marketing strategies. In addition, this lack of information can lead to inaccurate ideas about how the value chain functions and mistrust of other actors in the value chain (e.g., mistaken idea that the transport company had become an intermediary and was stealing all the customers).

4. Horizontal Relationships

While some producer groups (i.e., cooperatives, “associations”, and other types of producer groups) are functioning effectively, horizontal relationships between producers have a wide-spread reputation for being problematic and characterized by fraudulent, opportunistic, and rent-seeking behavior. These problems occur even when group members share the same ethnicity and live in close proximity to each other (i.e., even when they share bonding social capital).

The anecdotal evidence from the FFR indicates that there are major trust issues associated with producer groups. Apparently, leaders of producer groups commonly try to take advantage of the fact that they have access to information that other members of the group do not have (i.e., there is asymmetric information within the group). Examples of ways that leaders have taken advantage of asymmetric information include the following:

1. Withholding information about orders from the group, and then contracting with individual weavers outside the group. In this way, the leader is able to receive personal financial gain by serving as an artisan-broker, while the members of the group do not receive any income from the order.
2. Receiving payment for the order in dollars, converting the currency, then deceiving group members about the exchange rate received. In this way, the leader pockets the

difference between the actual and reported exchange rate.

3. Paying group members a piece rate that is less than the piece rate paid by the buyer. In this way, the leader pockets the difference between the actual and reported piece rate.
4. Pocketing funds that are provided for the social benefit and/or development of the group members (e.g., education funds).

In deciding to commit to a group, producers must weigh the potential benefits from participation against the potential risks. There are several potential benefits of belonging to a producer group:

1. Being represented by leaders with higher levels of human capital, in terms of literacy, numeracy, and ability to speak Spanish.
2. Ability to accept larger orders. This opens up the possibility of working with exporters, who would not work with individual weavers.
3. Access to better communication infrastructure. The group can afford a telephone, fax, or internet connection, which individual members would not normally have.
4. Ability to hire a professional manager, if the group has enough business to support it.
5. Ability to solicit and receive training, technical assistance, and other services from donors and non-profit organizations supporting the sector.

A handful of exporters and exclusive store owners have experimented with innovative approaches for working with producer groups. For example, one store owner insists that different representatives of the group come each time to receive new orders and learn how to produce new products.

5. Definitions Specific to Textile Handicrafts

Artisan-Broker: Intermediary operating at the wholesale level of the textile handicrafts value chain. Usually an MSE owner with technical knowledge of weaving who coordinates the work of multiple weavers to respond to orders from a third-party buyer. An artisan-broker may also operate a store or market stall in the popular and tourist market.

Back-Strap Loom: Pre-Columbian technique for weaving in which the warp of the loom is stretched between a fixed support (i.e., tree, post) and a strap that wraps behind the weaver's back. The weaver leans forward or backward to control the level of tension on the loom. The width of the loom can vary from just a few inches wide to approximately a meter in width. In Guatemala, back-strap looms are used exclusively by females. (*telar de cintura, telar de palitos*)

Design: Elements of weaving including colors, color combinations, types of threads used, patterns and representations (*figuras, dibujos*), spacing of patterns, texture of the cloth, width of the cloth, etc. Design also refers to different ways to combine woven cloth with other materials such as zippers, buttons, leather, etc. to make finished products.

Exporters: Firms selling textile handicrafts to buyers outside of Guatemala.

Foot Loom: Weaving technique introduced by the Spanish in which the warp is attached to a large wood and metal structure and foot pedals are used to mechanically lift and lower the warp. The foot loom can produce much wider fabrics than the back-strap loom, but it can not produce the same complicated brocades. The majority of weavers using the foot loom are men, although women also

use the foot loom, also known as the "treadle loom" or "floor loom". (*telar de pie*)

Textile Handicrafts: Products made by weaving on a loom, by crochet, or by embroidery. Also includes products that combine these hand-made items with other materials.

Traveler-Exporter: An exporter who resides overseas but visits Guatemala one or more times a year to purchase handicrafts and ship them back home.

B. GUATEMALAN HORTICULTURE VALUE CHAIN

1. Value Chain Map

The value chain map for Guatemalan horticulture (figure 2) indicates the four basic levels of the value chain: 1) input supply, 2) production, 3) wholesale, and 4) retail. Micro and small enterprises are the predominant type of firm at the production level. Virtually all of the estimated 250,000 producers in the value chain are MSEs. Most of the intermediaries at the wholesale level are also MSEs, as are many of the retailers in the wet markets.

The value chain has two main market channels, as indicated at the retail level (at the top of the value chain map). For one of the market channels, the retailing of horticulture crops occurs within Guatemala and Central America (principally El Salvador, Honduras, and Nicaragua). At the retail level, Guatemalan and Central American consumers may buy horticultural products in 1) wet markets; 2) supermarkets; and/or 3) in hotels, restaurants, and institutions (e.g., schools, hospitals). The products may reach the retail level through regional distributors, through intermediaries, or through direct self-marketing by producers.

In the second market channel, horticultural products are exported and sold in retail outlets in the US and

Europe. Exporters may sell to either US/EU distributors or US/EU brokers. Exporters may buy their products from intermediaries or they may buy the products directly from producers.

In both of the market channels, there are several different ways that the production and retail levels of the value chain can be linked. One way is for exporters (in the US/EU channel) and retailers (in the Guatemalan/CA channel) to purchase horticultural products directly from producers. However, any of these buyer firms may also obtain horticultural products from intermediaries. From the preliminary field research, it appears that buyers in both market channels are trying to move away from working with intermediaries in order to buy the majority of the product directly from producers. This stems from increased emphasis on meeting phyto-sanitary standards.

2. Increasing Sanitary and Phyto-Sanitary (SPS) Standards

The foremost issue to emerge during the preliminary fieldwork is the pressure to increase sanitary and phyto-sanitary (SPS) standards and all of the effects this has on the value chain. The SPS standards are much higher in the US/EU market channel¹, but there is also increasing pressure to raise SPS standards in Guatemalan and Central American channels. Improvements in horticulture products to meet increasing SPS standards represent an important type of product upgrading.

While exporters have no choice but to comply with the higher US/EU

¹ Products exported to the US must comply with United States (Federal Drug Administration (FDA) and Environmental Protection Agency (EPA) minimum standards. Products exported to Europe must comply with EUREPGAP – European Union General Agricultural Practices standards. In addition, some US/EU buyers require additional standards and certifications that surpass these legal minimums.

standards, regional distributors and supermarkets have more flexibility. Nevertheless, some supermarket chains are making a concerted effort to stay “ahead of the curve” by raising standards above the local requirements. They are doing this by creating their own quality control departments, their own certification programs, and by voluntarily submitting to commercial certification programs that are also used by exporters. Some supermarkets offer two tiers of fresh fruits and vegetables in its supermarkets—branded and unbranded—with the branded products costing significantly more.

Many of the effects on the value chain stem from the fact that SPS compliance is not something that buyers can observe directly by looking at the product. Unlike size, shape, blemish, color, or maturity of the product, the healthfulness and safety of a vegetable is a kind of “quality that you can’t see.” In addition to laboratory testing, an important way to verify adequate SPS standards is through participation in the various certification programs.

Within the Guatemalan horticulture sector, the most common national certification program is Programa Integral de Protección Agrícola y Ambiental (PIPAA), which is administered by the Guatemalan Asociación Gremial de Exportadores de Productos No-Tradicionales (AGEXPRONT) and supported by the Guatemalan Ministry of Agriculture. The PIPAA program, like other certification programs, is based on “Good Agricultural Practices” (GAP) and “Good Manufacturing Practices.”² Exporters, distributors, and supermarkets employ personnel in both technical assistance (agronomy)

² For more information on PIPAA, see www.pipaa.com. For more information on Good Agricultural Practices and Good Manufacturing Practices, see www.jifsan.umd.edu/gaps.html/.

and quality control departments who are responsible for working with producers and with packing plant workers to meet PSS. Traceability and record-keeping requirements associated with PSS certification create a “paper trail” documenting practices at every stage of the production and packaging process.

3. Upgrading Opportunities

a. Process Upgrading

There are four categories of process upgrading that are relevant in the horticulture value chain. These four categories of process upgrading relate to 1) cultivation techniques, 2) post-harvest management, 3) infrastructure improvements; and 4) information and communication technology.

Process Upgrading in Cultivation Techniques. Improved cultivation techniques can take several forms:

- New cultivation practices, such as better planting densities and more appropriate timing and application rates for fertilizers, pesticides, etc., in order to increase crop yields.
- Planting of improved and well-adapted hybrid varieties to increase crop yields³.
- Planting seedlings (*pilones*) instead of seeds in order to shorten the length of the production cycle.
- Using integrated pest management, instead of routinely applying agrochemicals on a scheduled basis, in order to reduce input costs.

Process Upgrading in Post-Harvest Management. Because many

³ Since there is no varietal protection for snow peas and sugar snap peas in Guatemala, farmers have the option of buying cheaper seeds collected from previous crop harvests, rather than buying certified seeds. This reduces the incentive for seed suppliers to offer improved varieties of snow peas and sugar snap peas.

horticulture crops are highly perishable, the percentage of the harvest (or shipment) lost to spoilage is closely related to the speed and care with which the vegetables are handled after harvest. In general, there is a very narrow window between harvest and fresh sale or processing. For example, vegetables may be harvested in the early morning and delivered to regional distributors, where they are reloaded on trucks the same day and delivered to retail buyers in El Salvador early the next morning. Similarly, broccoli harvested in the early morning in Sacatepequez or Chimaltenango is delivered to one of many small rural collection centers, from which it is trucked to a freezing plant in Guatemala City the same day.

Several innovations in post-harvest management can be observed:

- Regional distributors rely on cold chain transport to reduce the rejection rate from their retail buyers. This requires heavy investment in refrigerated trucks.
- Some buyers now require their suppliers to deliver products in standard plastic cartons (*cajías*). This standardization not only saves transfer time and eases stacking and lifting at the delivery site, it also reduces the number of times that the vegetables are handled, thus cutting down on mechanical damage to the product.
- Some crops require special handling. For example, Brussels sprouts need to be laid out on a drying shelf for 24 hours before being piled into boxes and transported. Otherwise, the product can rot from excessive moisture.

Process Upgrading in Infrastructure.

- Irrigation. Affordable irrigation systems are needed to extend the growing season, since seasonality related to rainfall patterns plays a major role in constraining productivity. During the January

to May period, there is insufficient rainfall to maintain full production.

- Collection Centers. There are hundreds of small collection centers, which are the sites where producers deliver products to exporters. Infrastructure at many of these collection centers is poor, adding to handling costs and increasing product rejection rates. The majority of rural collection centers do not comply with FDA recommendations.
- Transportation. The poor quality of roads and transportation infrastructure adds to transport costs and increases transit time, which leads to greater losses from spoilage.

Process Upgrading in Information and Communication Technology.

Cellular telephones represent a revolution in rural communication, where land lines are either expensive or unavailable. Cell phones are used to check market prices, place orders, and coordinate deliveries. Even many producers, some of whom are illiterate, have cell phones. Among producers, producer representatives are the most likely to have cell phones.

To be successful, an intermediary needs a cell phone to check prices and receive orders. Intermediaries rely on cell phones to check prices in the major wholesale markets several times a day. They also rely on cell phones to receive orders from exporters for spot market purchases to be made later that same day. Retail-level firms in the Guatemalan/Central American market channel also place their orders with suppliers (intermediaries or producers) over the telephone. Orders for fresh vegetables from retail-level firms are usually placed for same-day or next-day delivery.

Some of the larger buyers use more advanced information technology. Major exporters may maintain computerized records of their contracts with producers, details

about deliveries, in-kind credit balances, and payment schedules. At least one of Guatemalan/Central American supermarket chain asks its suppliers (producers and intermediaries) to enter all delivery information on a centralized computer system and receive payments through electronic banking.

b. Product Upgrading

Product Upgrading Related to SPS Standards.

The higher SPS standards represent a type of product upgrading, since they result in a product that is safer and healthier for the consumer. Increasing phyto-sanitary standards were discussed in some detail in the previous section. Certification is an indicator that SPS standards are being followed. Ironically, this product upgrade sometimes represents a process “downgrade” in the sense that the most effective agrochemicals may be prohibited from use, even though there are no equally effective alternatives (e.g., the use of fungicides Bravo 50 and Tamaron on snow peas).

Product Upgrading Related to Appearance and Quality.

Each crop has appearance and quality standards related to size, color, shape, level of damage, number of worms, etc. Many of these standards are specified in forward contracts between producers and buyers. Buyers often use visual aids (e.g., posters, slides) to communicate these standards to producers.

Product Upgrading Related to Processing and Packaging.

One of the ways that producers and buyers add value is by processing the horticulture crops. The most important of these upgrades is to freeze the product in order to extend freshness and transportability. Once the product is frozen, much of the risk associated with product perishability is eliminated. Other product upgrades associated with processing include 1) recutting products, especially broccoli,

to produce a standard size (*recorte*) and 2) creating and packaging product combinations and mixtures, especially combinations of broccoli, snow peas, and the mini-vegetables.

Another important way to add value is through packaging the products rather than selling them in bulk. For example, fresh vegetables can be packaged in trays and sealed in plastic before export. One of the best ways to add value to fresh horticulture products, as well as extend their shelf life, is to seal small amounts of washed and trimmed vegetables, or vegetable blends, in microwaveable bags. The retailer's or distributor's label can then be affixed to the package, which is ready for retail sale. This type of packaging is usually only done when there is an existing agreement with the final retailer.

c. Functional Upgrading

As with the handicrafts value chain, the elimination of an intermediary—either above or below on the value chain—is a stepping stone to functional upgrading and higher profits. With the increasing SPS standards, many exporters prefer to eliminate the intermediary and work directly with producers. This also appears to be the trend with regional distributors and supermarkets. By working directly with producers, it is easier for exporters, distributors, and regional retailers to certify the origin and safety of the product.

An important side effect of lead firms working directly with producers is that, in many cases, lead firms are encouraging producers to improve their business practices. Many lead firms insist that their suppliers be formally registered with the tax system, so that the lead firm can declare its payments to suppliers when calculating the value-added tax. Some lead firms reduce the transaction costs of working with numerous producers by computerizing their record-keeping of orders and

deliveries. In this way, even rural producers may become familiar with entering their sales data into the lead firms' computer system. Other lead firms require that suppliers maintain bank accounts to receive payments through electronic funds transfer. All of these improved business practices help to expand the capabilities for MSE producers and place them in a better position to take advantage of future upgrading opportunities.

Other types of functional upgrading that were observed in the horticulture value chain include the following:

- Intermediaries upgrading by becoming either exporters or distributors.
- MSE producers upgrading by becoming producer group representatives, responsible for coordinating orders and inputs for a group of producers working with a single buyer. Producer group representatives receive compensation from the buyer for their efforts, usually based on the volume of product delivered by the individuals in the group.
- Exporters preferring to sell to US/EU distributors and working to eliminate sales to US/EU brokers.

d. Inter-Chain Upgrading

Scope for inter-chain upgrading is limited by the differences in SPS standards between the two channels. However, some of the Guatemalan and Central American supermarkets appear to be positioning themselves for more challenging regional standards in the future. Another difference between the two market channels is the predominance of wet markets in the Guatemalan and Central America channel. However, typical wet market consumers in Guatemala and Central America do not seem to have as high a demand for horticulture crops as consumers in the US and Europe.

4. Governance and Vertical Relationships

Meeting or surpassing SPS standards have several effects on governance within the value chain. Governance patterns between buyers and producers are moving away from market and weak network governance toward stronger network and hierarchical governance. This is because exporters, distributors, and retailers seek to provide assurance to themselves and their own buyers that the products were produced in accordance with SPS standards.

As described in the previous section, exporters, distributors, and supermarkets are actively reducing their reliance on intermediaries in favor of contracting directly with producers. Even though this may increase coordination costs by requiring them to work with a larger number of suppliers, it provides better assurance of compliance with SPS standards.⁴ Lead firms often provide on-site quality control and inspections at production and collection sites.

a. Forward Contracts

It is common for producers to sign forward contracts with lead firms. These forward contracts specify several variables:

- the area of land to be planted under the contract (and, by inference, how much product will be delivered)
- the quality standards against which the base price for the product will be established
- the planting dates and/or the range of dates when the product will be delivered (most horticultural crops are planted over a several-week period so that they can be harvested in a series of successive cuttings)

⁴ Buyers and sellers also seek to eliminate intermediaries as a way to secure better prices

- the list of approved chemicals that can be used on the crop
- the price to be paid for the product, either fixed or pegged to wholesale market prices

As part of the contract, lead firms usually provide inputs (seeds, seedlings, and agrochemicals) to producers, as well as technical assistance. The producers repay the in-kind credit for inputs using the proceeds from the first harvests. Because of this credit, and also to ensure predictable and reliable product flows to lead firms and their processing plants, producers usually must agree to sell 100 percent of their harvests to the lead firm at the time of signing the forward contract.

b. Role of Intermediaries in the Value Chain

Even though lead firms prefer to arrange most of their supplies under forward contracts signed directly with producers, there is still a critical role for intermediaries to play in the wholesale and spot markets for horticultural crops. Intermediaries serve as a back-up resource to lead firms by providing the extra supplies that exporters and distributors need to complete orders. In other words, lead firms may receive the bulk of their supplies directly from producers, but they still turn to intermediaries to fill in the gaps and sudden shortfalls.

Intermediaries are usually MSEs, and they often have paid employees. They operate the main wholesale markets for horticulture crops, and they also organize regional spot markets for the major crops. Intermediaries may work with a set of affiliated producers, providing in-kind credit for inputs under informal forward contracts with these affiliated producers. Unlike lead firms, intermediaries are usually unable to document that SPS standards were met during crop production. However, intermediaries are aware of the US EPA approved agrochemical list, and

they discourage affiliated producers from using banned chemicals.

5. Risks and Expected Returns

As with weaving, the cultivation of horticulture crops is usually not the only economic activity in the household economic portfolio, but is one of several economic activities. In general, producers of horticulture crops also cultivate the traditional corn and bean agricultural subsistence plot (*milpa*). In addition, it is common for producers to cultivate other (non-horticultural) crops, which household members sell in local wet markets.

It is usually men who manage the cultivation of horticultural crops, although other household members will assist with planting, weeding, and harvesting. Up to a certain scale of cultivation, these seasonal tasks will be performed by household members on a non-paid basis. When the producer has a larger area of land (several *manzanas*) planted to horticulture crops, he may hire non-household members to assist with cultivation.

There are several types of risks associated with the production and marketing of horticulture crops. These have a strong influence on the structure and functioning of the value chain. There are four main categories of risk:

1. Price and market risks. Prices for most of the horticulture crops are volatile and can sometimes fall to very low levels. Producers prefer to have a fixed purchase price in their forward contracts. Similarly, exporters prefer to sell to US/EU distributors, who pay a fixed price, rather than US/EU brokers, who receive the product on consignment.
2. Climate and production risk. The main risk affecting production levels is uneven and unpredictable rainfall. Very few producers have irrigation systems

to mitigate this risk. Crop production can also be reduced by pest and disease infestation. A sudden infestation can motivate a producer to take a chance on a banned agrochemical rather than lose most of the harvest.

3. Perishability of the product. Delivery and sales of fresh horticultural products must be realized rapidly to prevent losses. Poor transportation and storage infrastructure limit effective post-harvest management. Lead firms that have the ability to freeze the products have more flexibility in the timing of deliveries.
4. Non-compliance with SPS standards. Products are usually exported in containers. If even one producer uses a banned agrochemical, and it is detected, then the entire container can be rejected.

6. Definitions Specific to Horticulture

Brokers: Firms that operate at the wholesale level in the US and EU. These firms receive products on consignment. They resell the products at the wholesale level (e.g., to distributors) or at the retail level.

Certification: An internal or external validation process indicating that specific practices are being followed with respect to SPS standards, organic production practices, bioterrorism security measures, etc. An important example is PIPAA.

Distributors: Medium and large firms that, as a sole or main business, sell to retail-level firms, including supermarkets, hotels, restaurants, and institutions within Guatemala and occasionally with neighboring Central American countries.

Exporters: Firms that, as a sole or main business, sell to non-retail buyers outside of Guatemala.

Horticulture Crops: Crops associated with snow peas in terms of production zones, general production techniques, and market similarities. The horticulture crops included in this definition are snow peas, sugar snap peas, English peas, green beans, French beans, yellow wax beans, baby carrots, baby squash, baby corn, broccoli, cauliflower, cabbage, Brussels sprouts, lettuce, and celery.

Intermediaries: Firms that are MSEs, operate within Guatemala and Central America at the wholesale level, and do not sell outside of Central America. These firms sell to exporters, distributors, and retailers. They may deliver the product to the buyer or sell from wholesale markets, such as the Central de Mayoreo (CENMA, in Guatemala) and La Tiendona (in El Salvador). Intermediaries often buy directly from producers; in this situation, they are sometimes referred to as *coyotes*.

Sanitary and Phyto-Sanitary (SPS) Standards: Requirements and preferences related to protecting the health and safety of the consumer. These include the absence of harmful chemical residues and microbiological contaminants (e.g., *E. coli*).

Wet markets: The main retail alternative to the supermarket in Guatemala and Central America sometimes referred to as “local” or “traditional” markets. According to some informants, more than 72% of retail purchases of fresh fruits and vegetables in Guatemala are made in wet markets.

Wholesale market: Local markets in which intermediaries sell products to, distributors, exporters, and/or other intermediaries. (Final consumers may shop at wholesale markets, but the largest volume of sales is at the wholesale level.) The most important Guatemalan wholesale market for horticultural crops is CENMA in Guatemala City. Another wholesale market in Guatemala City is at “La

Terminal”. In El Salvador, the main wholesale market is La Tiendona. In addition to these large markets, specialized wholesale markets for specific crops operate in the most fertile horticultural zones in Sacatepequez and Chimaltenango. An example is the wholesale market on the streets of Sumpango on Monday, Wednesday, and Friday evenings from 6-8:30 pm.

IV. DATA COLLECTION

A. BUYER FIRM SURVEY

1. Purpose and Content

The buyer firm survey collected quantitative data from buyer firms in each value chain. The respondents were largely firm owners or high-level managers of firms from several buyer categories. Buyers are usually deeply engaged in the sector, often acting as intermediaries between producers and retailers, and they may even be involved at many different levels in the value chain. Some buyers, such as exporters, are larger firms and have a vantage point that offers a birds-eye view of the sector. The primary objectives of the buyer firm survey are 1) to generate a broad picture of the value chain, 2) to test hypotheses A.1-A.3, 3) to provide a means to cross-check responses from the producer survey, and 4) to gather referrals for the initial participants (seeds) of the producer survey.

The buyer firm questionnaire is provided in appendix B. The questions in the buyer survey focus on hypotheses A.1-A.3, which deal with vertical relationships between these firms and MSEs. The questions cover governance structures, upgrading, trust, transaction costs, shared information, and social capital. The buyer firm interviews ranged from 45 to 60 minutes in length.

There were 58 horticulture buyers and 74 textile handicraft buyers

interviewed for the study. Where appropriate, buyers were selected randomly from lists based on AGEXPRONT’s membership rosters as well as information gathered in the qualitative phase. Where no lists could be compiled, buyers were selected through referrals or by using random walk approaches in specific physical market locations. Where numbers of buyers were small (e.g., supermarket chains) efforts were made to interview all buyers in the category. Unlike the producer interviews, no incentives were offered for participation in the buyer firm survey.

2. Construction of Sample Frames for Buyers

As can be seen in the attached value chain maps, MSE producers in textile handicrafts and high-value horticulture sell their products to several different types of buyers. There are four types of buyers for textile handicrafts and five types of buyers for horticulture products. Tables 1 and 2 list each of these categories of buyer firms. The columns in the tables are organized as follows:

1. Type of buyer—corresponds to the names used on the value chain maps.
2. Level of the value chain at which the buyer operates.
3. Approximate total number of buyers of that type in the population.
4. Number of buyers of that type included in the buyer sample.
5. Basic approach for constructing a sample frame for that type of buyer.
6. Detailed description of the approach for constructing the sample frame and selecting the sample for that type of buyer.

Construction of the sample frames for buyers in both value chains began

Table 1: Sample Frames for Buyer Firms in Textile Handicrafts

Type of Buyer	Buyer Level	Population (approx.)	Sample Size	Sample Frame	Detailed Approach for Constructing Sample Frame
Exporters	Wholesale	50	18	Random selection from list	Began with member list of AGEXPRONT Handicrafts Commission members and worked with AGEXPRONT staff to eliminate non-exporters and identify additional exporters (non-members of the commission). Vetted the list with two additional informants (exporters) to identify additional exporters. Selected random sample from the final list.
Artisan-Brokers (Note: Many are also MSEs)	Wholesale	unknown	19	Referral	Since, artisan-brokers sell to all three of the other types of buyers (exporters, popular shops and exclusive shops), when interviewing each of the other types of buyers, they were asked for a given number of referrals (3) of artisan-brokers, as determined by the desired sample size.
Markets & Popular Shops (Note: Many are also producers who are self-marketing)	Retail	unknown	20	1. Selection of largest markets in study area 2. Random walk	Determined 5 largest markets/groups of popular shops in the study area (Guatemala: Mercado Central, Aurora, and Zone 9; Antigua; and Panajachel). Determined sample size (20). Determined number of participants per market by weighting number of shops/stalls per total number of shops/stalls in all 5 markets—Mercado Central (5); Aurora (2); Zone 9 (2); Antigua (5); and Panajachel (6). Selected sample via random walk.
Exclusive Shops	Retail	30	18	Random selection from list	Begin with current member list of AGEXPRONT Handicrafts Commission and worked with AGEXPRONT staff to identify other exclusive shops to add that are not members of the commission. Vetted the list with two additional key informants (exclusive shop owners) and asked them to identify additional exclusive shops. Took random sample from the final list.

with AGEXPRONT member lists.⁵ The AGEXPRONT lists were good starting points for several of the buyer firm categories, but were incomplete. The extra time spent working with key informants to complete the lists improved the validity (coverage) of the sample frames. Key informants

⁵ AGEXPRONT's Handicrafts Commission has a member list with approximately 90 members, though not all of them work in textiles. There are three types of members: 1) exporting firms (45% of members); 2) producer groups (40% of members); and 3) development organizations (15% of members) All members of the Handicrafts Commission are supposed to have a strong interest in promoting the export of handicrafts, so they would all be part of the international market channel. This list is kept up-to-date and includes full contact information.

assisted in completing the lists during the preliminary field investigation.

In the cases of the popular markets and artisan-brokers in handicrafts, and the intermediaries in horticulture, there were no existing lists to use as a starting point in constructing sample frames. Instead, tables 1 and 2 describe an approach that relied on a combination of referrals and random walk sampling to generate random samples of buyer firms in these categories. The tables provide details about the approach for constructing buyer firm sample frames.

3. The Sampling Approach

There are two important considerations driving the sampling

approach. First, with 75 buyers from the handicrafts value chain and 58 buyers from the horticulture value chain, there were enough buyers in the sample to potentially provide statistically significant results. Almost all categories of buyer firms were included in the sample, thus providing information about buyers in each category.

The primary advantage of this approach is that it allowed the selection of a random sample of buyer firms from each category, so that we can argue that the sample is representative of each category. The possible exceptions would be the sample of artisan-brokers in handicrafts and, to some extent, the intermediaries in horticulture. Unfortunately, there is no feasible way

Table 2: Sample Frames for Buyer Firms in Horticulture Products

Type of Buyer	Buyer Level	Population (approx.)	Sample Size	Sample Frame	Detailed Approach for Constructing Sample Frame
Exporters	Wholesale	25-30	18	List	Began with a contact list developed during qualitative study, which was compared to current member lists of AGEXPRONT Frozen Vegetable and Snow Pea Commissions to add new firms. Worked with AGEXPRONT staff to eliminate non-exporters and identify exporters who were not members of the two commissions. Vetted the list with two informants (exporters) and asked them to identify any additional exporters. Interviewed all on the list who were available and willing to participate in the survey.
Intermediaries (Note: Some of these are also MSEs)	Wholesale	350	30	Random walk	Conducted a random-walk procedure in the horticulture sections of the two major wholesale markets in Guatemala City (Centro de Mayoreo and La Terminal).
Guatemalan Distributors	Wholesale	4-6	7	List	Followed same procedure as for exporters.
Supermarkets	Retail	5	3	List	Followed the same procedure as for exporters.
Wet Markets	Retail	unknown	0	None	Omitted from sample.

to construct a reliable list of these firms and, with the exception of the horticulture wholesale markets, the geographic dispersal of these firms makes it infeasible to conduct a random walk sampling procedure. Therefore, a referral method was the only alternative.

A disadvantage of the approach is that two types of buyer firms in horticulture are not included: 1) Guatemalan hotels, restaurants, and institutions and 2) wet markets. Both of these buyer categories operate at the retail level. They were excluded because they are geographically dispersed, and it would be hard to construct valid sample frames. In addition, the sales of horticulture products in wet markets may not be very extensive, since these products are not traditionally popular with local consumers.

A second major consideration driving the sampling approach is that, by interviewing almost all of the

categories of buyers, it was possible to elicit referrals for producers operating in every channel of the two value chains. Thus, the initial seeds for the Respondent Driven Sample (RDS) include producers referred from every category of buyer. With initial seeds from all buyer categories, it is possible for the producer sample to converge to a sample that is representative of all producers in the value chain.

4. Pilot Test

The questionnaire and referral process were pilot tested and revised, based on the results, of the pilot test. AFTER the buyer firm sample frames were constructed and AFTER the random samples had been selected. In this way, the pilot test could be conducted on buyer firms that were selected as part of the sampling process. This procedure protected the integrity of the random sample.

Four buyers from the handicrafts value chain were interviewed for the pilot test: one firm from each of the buyer categories. Three firms in the horticulture value chain were interviewed: one exporter and two intermediaries.

The pilot test provided information on how well the questions are structured and how well the referral process works. It also yielded information on the expected length of the interviews and whether it would be necessary to delete any questions to shorten the interview. Additional information about how the pilot test was structured and evaluated is provided in section B.4 below.

B. PRODUCER FIRM SURVEY

1. Purpose and Content

The producer survey focused on quantitative data collected from producers in each value chain. The respondents were owners or principal

decision makers of MSE producer firms in the handicrafts and horticulture sectors. The major sections of the questionnaire cover finance and credit, labor and capital, competition and trade, risk aversion and discount rate, business development support awareness and demand, social capital, value chain governance and upgrading, and demographic information. While certain questions are more qualitative in nature, such as describing what obstacles might be interfering with business or whether access to credit is easy or hard, for the most part the survey focused on collecting quantitative data that were entered into a database for future statistical analysis as the foundation of the AMAP research into the behavior of MSEs and their potential for growth.

The producer survey gathered data for testing all the hypotheses, looking at vertical relationships from the perspective of producers, problems in establishing horizontal relationships that have high levels of trust and low transaction costs, and opportunities for MSE upgrading. As data from the producer survey compose the majority of the data collected, every effort was made to assure that the survey be broad and collected as much information as possible. The producer firm questionnaire is provided as appendix C.

2. General Discussion of Respondent Driven Sampling (RDS)

a. Statistical Properties

Respondent Driven Sampling (RDS) is a relatively new sampling method built on snowball, or chain-referral sampling. Unlike other referral sampling methods, however, RDS has the potential to lead to results with known statistical properties. This potential has been acknowledged in the literature on the study of hidden populations, though RDS has not

been replicated enough to gain broader acceptance.⁶

The basic methodology is to start with an initial set of seeds, which are given an incentive to be interviewed, and then given an additional incentive to recruit other respondents to also be interviewed, who are also then given incentive to recruit more respondents. This process proceeds to a predetermined number of waves. Using 1) the self-reported degree, or personal network size – in this case the number of other discrete MSE businesses involved in the relevant sub-sector known by the respondent, and 2) the recruitment pattern of referrals linking respondents to who referred them, it is possible to make estimates about the population that are unbiased and establish representativeness.⁷

While it has been asserted that types of chain-referral procedures are biased based on the initial choices of seeds, it can be shown statistically that the choice of seeds does not matter. Recruitment can be modeled as a regular Markov process, with a respondent selecting other respondents with certain characteristics with specific probabilities in a memory-less process. Thus, as the recruitment process continues, an equilibrium mix of recruits will eventually be attained that is independent of the characteristics of the initial seeds. The set of subjects generated by RDS will further approach the equilibrium distribution at a rapid (geometric) rate, and the better the initial seeds approximate the equilibrium distribution, the faster the sample will approach that equilibrium.

One general concern worth addressing is that groups have a strong tendency to recruit from within the group, termed “inbreeding”. Thus, the extent to which members of any

given group will be sampled depends on three factors – the size of the group, its tendency toward inbreeding, and the strength of inbreeding in other groups. If all groups’ inbreeding terms are equal then, an RDS sample would yield an unbiased sample because the probability of sampling an individual would be related only to the size of the group that the individual belonged to. This of course may not be the case in reality; however, even when this assumption is violated, it has been shown that RDS can be expected to produce good cross-sections.⁸ In theory, also, there should be a positive relation among inbreeding terms; high inbreeding (or a strong tendency to favor the group) tends to encourage more inbreeding (for other groups to adopt that behavior) whereas weak inbreeding discourages high inbreeding.

In the case where social networks do not cross at all and referrals thus do not cover both populations, for instance in cases of geographic isolation, it is possible to partition the sample into two or more sub-samples and each system will reach their own equilibrium distribution.

b. Previous Applications

As noted before, RDS has not been used extensively in the research community despite its potential to yield representative results. Relevant surveys in the US have studied alcoholism in mission Indians⁹, jazz musicians¹⁰, injection drug users¹¹, and cocaine and crack users¹². Work on jazz musicians has been especially statistically rigorous, and demonstrates the statistical validity of RDS in estimating population characteristics and network sizes. RDS has also been applied internationally in Kenya studying the

⁸ Ibid.

⁹ Ehlers et al. 2004.

¹⁰ Heckathorn and Jeffri 2001.

¹¹ Heckathorn et al. 2002.

¹² Rees 2004.

⁶ Semaan et al. 2002.

⁷ Heckathorn and Salganik 2004, pp. 5-14.

Table 3. Number of Waves and Referrals for Each Sector

Number of Wave	Total Respondents in Each Wave	Referrals Used per Respondent	Cumulative Number of Respondents
1	10	2	10
2	20	2	30
3	40	2	70
4	80	1	150
5	80	1	230
6	80	1	310
7	80	-	390

social network for health interventions among scavenging street children¹³. In this case, RDS was cited as an efficient and effective way to collect data.

While the research base is not extensive and none of these studies reach the scale of the AMAP project, there are some examples of work on which to draw. Moreover, the Guatemala field research provided an opportunity to advance the field of research and work to establish a new research tool for studying hard-to-reach populations. This will be especially useful as a research tool in developing countries, where even simple populations, such as small businesses, may be hard to locate due to the extent of the informal economy as well as poor communication and transportation infrastructure.

3. Implementation of RDS Sampling in this Study

a. Initial Seeds

At the conclusion of their interviews, buyer respondents were asked to provide referrals to producers with whom they either had business operations or whom they knew about through other relationships. Buyers were instructed to provide referrals of currently active MSE producers in the relevant value chain. The number of referrals was larger than the actual

number of initial seeds needed, which were ten in each value chain.

Initial seeds were selected on the basis of two criteria: 1) the type of buyer making the referral and 2) geographic location.

1. Type of buyer making the referral

In handicrafts, at least three initial seeds each from referrals by a) exporters and b) artisan-brokers, at least two each from c) markets and popular shops and d) exclusive shops. In horticulture, at least three initial seeds each from referrals by a) exporters and b) intermediaries; and at least two each from c) Guatemalan distributors and d) supermarkets.

2. Geographic location

In each value chain, the initial seeds were evenly divided over the research area, which includes the departments of Sacatepequez, Chimaltenango, and Sololá.

(Note: An effort was also made to select initial seeds from among the full range of MSE firm sizes, with more initial seeds coming from the most common firm sizes in the list of referrals. However, buyer respondents could not provide sufficiently accurate information on firm size to be able to apply this criterion with confidence.)

It was important to select a diverse set of initial seeds in order to accelerate convergence on the equilibrium distribution of producers. The final

distribution of initial seeds was selected in consultation between the AMAP research team and the local consulting firm.

b. Number of Waves and Respondents

Six to seven waves with three referrals for each respondent is recommended in order to establish the equilibrium distribution. The pilot test helped to clarify how long travel and interviews would take to estimate the amount of time required to reach an overall equilibrium distribution. The current sampling plan, summarized in Table 3, reflects the target number of waves and interviews estimated to maintain statistical integrity within the time and resource limitations of the field work.

The proposed sampling structure for each sector began with 10 initial seeds in each sector, for a total of 20 initial seeds. In order to create a reasonably unbiased and representative sample, the field surveys included seven waves of interviews in each of the two sectors. The total number of producer interviews was 780, or 390 in each sector.

c. Survey and Recruitment Incentives

Survey and recruitment incentives are a powerful way of attracting respondents and motivating them to provide accurate referrals. By offering respondents an incentive to participate in the interview, response rates should be higher. Further, offering referral incentives for recruiting other respondents and for participation mitigates the problem of respondents being reluctant to divulge information about their friends. Respondent recruiting also harnesses peer pressure and applies non-material rewards such as peer approval to increase compliance. A friend or acquaintance will have more sway with a potential respondent than a researcher.

¹³ Ayuku et al. 2003.

An unskilled (male) day laborer in agriculture in the Sololá area receives Q20 per day, which is about \$3. Female weavers in the same area make about Q15 for a five to six hour workday. Since interviewers traveled to producers' places of residence or work, Q20 was deemed an adequate incentive to participate in the survey. Payments were made after successful completion of the survey. In addition, each respondent was paid an extra Q15 bonus for providing three referrals. The referred respondent was also paid Q20 for completing an interview and given an opportunity to refer other respondents for the next wave as well.

d. Recruitment Logistics

Respondents were paid the incentive upon completing the interview, and then given an opportunity to earn a referral bonus by providing three possible referrals of producers who fit the interview criteria, which is an actively producing MSE in the textile handicrafts or horticulture sector. Depending on the number of the wave, only one or two of the referrals were interviewed (see table 3 above) to assure that the number of total interviews in a single wave was not too high and the final sample was representative.

The local survey firm provided enumerators with a random selection method using a six sided die for immediately prioritizing the three referrals (i.e., ranking them first priority, second priority, and third priority). The enumerator was instructed, that once the referrals were ranked, to ask the respondent to bring the enumerator to meet the one or two top priority referral(s). If the top priority producer(s) could not be found, or did not agree to participate in the survey, then the next highest priority referral was invited to participate.

Table 4. Number of Waves and Referrals for Each Sector (Pilot Test)

Number of Wave	Total Respondents in Wave	Referrals Used per Respondent	Cumulative Number of Respondents
1	2	2	2
2	4	2	6
3	8	-	14

Referrals within one wave were all to be completed before moving on to begin the interviews in the next wave. For instance, in wave 1, if Respondent A is interviewed and refers Respondents B, C and D, and B and C are selected to be interviewed, then both B and C were to be interviewed before any of B and C's referrals were interviewed.

In a many cases, the enumerator was able to proceed immediately with the next interview, provided these three conditions are met: 1) all of the interviews for the previous round have already been completed; 2) the enumerator did not need to go with the referring producer to meet a second referral; and 3) the referring producer was politely asked to leave so that the referred producer could be interviewed in private.

In summary, the procedure be followed by enumerators was the following:

1. Complete an interview and ask the respondent for three referrals.
2. Make the Q20 payment to the respondent for the interview and offer an additional bonus of Q15 for three referrals.
3. Prioritize the referrals based on a random selection process.
4. Randomly select one or two of the referrals, depending on the wave number for subsequent interviewing.
5. Accompany the respondent to meet the referrals and secure their agreement to be interviewed then or later.

In order to avoid repeat interviews of the same producer, survey teams were assigned to work in specific geographic areas, with no overlap between teams. A team only interviewed producers in its assigned area, and if a referral was for a producer outside of its area, it relayed the information to the relevant team. A member of this relevant team then brought the referring producer to the referred producer. This process was time-consuming, but it minimized other problems that arise if producers try to be interviewed more than once by different enumerators.

4. Pilot Test

The producer survey pilot test assessed the effectiveness of the questionnaires as well as the expediency of the RDS methodology. The pilot test focused on just one geographic area, and began with the random selection of seed producers from the referrals collected during the buyer pilot test. (See section IV.A.4 above). The pilot buyer interviews included the request for producer referrals. For each sector, the initial seeds for the producers came from two different buyer categories.

Beginning with two producers in each sector, the RDS methodology was pilot tested by completing three waves of referrals. The referral process during this simulation was conducted in exactly the same fashion as what was planned for the final survey, including the mechanism for providing incentive payments to respondents.

As indicated in Table 4, the total number of producer interviews for the

pilot test was 28 interviews, or 14 interviews in each of the two sectors.

The pilot test results were analyzed to provide information in the following areas:

- The effectiveness of the referral process for obtaining contact information on intermediaries, artisan-brokers, and producers.
- Whether producer firm owners in that area respond to the recruitment incentive.
- Preliminary estimates on how much time each interview and each wave might take.
- Preliminary information on the distribution of characteristics of the population, and how those characteristics might affect recruitment (inbreeding, or the tendency for group members to select other members of a group).
- The appropriateness of questions in eliciting accurate and unbiased answers from both producer and buyer firm respondents.

Results of the pilot test provided guidance on changes that needed to be made to the questionnaires, referral process, or incentive payment system.

V. PLAN FOR DATA ANALYSIS

After collecting the data, various statistical tests can be performed to estimate consistent standard errors in order to facilitate statistical inference. The standard error can be estimated through a procedure similar to *bootstrapping* in which the sampling process is simulated and the standard deviation of the population estimates yields the estimate of the standard error.¹⁴

¹⁴ Heckathorn 2002, p. 27, Berkowitz and Diebold 1998. Bootstrapping is a well-established statistical procedure for estimating sampling variability in a set of data. It is often used when closed-form expressions for standard errors are not available (as in the case

Previous research has shown that the size of the standard error depends on the sample size, and also on the degree of homophily (i.e., a measure of preference for connections to one's own group; varies between -1 (completely heterophilous) and +1 (completely homophilous), where the standard error is an accelerating function of homophily. As homophily increases, the information obtained in each additional observation decreases and so RDS is most powerful with low to moderate amounts of homophily.

Asymptotically unbiased estimates of the population can be made by using the observed recruitment behavior to estimate the probability of cross-group connections, combined with the self-reported network size information¹⁵. Many of these tests can be aided by using software specifically developed to analyze RDS data sets. Available on line¹⁶, this 'Respondent Driven Sampling Analysis Tool' software was used to conduct analyses of the Guatemala data.

Data formatting. Translation, data coding, and data entry were carried out locally, in Guatemala, to ensure that local conditions, terminology, cultural references, etc. were adequately reflected. Local work was also less expensive. The data, in the form of MS Excel spreadsheet with no personal identifiers, were sent to the US for analysis.

Data analysis. The descriptive component of the data analysis studied, separately for horticulture and handicrafts:

- Distribution of responses to each question

of RDS). It involves creating replication datasets by re-sampling and examining numerically the resulting sampling distributions.

¹⁵ Heckathorn and Salganik 2004, p. 16-20.

¹⁶ Available online:

<http://www.respondentdrivensampling.org/>.

- Means
- Standard deviations
- Internal consistency of the data (cross-checking different questions that refer to the same details)
- Missing data (checking for randomness/non-randomness)
- Means across different horizontal waves and random walk
- Representativeness of each wave
- Overlap in referrals (which should be increasing with successive waves), and simple correlations
- Comparisons of the data across sub-sectors and across waves
- Test for the appropriateness of pooling across waves.

The analytic component of the data analysis tested the research hypotheses using multivariate regression techniques to identify the correlates and determinants of key outcome variables, using multiple regression if the key outcomes were continuous, and logistic regression if the key outcomes were discrete.

Key outcome variables and their relation to the specific hypotheses, as well as the questions that were designed to collect that data, were organized in a matrix format. These variables ranged from quantitative to qualitative and when possible, both buyer and producer data were analyzed.

Control variables

- Demographic characteristics for MSE owners and workers such as:
 - Age
 - Gender
 - Education
 - Work experience
 - Language fluency
 - Personal income
 - Wealth
- Sub-sector
- Size of the firm
- Geography

Some of these variables might be interchangeable, for instance in testing the effect of higher personal income on risk attitudes personal income would no longer be a control. The full set of hypotheses are listed in appendix A, but include testing the effects of social capital, personal income, information, and transaction costs on vertical and horizontal relationships and on willingness and ability to upgrade.

The results will help in understanding better and quantifying the policy implications for handicrafts and horticulture in Guatemala. For instance, if we discover that if firms participate in business associations they tend to be more willing to take risks, have greater access to capital, and subsequently grow faster, taking into account other variables such as sub-sector and geography, then we could estimate that if a policy were to increase membership in business associations by X percent, it would have Y effect on growth.

In another scenario, we might discover that MSEs are extremely risk averse and discount the future heavily, and that this is a principal reason why they do not pursue upgrading opportunities. In this case, we might need to explore policies that not only make upgrading more feasible, but also reduce perceived risk.

The data analysis process will be open to feedback as it progresses, and there will be presentations of preliminary findings to solicit comments leading to revisions before the results are finalized. We recognize that every hypothesis needs to be tested, and that relevance to USAID mission is the top priority.

VI. STEPS IN IMPLEMENTING THE SURVEY

The data collection was carried out as a series of steps. These steps are listed below.

Step 1: The AMAP research staff and Guatemalan survey team

- Translated survey instruments and survey guides;
- Constructed buyer lists and selected buyer respondent samples from each of buyer firm categories;
- Trained field surveyors in interview and sampling procedures;
- Supervised survey staff in pilot testing both buyer firm and producer firm survey instruments;
- Revised and finalized instruments and sampling plans based on pilot tests; and
- Set up buyer firm interview appointments for Step 2.

Step 2: The Guatemalan survey team

- Conducted buyer firm interviews in both sectors;
- Set up accounts at a bank with agencies in survey regions from which field surveyors could access funds to pay respondents for interviews and referrals;
- Made final revisions to producer survey instrument and sampling plan based on responses from buyer interviews and developed a sample of 'seed' MSE producers; and
- Began database design using final versions of the pilot tested survey instruments.

Step 3: The Guatemalan survey team

- Conducted the producer firm surveys beginning with seed firms and including up to six subsequent waves, for a total of 780 interviews (390 per sector);
- Carried out spot checks to validate the field survey work concurrent with the survey;

- Completed buyer survey coding and data entry; and
- Began producer survey coding and data entry.

Step 4: The Guatemalan survey team

- Concluded any outstanding producer firm surveys;
- Concluded survey form coding and continue data entry;
- Performed random back-checks to validate data entry; and
- Began database checking and cleaning.

Step 5: The Guatemalan survey team

- Concluded survey data entry;
- Concluded database checking and cleaning;
- Converted database to MS Excel spreadsheets for electronic delivery to LBG; and
- Sent completed survey forms and electronic data files to LBG in the US.

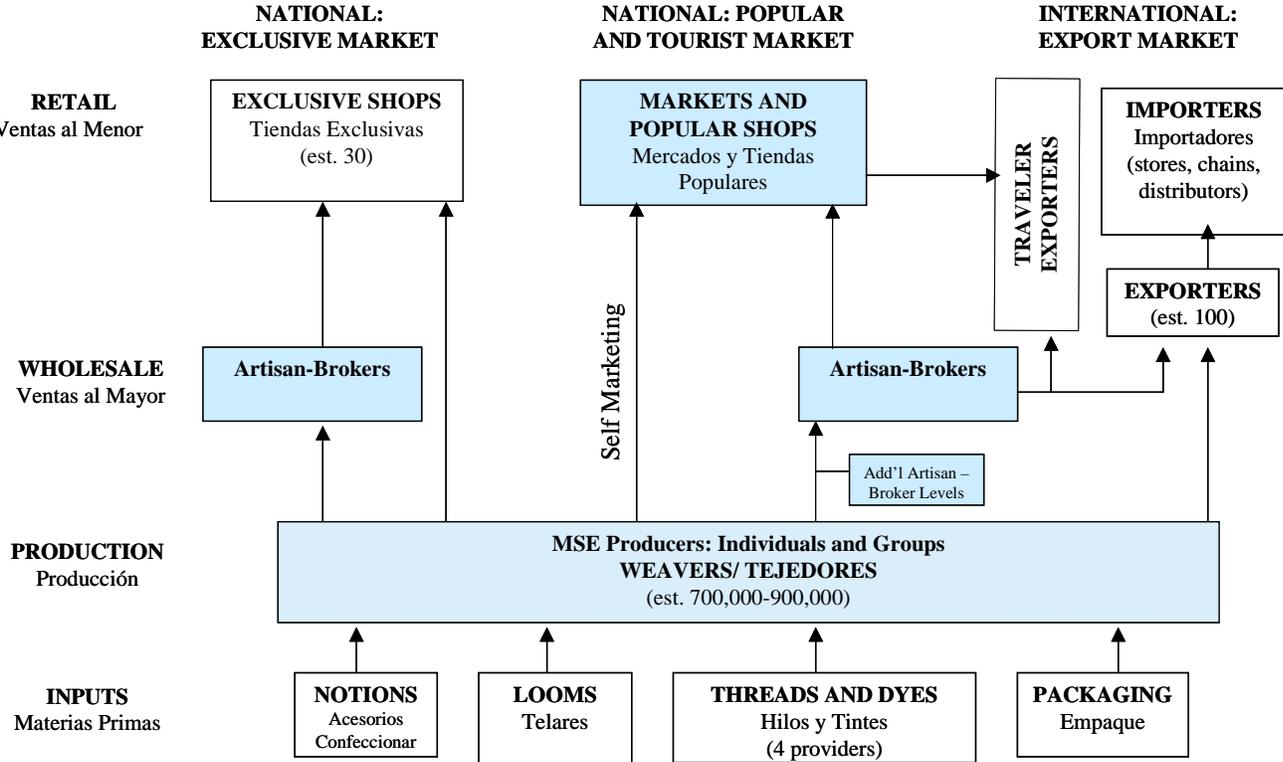
Step 6: The AMAP research staff

- Converted the field survey database from MS Excel spreadsheets for use with statistical analysis software;
- Conducted consistency and other qualitative tests on the field data responses; and
- Carried out the data analysis and prepared the analytical report.

Reference List

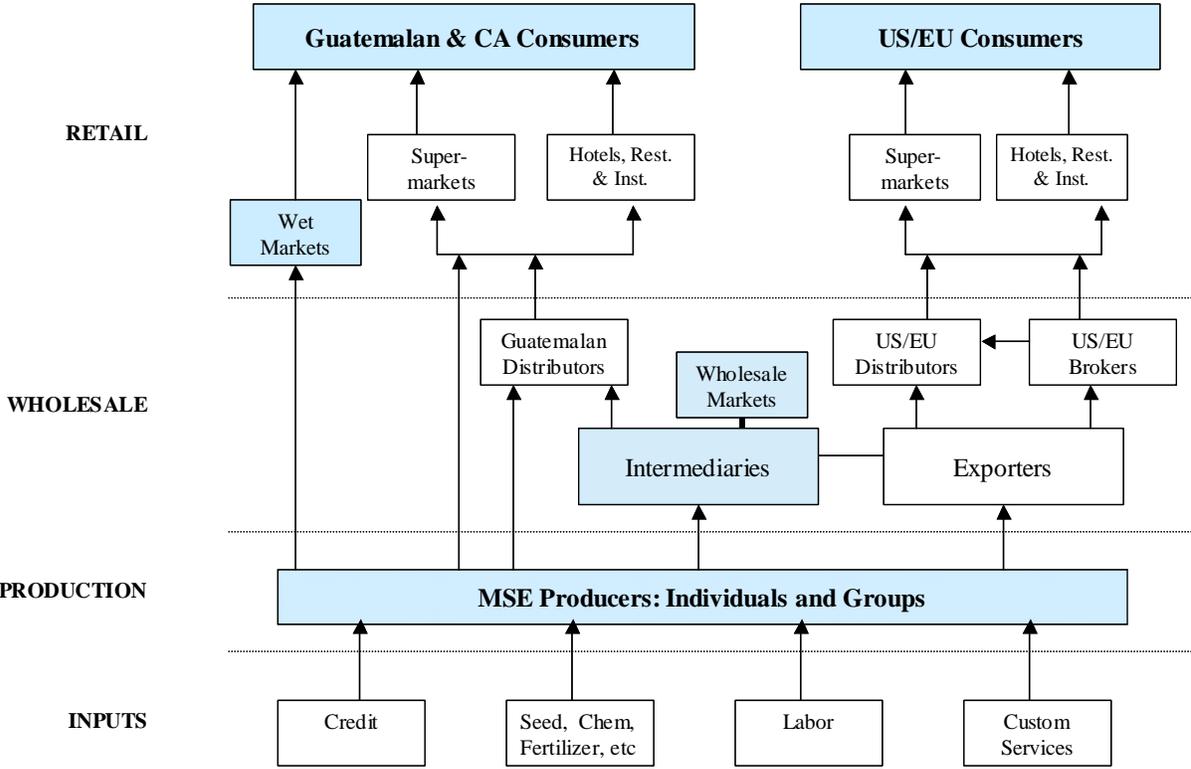
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Figure 1: Guatemalan Textile Handicrafts Value Chain Map



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Figure 2: Guatemalan Horticulture Value Chain Map



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APPENDIX A: DETAILED RESEARCH HYPOTHESES

Intervention-Based Approach to Research Hypotheses

The Component A research hypotheses are designed to improve our understanding of how firm owners in value chains respond to the interaction of governance, expected returns, transaction costs, social capital, and risk. There are two groups of hypotheses, both of which should generate useful information for designing effective program interventions. The first group of hypotheses focuses on interventions that will help to create win-win relationships between firms in value chains. The second group of hypotheses focuses on improving the incentives for MSE owners to upgrade their businesses and enhance their contributions to the productivity of the value chain.

A. Enhancing Inter-firm Cooperation and Coordination

Objective: Understand the constraints and barriers to improved inter-firm cooperation and coordination, including the effects of governance, in order to design interventions that create win-win relationships between firms in value chains.

Vertical Relationships

A.1. Risk in vertical relationships can be reduced by strengthening governance.

Hypothesis A.1. The risk to each firm that the counterpart firm in a vertical relationship will fail to meet its agreements (i.e., the risk of commitment failure) can be reduced by strengthening governance through alternative means, including

- a. the development of linking social capital,
- b. the development of stronger network types of (firm-on-firm) governance,
- c. increasing the formality of contracts, and
- d. strengthening the legal enforcement of contracts.

A.2. Trust in vertical relationships can be increased by improving information.

Hypothesis A.2. Trust between firms in vertical relationships can be increased by improving the information that firms have about each other in several ways, including

- a. building information over time about the trustworthiness of counterpart firms by taking a series of increasingly larger “riskable steps”,
- b. increasing the amount of face-to-face interaction between counterpart firms,
- c. increasing transparency about the distribution of rents in the value chain, and
- d. increasing transparency about the risks faced by firms in the value chain.

A.3. Lead firms will be more willing to form vertical relationships with MSEs if the transaction costs can be reduced.

Hypothesis A.3. Transaction costs are a major constraint to lead firms forming vertical relationships with MSEs, but the transaction costs that lead firms incur in working with large numbers of dispersed MSEs (i.e., the costs of communication, knowledge sharing, contract management, production coordination, etc.) can be reduced through the use of

- b. commercial intermediation (i.e., private intermediaries who efficiently manage transaction costs and are reimbursed by receiving a share of the rents),
- c. alternative institutional and/or organizational arrangements that coordinate activities between MSEs, and

- d. cost-effective information and communication technology (ICT).

Horizontal Relationships

A.4. MSE owners will be more willing to form horizontal relationships if the transaction costs can be reduced.

Hypothesis A.4. Transaction costs, especially the opportunity cost of time, are a major constraint to MSE owners forming horizontal relationships. There are several ways that these transaction costs can be reduced or justified, including

- a. using alternative organizational structures,
- b. using cost-effective information and communication technology (ICT),
- c. opening new, profitable market opportunities (i.e., the increased revenue from the new market opportunity outweighs the costs of forming new horizontal relationships), and
- d. providing entry to competitive environments that value innovation over price.

A.5. Trust in horizontal relationships can be increased through organizational innovation and improvements in human capital.

Hypothesis A.6. Lack of trust is a critical barrier to the formation of horizontal relationships between MSEs, and this lack of trust is based on prior experiences with fraudulent and opportunistic behavior on the part of leaders and other group members (i.e., lack of trust is rational). Trust in horizontal relationships can be improved by reducing the scope for opportunistic and fraudulent behavior in several ways, including

- a. using organizational innovations that limit the power of leaders (e.g., rotating group leadership, sharing decisions, increasing availability of information to group members),
- b. formalizing record keeping,
- c. providing training in leadership and group management skills, and
- d. increasing the human capital of all group members so that leadership does not always fall to a few individuals (i.e., increasing literacy, numeracy, language skills, market knowledge).

A.6. Social capital plays an important role in the successful formation of horizontal relationships between MSEs.

Hypothesis A.5. Social capital can have both positive and negative effects on the formation of horizontal relationships between MSEs:

- a. in-born social capital reduces the transaction costs of forming horizontal relationships because firm owners are more likely to trust each other and less likely to behave opportunistically;
- b. high levels of bonding social capital can create barriers to investments in acquired forms of capital, including both bridging social capital and physical capital.

B. Encouraging Business Upgrading Among MSEs

Objective: Understand the constraints and barriers to MSE upgrading, in order to design interventions that encourage higher levels of upgrading among MSEs and make them more effective partners in the value chain.

B.1. MSE owners base their upgrading decisions on their assessment of the expected returns and risks to upgrading.

Hypothesis B.1. MSE owners make their upgrading decisions based on their beliefs about future net returns (profits). Because future net returns are uncertain, MSE owners must consider both the estimated level of expected returns and the range (variability) of possible future net returns:

- a. MSE owners who compete in undifferentiated product markets are less likely to upgrade their businesses than those working in differentiated product markets, because expected returns to upgrading in differentiated product markets are higher. (due to higher increases in revenue)
- b. MSE owners will be less willing to upgrade if it requires them to invest in assets that have a high degree of asset specificity and they lack credible assurances of repeated future transactions, because expected returns are lower. (due to high investment costs combined with the risks of low future revenues)
- c. MSE owners with lower household incomes and assets will be less willing to upgrade than MSE owners from wealthier households if the range of possible future net returns includes negative net returns.
- d. Even when expected returns are high and range of possible net returns are all positive, MSE owners with lower incomes and assets may still decide not to upgrade if they lack investment capital (i.e., they cannot afford to make current investments in upgrading in order to generate higher returns in the future).

B.2. Upgrading can be encouraged by strengthening the linkages between firms.

Hypothesis B.2. Vertical and horizontal linkages between firms help to improve the expected returns and lower the risks to upgrading:

- a. MSE owners who are willing and able to invest in acquired social capital (networking) will be more likely to upgrade their businesses than owners who are unwilling and/or unable to invest in acquired social capital.
- b. MSE owners who are linked to lead firms through network types of governance structures are more likely to invest in upgrading than MSE owners linked to lead firms through market governance structure.
- c. MSE owners will be more willing to upgrade if they observe successful examples of upgrading among MSE owners with whom they share bonding social capital.

B.3. Lack of information is a critical barrier to MSE upgrading.

Hypothesis B.3. MSE owners in developing countries often lack the information that would allow them to understand the possible advantages to upgrading:

- a. Many MSE owners lack basic awareness about the opportunities that exist for upgrading their businesses.
- b. MSE owners who are aware of upgrading opportunities often underestimate the expected returns to upgrading because they lack the information they need to calculate expected returns accurately.
- c. MSE owners consider transaction costs, especially the costs of the time they would need to spend gathering information about new opportunities, to be a major obstacle to upgrading their businesses.

The shaded boxes include instructions for you, the interviewer. There are two types of instructions: 1. those in bold that are to be read out loud; and 2. those that are in bold and italics that are NOT to be read out loud. In cases where the respondent is not able to or does not want to give an answer, record "9" in the space provided. Fill in as much information as you can before the beginning of the interview.

1. Respondent ID number:

2. Name of Respondent: _____

3. Gender of Respondent: Male → 1 Female → 2

4. Respondent Business Address: _____

 1. Town and Municipality: _____

 2. Department: _____

 3. Location: Guatemala City (Metropolitan Area) → 1; Other Urban → 2; Rural → 3

 4. Telephone: _____

 5. E-mail Address: _____

5. Sector: Horticulture → 1; Handicrafts → 2

6. Buyer Type
 (Horticulture: 11-Exporter, 12-Intermediary, 13-Distributor, 14-Supermarket)
 (Handicrafts: 21-Exporter, 22-Intermediary, 23-Popular Shop, 24-Exclusive Shop)

7. Respondent Firm's Name: _____

8. INTERVIEW START TIME: :
 (Use the 24 hour clock, for example: at 3:30 in the afternoon, use 15:30)

9. Name of Interviewer: _____

10. Date: (day/month/year) / /

When you are back at the office, write the Respondent ID number at the top of each page.

11. Comments on interview (rescheduled interview, interruptions, etc.) _____

To be completed at the time of data entry:

12. Data Entry Person name: _____

13. Data Entry Person ID:

Introduction:

READ: Hello my name is _____, I work for Aragón y Asociados, a company that performs market research. We are performing a study on the [horticulture/handicrafts] sector; the goals of this study are to obtain information that will enable us to find new opportunities to improve the productivity of the sector.

The information that you share with us will be strictly confidential and will only be used for this study. This interview will last for approximately one hour. If you would like a copy of our final report, we will make one available to you. Please be as honest and accurate as possible when answering the following questions.

Do you have any questions before we begin the interview?

Section A: Background Information

1. Has your firm sold any [textile handicrafts/horticulture] products in the past twelve months? Yes → 1 No → 2 |___|

If answer is “no”, thank respondent and discontinue interview.

2. What is your position in this firm? |___|
1. Owner
2. General Manager
3. Owner and General Manager
4. Other (specify): _____
3. How many employees, including yourself, work at your firm? |___|_|___|_|___|_|___|
4. How many years has your firm been operating? |___|_|___|
5. Is your firm owned by another firm? Yes → 1 No → 2 |___|

If answer to 5 is “Yes”, record information about the firm that owns this one.

1. Name of owning firm: _____
2. City and country where owning firm is located: _____
3. Describe type of ownership: _____
(subsidiary, franchise, partnership, family business, etc.)
6. In the past twelve months, approximately how much of your firm’s total sales revenue came from the sale of [textile handicrafts/horticulture] products? |___|_|___|_|___|
7. Do you have access to email that you can use for your business? Yes → 1 No → 2 |___|
8. Do you usually have access to an internet connection that you can use for your business? Yes → 1 No → 2 |___|
9. Do you have a cell phone that you can use for your business? Yes → 1 No → 2 |___|
10. Do you have information on the final retail prices inside Guatemala and/or Central America for the [textile handicrafts/horticulture] products that your firm sells? Yes → 1 No → 2 |___|

11. Do you have information on the final retail prices in the US and/or EU for the [textile handicrafts/horticulture] products that your firm sells? Yes → 1 No → 2

Section B: Business Environment

SHOW CARD

READ: Now I have some questions about the business environment in which your firm operates. The following questions will present you with a partial statement and ask you to complete it based on the scale provided, from 1 to 7. I will identify what each end of the scale represents. 4, the number in the middle, represents the balance between the two ends. Please take your time and try to give the best and most honest answer.

- | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|--|--------------------------|
| 1. | Competition among buyers at my level in the [textile handicrafts/horticulture] sector is generally. . . | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> </tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Intense, and prices are constantly being cut | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | |
| | Limited, and prices are relatively stable | | | | | | | | | | |
| 2. | The producers that I do business with. . . | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> </tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Operate cooperatively and frequently exchange ideas and information. | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | |
| | Operate independently and rarely exchange ideas and information | | | | | | | | | | |
| 3. | Local suppliers of raw materials for my business are. . . | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> </tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Numerous | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | |
| | Limited | | | | | | | | | | |
| 4. | Raw materials that I need for my business are. . . | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> </tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Expensive | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | |
| | Inexpensive | | | | | | | | | | |
| 5. | Raw materials that I need for my business are. . . | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> </tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Hard to obtain | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | |
| | Easy to obtain | | | | | | | | | | |
| 6. | For firms similar to mine, national labor laws are. . . | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> </tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Acceptable | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | |
| | A hindrance to business | | | | | | | | | | |
| 7. | In general, my firm makes purchasing decisions. . . | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> </tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Based only on price | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | |
| | Based only on quality | | | | | | | | | | |

Alternatives for Questions 8 and 9

Do NOT read alternatives; instead, match response to closest alternative.

Inputs & Services

1. Access to land
2. Access to production facilities
3. Access to marketing facilities and/or marketing opportunities
4. Access to finance
5. Problems with availability or quality of products
6. Problems with availability or quality of raw materials
7. Problems with production stoppages
8. Skills and/or education of workers
9. Lack of good designs (for handicrafts)

Taxes & Regulations

10. Phytosanitary regulations and certification (for horticulture)
11. High taxes
12. Unfair tax administration
13. Business licenses and/or operating permits
14. Other government regulations (other than #10-#13)

Business Environment & Conditions

15. Regulatory and/or policy uncertainty
16. Difficulty converting currency (e.g., from GTQ to USD)
17. Inflation
18. Corruption
19. Crime, theft, disorder

Communication & Information

20. Transportation/shipping difficulties
21. Communication problems
22. Lack of information

Demand, Prices & Competition

23. Not enough demand
24. Too much competition
25. Unpredictable and/or fluctuating prices
26. Unfair competition from unregistered businesses

27. Other, specify: _____

8. What do you consider to be the most important obstacle to the operation and growth of your business? |_|_|_|_|

Verbatim Response: _____

9. What do you consider to be the second most important obstacle to the operation and growth of your business? |_|_|_|_|

Verbatim Response: _____

Section C: Information about Buyers

1. In which of the following categories does your firm best fit?

Show respondent a card with the alternatives and definitions below.

- 1. Retailer: firm that sells to final consumers (including restaurants, hotels, institutions)
- 2. Distributor: firm that sells to retail firms in Guatemala and/or Central America
- 3. Exporter: firm that sells to firms outside Guatemala and Central America
- 4. Wholesaler/Intermediary: firm that sells to other, non-retail firms inside Guatemala and/or Central America
- 5. Intermediary/Producer: firm or individual that sells what you produce and that also purchases from other producers to resell.
- 6. Other (specify): _____

2. Does your firm also fit into a secondary category? Yes → 1 No → 2

If answer is "No" ==> skip to question 4

3. Using the same categories, what is the secondary category that best fits your business?

4. In the past 12 months, what percentage of your firm's sales in [textile handicrafts/horticulture] were made to firms (or consumers) inside Guatemala, what percentage to firms (or consumers) inside Central America (but outside Guatemala), and what percentage to firms located outside Guatemala and Central America (international)?

Answers A.-C. must sum to 100%

A. Guatemala:
B. Central America:
C. International:

5. How would you assess the growth potential for each of these markets over the next 2 years?

Read the alternatives.

- 1. This market will contract over the next 2 years
 - 2. This market will stay about the same over the next 2 years
 - 3. This market will grow over the next 2 years
- A. Guatemala:
B. Central America:
C. International:

Refer back to question 1 in this section, if answer is "1-Retailer"==>skip to question 14

6. Approximately how many buyers have you sold [textile handicrafts/horticulture] products to within the past 12 months? _____

If there is only 1 buyer ==>skip questions 7, 8 and 11, 12, 13 (ask only questions 9-10 and 14-15 in this section)

7. Of these buyers, how many have you done business with for more than a year? _____

8. Considering all of the buyers for your firm's products in the past 12 months, I would like for you to think about the buyer to whom your firm had the highest value of sales. We will call this your "top buyer". In the past 12 months, what percentage of your firm's sales went to your top buyer?

|_|_|_|_|

9. How many years has your firm sold products to this same (top) buyer? |_|_|_|_|

10. In the past 12 months, has this top buyer provided your firm with any of the following:

Read each alternative and record response	Yes → 1	No → 2
--	----------------	---------------

- | | | |
|----|--|-----|
| 1. | Advance payments in cash | _ _ |
| 2. | Advance payments in materials (specify):_____ | _ _ |
| 3. | [Handicrafts] assistance or advice with designs | _ _ |
| | [Horticulture] assistance or advice with certification or meeting phytosanitary standards | _ _ |
| 4. | Other technical assistance or advice | _ _ |
| 5. | Marketing assistance or help finding other buyers | _ _ |
| 6. | Other type of assistance (specify):_____ | _ _ |

11. Now I would like for to think about the buyer to whom your firm had the second highest value of sales. What percentage of your sales went to this second top buyer? |_|_|_|_|

12. How many years has your firm sold products to this same (second) buyer? |_|_|_|_|

13. In the past 12 months, has this second top buyer provided your firm with any of the following:

Read each alternative and record response	Yes → 1	No → 2
--	----------------	---------------

- | | | |
|----|---|-----|
| 1. | Advance payments in cash | _ _ |
| 2. | Advance payments in materials (specify):_____ | _ _ |
| 3. | [Handicrafts] assistance or advice with designs | _ _ |
| | [Horticulture] assistance or advice with certification or satisfying phytosanitary standards | _ _ |
| 4. | Other technical assistance or advice | _ _ |
| 5. | Marketing assistance or help finding other buyers | _ _ |
| 6. | Other type of assistance (specify):_____ | _ _ |

14. How would you compare your firm's sales of [textile handicrafts/horticulture] products in 2004 to the level of sales in 2003? |_|_|

Sales were less in 2004	<table border="1" style="display: inline-table;"> <tr> <td style="width: 20px; height: 20px; text-align: center;">1</td> <td style="width: 20px; height: 20px; text-align: center;">2</td> <td style="width: 20px; height: 20px; text-align: center;">3</td> <td style="width: 20px; height: 20px; text-align: center;">4</td> <td style="width: 20px; height: 20px; text-align: center;">5</td> <td style="width: 20px; height: 20px; text-align: center;">6</td> <td style="width: 20px; height: 20px; text-align: center;">7</td> </tr> </table>	1	2	3	4	5	6	7	Sales were more in 2004
1	2	3	4	5	6	7			

Section D: Information About Suppliers

1. What percentage of your product supply do you buy directly from producers and producer groups, and what percentage do you buy from intermediaries?

Answers A. and B. must sum to 100%

A. Directly from producers and producer groups:

B. From intermediaries:

If A=100% => complete only the producer (first) column of table.

If A=0% => complete only the intermediary (second) column of table.

If A is 1%-99% => complete both columns of the table.

LEER—I have some questions about your suppliers. I will start by asking you questions about producers, then ask the same questions about intermediaries.” Ask questions 2, 3, 4, 5, 6, 7 and 8 about producers, then return to question 2 and ask questions 2, 3, 4, 5, 6, 7 and 8 about intermediaries.

	Unit	Prod.	Inter.
2. How many different [producers/intermediaries] did you buy [textile handicrafts/horticulture] products from in the past 12 months?	#		
3. What percentage of the [producers/intermediaries] you buy from do you have personal connections with? For instance, they are part of your family, community group, neighborhood, or church?	%		
4. On average, how long have you been doing business with the [producers/intermediaries] that you currently buy from?	Years		
	Months		
	Weeks		
5. When you buy from a [producer/intermediary] for the first time, what is the most important influence on the size of the order you place with that person?			
Read the list of possible responses and select one of them		1-4	
1. I divide the total order evenly between all suppliers			
2. I base the size of the order on the person’s productive capacity			
3. I start with a smaller order until we build trust			
4. Other (specify): _____			
6. Cómo acuerda usted el precio de un producto con los [productores/intermediarios]?			
Show card with the alternatives and select one of them		1-7	
1. The international market determines the price			
2. The local market determines the price			
3. We negotiate on equal terms until an agreed price is reached			
4. My firm largely sets the price			
5. [Producers/intermediaries] largely set the price			
6. My buyers largely set the price			
7. Other, specify: _____			
7. On average how many face-to-face meetings do you or the staff of your firm have with a typical [producer/intermediary] before you reach an agreement on an order?	#		

8. Which of the following ways do you or the staff of your firm typically use to communicate with [producers/intermediaries]?			
Read the list and record response for each alternative.			1 – “Yes”; 2 – “No”
1. Face to Face			
2. Cellular Telephone			
3. Landline Telephone			
4. E-mail Internet			
5. Fax			
6. Mail/ Courier/ Package			
7. Indirectly, through Group Representatives			

SHOW CARD

9. How would you compare the amount of time it takes to deal with intermediaries compared to the time it takes to deal directly with producers? |___|
 Less time with intermediaries 1 2 3 4 5 6 7 Less time with producers
10. How would you compare the cost of dealing with intermediaries compared to the cost of dealing directly with producers? |___|
 Less cost with intermediaries 1 2 3 4 5 6 7 Less cost with producers
11. How much information do you have about the level of profits that intermediaries earn? |___|
 I have no information 1 2 3 4 5 6 7 I have complete information
12. How much information do you have about the level of profits that producers earn? |___|
 I have no information 1 2 3 4 5 6 7 I have complete information
13. About how many producers for your firm’s products are organized into any type of formal or informal producer group? |___|
 None of them 1 2 3 4 5 6 7 All of them
14. How easy or difficult is it to have business relationships with producers who are members of producer groups? |___|
 Easier with independent producers 1 2 3 4 5 6 7 Easier with producers in groups
15. How much do you trust producers to meet agreed upon conditions, such as the quantity that they will produce, the quality of the product, and the time of delivery? |___|
 They are reliable 1 2 3 4 5 6 7 They are unreliable

Section E: Contracts With Suppliers (Intermediaries or Producers)

1. What percentage of orders that you place with suppliers are based on the signing of a written contract or agreement and what percentage of orders are based on an unwritten contract or agreement?

Answers A. and B. must sum to 100%

A. Written contract/agreement: ||

B. Unwritten contract/agreement: ||

If "A=100%" ==> complete only first column of table.

If "A=0%" ==> complete only second column of table.

If A is 1%-99% ==> complete both columns of the table. First, ask questions 2-4 about written contracts, then return to question 2 and ask questions 2-4 about unwritten contracts.

	Units	Written	Unwritten
2. What percentage of [written/unwritten] contracts that you made with suppliers in the past 6 months have <u>not</u> been fulfilled?	%		
3. Do you have any means to pursue an effective remedy when suppliers do <u>not</u> fulfill [written/unwritten] contracts?	Yes → 1 No → 2		
4. In the past five years, have you ever pursued such a remedy against a producer?	Yes → 1 No → 2		

5. How much time does it take to arrange a written agreement compared to the amount of time it takes to arrange an unwritten agreement?

Written agreement takes less time ||||||||
 Written agreement takes more time

6. How much money does it cost to arrange a written agreement compared to the amount to the amount of money it takes to arrange an unwritten agreement?

Written agreement costs less money ||||||||
 Written agreement costs more money

Section F: Assistance to Producers to Improve Operations

READ: This is the final set of questions that I have for you, and I want to thank you for your patience up until now. We are almost finished. These last questions refer to the producers of your products. I want you to consider all of the producers of your products, whether you purchase products from them directly or through intermediaries.

Read each item listed in the table below, recording the response in the table.

If response to any item is "yes"==>also ask question 2 about that item.

If response to any item is "no"==>skip question 2 for that item.

1. Does your business ever provide any of the following types of business support or assistance to producers? This assistance may be provided directly by your firm, or your firm may provide the assistance indirectly through intermediaries, producer groups, or by paying someone else to provide the assistance to producers.
2. What percentage of your producers are currently receiving this type of support?

ASK: Does your firm ever provide producers with. . .	Question 1	Question 2
	Yes → 1 No → 2	%
A. Advances of raw materials and supplies		
B. Cash advances or cash credit		
C. Technical assistance or advice		
D. Your firm's commitment or agreement to purchase the product before it is produced		
E. Management or business training		
F. Sales and marketing support		
G. Other (specify):		

***If textile handicrafts==>ask questions 3-11 and skip the remaining questions
If horticulture==>skip questions 3-11***

BEGINNING OF QUESTIONS FOR HANDICRAFTS

3. What percentage of your producers use a backstrap loom? |_|_|_|_|_|
4. What percentage of your producers use a foot loom? |_|_|_|_|_|

***If 3+4=100%==>skip questions 5 and 6
If 3+4 less than 100%==>ask question 5 and skip question 6
If 3+4 greater than 100%==>skip question 5***

5. You have told me that the percentage of producers for your firm's products using the backstrap and foot looms is _____, which is less than 100 percent. What handicraft technique is being used by the remaining producers?

Record answer to question 5 here: _____

6. You have told me that the percentage of producers for your firm's products using the backstrap and foot looms is _____, which is greater than 100 percent. Does this mean that some producers use both types of looms?

Yes → 1 No → 2 |____|

7. Does your firm provide any of the following kinds of support for producers to switch from the backstrap loom to the foot loom? Remember that this support may be provided either directly or indirectly by your firm.

Read each item listed in the table below, recording the response in the table.		
	Kinds of Support	Yes → 1 No → 2
A.	Training in use of foot loom	
B.	Providing the foot loom	
C.	Paying part of the cost (subsidizing cost) of the foot loom	
D.	Providing credit to help with the purchase of a foot loom	
E.	Supplying more, better, or cheaper raw materials for use on foot loom (compared to backstrap loom)	
F.	Commitment or agreement from your firm to purchase foot loom products before they are produced	
G.	Helping producers find other buyers or markets for foot loom products	
H.	Other, specify:	

8. These last questions are about the ways that you communicate design information to producers. By "design", I mean any visual or functional characteristic of the product, including *LOS COLORES, TAMAÑOS, TEXTURAS, DIBUJOS, Y ACABADOS.*

Which of the following methods do you use to convey design information to producers?

	Method	Si →1 No →2
A	Physical prototype or sample	
B	Drawing or picture	
C	Face-to-face training	
D	By telephone	
E	By fax	
F	By email	
G	Through intermediaries	
H	Through group representatives	
I	Other, specify:	

9. On average, how many rounds of product development are necessary before the design is correct? (number of rounds)

|____|____|

10. On average, how long does the entire process take, from when you first obtain the new design to when you are satisfied with the final product?

(weeks) |____|____|

11. On average, how much does it cost your firm to transmit a completely new design, from when you first obtain the new design to when you are satisfied with the final product and ready to begin full-scale production?

Q _____

\$ _____

END OF QUESTIONS FOR TEXTILE HANDICRAFTS BUYERS

BEGINNING OF QUESTIONS FOR HORTICULTURE BUYERS

12. What percentage of the producers for your firm's products satisfy the requirements for a phytosanitary certification program, such as PIPAA? |||
13. Does your firm provide any of the following kinds of support for producers to become certified? Remember that this support may be provided either directly or indirectly by your firm.

	Read each item listed in the table and record the response. Kinds of Support	Si →1 No →2
A	Training and/or technical assistance with "good practices"	
B	Paying part of the cost (subsidizing cost) of certification process	
C	Providing credit to help producers meet certification requirements	
D	Paying higher product prices to certified producers	
E	Supplying more, better, or cheaper raw materials for certified producers (compared to noncertified producers)	
F	Commitment or agreement from your firm to purchase products from certified producers before they are produced (but not making the same agreement with noncertified producers)	
G	Helping certified producers find other buyers or markets for their products	
H	Other, specify:	

14. On average, how long does the entire process take, from when you first begin working with a producer to become certified until they receive certification? Y-years; M-months; W-weeks
 Y _____ M _____ W _____
15. On average, how much does it cost your firm to assist a typical producer with the certification process?
 Q _____
 \$ _____

END OF QUESTIONS FOR HORTICULTURE BUYERS

COPY OF REPORT REQUESTED			
Would you like to receive a summary of the results of the survey?	Si → 1	No → 2	<input type="text"/>
<i>If yes==>record email address (preferred) or mailing address below</i>			
E-mail address	_____		
Mailing address (only if email address unavailable):	_____		

TIME AT END OF INTERVIEW: ||:|||

Producer Referrals

READ: In order to continue this study, would you please give me the names of 3 producers that you work with that could give additional information with respect to [handicrafts/horticulture] in the departments of Sacatepéquez, Chimaltenango o Sololá.

As I explained at the beginning of this interview, the information that you share with us will remain strictly confidential and will be used only in this study. None of your answers will be shared and we will only use your name with your permission.

Do you authorize us to use your name when we contact the references you have provided?

Si → 1 No → 2

1. Producer's Name: _____
Address: _____
Municipality and Department: _____
Telephone Number: _____
Referee Code (to be filled later) |_|_|_|_|_|_|_|_|

2. Producer's Name: _____
Address: _____
Municipality and Department: _____
Telephone Number: _____
Referee Code (to be filled later) |_|_|_|_|_|_|_|_|

3. Producer's Name: _____
Address: _____
Municipality and Department: _____
Telephone Number: _____
Referee Code (to be filled later) |_|_|_|_|_|_|_|_|

Intermediary Referrals

READ: In order to continue this study, would you please give me the names of 3 intermediaries that you work with that could give additional information with respect to [handicrafts/horticulture] in the departments of Sacatepéquez, Chimaltenango o Sololá.

As I explained at the beginning of this interview, the information that you share with us will remain strictly confidential and will be used only in this study. None of your answers will be shared and we will only use your name with your permission.

Do you authorize us to use your name when we contact the references you have provided?

Si → 1 No → 2

1. Intermediary's Name: _____
Address: _____
Municipality and Department: _____
Telephone Number: _____
Referee Code (to be filled later) |__|__|__|__|__|__|

2. Intermediary's Name: _____
Address: _____
Municipality and Department: _____
Telephone Number: _____
Referee Code (to be filled later) |__|__|__|__|__|__|

3. Intermediary's Name: _____
Address: _____
Municipality and Department: _____
Telephone Number: _____
Referee Code (to be filled later) |__|__|__|__|__|__|

The shaded boxes include instructions for you, the interviewer. There are two types of instructions: 1. those in bold that are to be read out loud; and 2. those that are in bold and italics that are NOT to be read out loud. In cases where the respondent is not able to or does not want to give an answer, record "9" in the space provided. Fill in as much information as you can before the beginning of the interview.

1.	Sector and Subsector (for wave #1) or wave number (for wave #2-7):	H
2.	Number of the person who gave the referral:	
3.	Name:	_____
4.	Number of the respondent:	
5.	Name:	_____
6.	Sex of Respondent: Male → 1 Female → 2	
7.	Respondent Business Address:	_____
8.	Town and Municipality:	_____
9.	Department: Chimaltenango → 1 Sacatepéquez → 2 Sololá → 3	
10.	Location: Urban → 1; Rural → 2	
11.	Telephone Number:	_____
12.	E-mail Address:	_____
13.	Date of Interview: (day/month/year)	/ /
14.	INTERVIEW START TIME: (Use the 24 hour clock, for example: at 3:30 in the afternoon, use 15:30)	:

When you are back at the office, write the Respondent ID number at the top of each page.

15. Comments on interview (rescheduled interview, interruptions, etc.) _____

To be completed at the time of data entry:

16.	Data Entry Person name:	_____
17.	Data Entry Person ID:	

READ: Hello my name is _____, I work for Aragón y Asociados and for USAID, the United States Agency for International Development. We are performing a study on enterprises in the horticulture sector. The purpose of this study is to better understand the opportunities and problems of small producers in Guatemala. The information we gather will be used to help improve the productivity of the sector and increase the benefits to producers such as you.

Your name was given to us by _____, who also works in the horticulture sector. That person kindly answered the same questions that I want to ask you. We are interviewing approximately 400 Guatemalan producers so that we can have a broad understanding of the market.

Section A: Background Information

1. Has your family produced and sold any horticulture products in the past twelve months? By horticulture, I am referring to **arveja china, arveja dulce, habas, ejotes, ejote francés, mini zanahorias, elotín, brócoli, coliflor, col de bruselas, lechuga, apio.**
Yes → 1 No → 2 |____|

If answer is “no”, thank respondent and discontinue interview.

2. Are you the person in the household who makes most of the decisions about producing and selling these products? Yes → 1 No → 2 |____|

If answer is “no”, find out who is responsible for the production and sales decisions and ask to interview that decision maker. Begin over again with the introduction and the first two questions.

READ: You do not have to talk to me if you do not want to, and if there is any question you do not want to answer, that is okay too. Everything you tell me will be kept private and absolutely confidential. Your answers will be combined with the answers from all of the surveys, so no one will see your individual answers. It is important for you to be as honest and accurate as possible when answering the questions. If you do not know the answers to any of my questions, it is OK to say “I don’t know.” The interview should take no more than one hour, and we will pay you Q20 for your time if you participate. Do you have any questions?

3. Are you willing to participate in the survey? Yes → 1 No → 2 |____|

If answer is “no”, indicate reason why not

READ: These next two questions are about the people who have worked with you during the past 12 months to produce the horticulture products that you sell. These may be members of your household or workers that you pay. They may work full-time or part-time. I want you to think about your busiest season during the past 12 months. (pause)

4. Counting yourself, how many members of your household worked with you to produce the horticulture products that you sold? |__|__|
5. How many people who were not members of your household did you employ during a typical week of your busiest season? |__|__|__|

If answer to 4 plus 5 is greater than 25—STOP INTERVIEW.
READ: Thank you, but we are interviewing smaller enterprises.

Language evaluation: Based on the respondent's ability to understand and answer the first 5 questions, does this respondent speak Spanish well enough to conduct the interview in Spanish? Yes → 1 No → 2 |__|

If "no", determine which language the respondent can speak most fluently and use that language to conduct the interview. Indicate the language used: _____

6. How many years have you been producing and selling horticulture products? |__|__|
7. Do you have a cell phone that you can use for your enterprise? Yes → 1 No → 2 |__|
8. Do you have a land telephone that you can use for your enterprise? Yes → 1 No → 2 |__|
9. Do you have access to email that you can use for your enterprise? Yes → 1 No → 2 |__|
10. Do you have access to an internet connection that you can use for your enterprise? Yes → 1 No → 2 |__|
11. Do you know the final retail prices that Guatemalan consumers pay for the horticulture products that you sell? Yes → 1 No → 2 |__|
12. Do you know the final retail prices that US and European consumers pay for the horticulture products that you sell? Yes → 1 No → 2 |__|

Section B: Marketing Practices

READ: Now I want to learn about the different ways that you sell your horticulture products. You might sell your products in only one way, or you might sell them in more than one way. You might make your sales as an individual or you might sell your products with a group of producers, or you might do both. I would like for you to think about all of the different ways that you have sold your horticulture products in the past 12 months. I am going to read a list of different ways that producers sell horticulture products. For each different way to sell products that I name, please tell me if you have sold in that way in the past 12 months.

Responses to B.1, B.2, and B.3 should be recorded in the table.

1. In the past 12 months, have you sold any of your products. . .

Read each of the ways to sell products listed in the first column of the table below. For each way, indicate Yes → 1 or No → 2 in column B.1. Complete B.1 before proceeding to B.2. For each answer Yes → 1 in B.1, ask question B.2 and record answer in column B.2.

2. When you sold [read way to sell from table] in the past 12 months, did you make your sale as an individual, as part of a group of producers, or some of both (individually and in a group)?

- 1. I made the sale as an individual
- 2. I made the sale as part of a group of producers
- 3. Some sales I made individually and some as part of a group of producers

If respondent has only one way to sell products, skip to B.6.

Ways to Sell Products	B.1	B.2
	Yes → 1 No → 2	Indiv → 1 Group → 2 Both → 3
A. Directly to the final consumer		
B. To a market vendor in a local retail market		
C. To a market vendor in a wholesale market		
D. To a shopkeeper who operates a popular store		
E. To an intermediary or representative		
F. To an exporter located in Guatemala who sells outside of Guatemala		
G. To an importer located outside of Guatemala		
H. To the owner of a supermarket		
I. To a restaurant, hotel, school, hospital, or other institution		
J. Other (specify):		

3. You have told me that the different ways that you have sold your horticulture products in the past 12 months are [read responses to B.1]. Of these different ways, which one provided you with the largest value of sales (sales revenue) in the past 12 months?

Letter A—J from table | ____ |

4. In the past 12 months, did half or more of your sales revenue come from selling in this way?

Yes → 1 No → 2 | ____ |

5. Which way to sell provided you with the second largest value of sales in the past 12 months? Letter A—J from table |___|
6. I am going to read all of the different ways to sell horticulture products again. [Read all of the alternatives in the table]. Even if you did not sell in that way in the past year, which of these ways to sell do you think is the most favorable for a producer such as you? Letter A—J from table |___|
7. What is the reason that it is most favorable for a producer such as you? |___|

Do not read alternatives. Record response that corresponds most closely.

1. Higher unit profits: Price per item is higher
 2. Higher total sales: Total value of sales revenue is higher
 3. Dependable sales: Sales are more reliable, predictable; sales vary less over time
 4. Many buyers: Buyers are easier to find
 5. More assistance: Buyers are more helpful to producers
 6. Less time: Sales are closer and/or more convenient, take less time or travel
 7. Better information: Information about this market is more available and/or easier to obtain
 8. Other (specify): _____
8. In the past 12 months, have you sold any horticulture products that you did not produce yourself? Yes → 1 No → 2 |___|

If "2-No" ==> skip question B.9

9. Compared to the products you produced yourself, how much of the value of your sales in the past 12 months came from selling products produced by others? |___|

Read the alternatives and record one response.

1. Less than half
2. About half
3. More than half
4. Almost all

Enumerator must select one type of buyer for use in section C. Do NOT select "A. Directly to the final consumer". Select one type of non-A buyer by applying the following criteria in order:
1st: It is the only non-A way to sell products listed in B.1; if more than one non-A ways, then
2nd: It provides the largest value of sales, as indicated in B.3; if response to B.3 is "A", then
3rd: It provides the second largest value of sales, as indicated in B.5.

Indicate here the "Selected type of buyers from the table": Letter B—I from table |___|

If respondent only sold products directly to final consumers in the last 12 months, then skip to question D.3 in Section D.

Section C: Information about Buyer (Category: _____)

READ: For this next question I am going to ask you about buyers who are [selected type of buyers from table in section B]. I want you to think about all of the [selected type of buyers] that you sold your horticulture products to in the past 12 months.

1. Approximately how many [selected type of buyers] did you sell horticulture products to within the past 12 months? |_|_|_|_|

If there is only 1 buyer => skip question C.2

2. Considering all of the [selected type of buyers] for your firm's products in the past 12 months, I would like for you to think about the buyer to whom you had the highest value of sales. We will call this your "top buyer". In the past 12 months, how much of your sales went to your top buyer?

Read the alternatives and record one response.

- 1. Less than half |_|_|
- 2. About half
- 3. More than half
- 4. Almost all

3. How many years have you sold products to this same (top) buyer? |_|_|_|

4. Have your sales to this buyer stayed about the same over time, increased over time, or decreased over time? |_|_|

- 1. Same level of sales over time
- 2. Increased over time (sales are higher now than before)
- 3. Decreased over time (sales are lower now than before)

5. When you sold horticulture products to this buyer within the past 12 months, did you sell as an individual or a part of a group? |_|_|

- 1. As an individual
- 2. As part of a group
- 3. Both

6. Are you connected to this buyer in any of the following ways?

Read each alternative and record response **Yes → 1** **No → 2**

- 1. Buyer is a relative or family member |_|_|
- 2. Buyer is a neighbor |_|_|
- 3. Buyer is a member of your church |_|_|
- 4. Buyer is a member of a groups or association that you belong to |_|_|
- 5. Buyer is a friend |_|_|
- 6. Other connection (specify): _____ |_|_|
- 7. No other connection |_|_|

7. Do you trust this buyer to be looking out for your interests in their dealings with you? Yes → 1 No → 2 |_|_|

8. Do you trust this buyer to be fair in their dealings with you? Yes → 1 No → 2 |_|_|

9. In the past 12 months, have you and this buyer used written or unwritten agreements to indicate the conditions of the sale, such as quantity, price, delivery date, product quality, etc.?
1. Written
 2. Not written
 3. Both
 4. Neither
10. Do you trust this buyer to meet these agreed upon conditions? Yes → 1 No → 2
11. In the past 12 months, has this buyer ever failed to meet any agreed upon conditions? Yes → 1 No → 2
12. In the past 12 months, have you ever failed to meet any agreed upon conditions with this buyer? Yes → 1 No → 2
13. How many face-to-face meetings have you had with this buyer in the past 12 months?
14. In the past 12 months, which of the following ways have you used to communicate with this buyer?

Read each alternative and record response	Yes → 1	No → 2
--	----------------	---------------

- | | | |
|----|---|--------------------------|
| 1. | Personally | <input type="checkbox"/> |
| 2. | Cellular telephone | <input type="checkbox"/> |
| 3. | Landline telephone | <input type="checkbox"/> |
| 4. | Email or internet | <input type="checkbox"/> |
| 5. | Fax | <input type="checkbox"/> |
| 6. | Mail/courier/package | <input type="checkbox"/> |
| 7. | Indirectly, through group representatives | <input type="checkbox"/> |
15. Do you know where this buyer sells the products that you supply? Yes → 1 No → 2

If "2-No" ==> skip question C.16
--

16. Does the buyer sell the product that you supply to him/her?
- | | | | | |
|----|--|---------|--------|--------------------------|
| 1. | Inside Guatemala | Yes → 1 | No → 2 | <input type="checkbox"/> |
| 2. | Inside Central America (but outside Guatemala) | Yes → 1 | No → 2 | <input type="checkbox"/> |
| 3. | In Mexico | Yes → 1 | No → 2 | <input type="checkbox"/> |
| 4. | In the United States | Yes → 1 | No → 2 | <input type="checkbox"/> |
| 5. | In Canada | Yes → 1 | No → 2 | <input type="checkbox"/> |
| 6. | In Europe or Asia | Yes → 1 | No → 2 | <input type="checkbox"/> |
| 7. | In other markets (specify) _____ | Yes → 1 | No → 2 | <input type="checkbox"/> |
17. Do you know what price your buyer charges when he/she sells the product? Yes → 1 No → 2

Section D: Business Services

For D.1, D.2 and D.3, read each alternative in the table and record response in the appropriate column.

- D.1. In the past 12 months, has your top buyer provided you with any of the following kinds of assistance?
- D.2. In the past 12 months, have any of your other buyers provided you with any of the following kinds of assistance?
- D.3. In the past 12 months, have you received any of the following types of assistance from some source other than your buyers?

	Yes → 1 No → 2	Top Buyer D.1	Other Buyers D.2	Non-Buyers D.3
1. Cash advances or cash credit for production				
2. Advances of supplies, materials, and/or equipment				
3. Assistance or advice with new designs				
4. Training in use of the foot loom				
5. Other technical assistance or advice				
6. Marketing assistance or help finding other buyers				
7. Management and/or business training				
8. Training in group management or leadership skills				
9. Credit for personal needs or emergencies				
10. Other type of assistance (specify):				

Section E: Relationships Between Producers

1. Are you a member of any kind of group with other producers of horticulture products? This might be an informal group, an association, or a cooperative. I am interested in any kind of group whose members work together in some way to promote their businesses, such as by selling their products together, buying supplies together, transporting their products together, advertising together, renting a commercial location together, etc. Yes → 1 No → 2 |___|

If "2-No" ==> skip to section F.

2. How many of these kinds of producer groups do you participate in? |___|

If more than one, READ: I would like to ask you questions about only one of those producer groups. Please think about the one producer group that you consider to have the greatest current benefit for your enterprise. Do you have one group in mind?

3. Which of the following activities do the members of the group do?

Read each alternative and record response Yes → 1 No → 2

1.	Sell products together	
2.	Buy supplies and materials together	
3.	Negotiate prices as a group	
4.	Transport products together	
5.	Operate a retail location together	
6.	Advertise and search for customers together	
7.	Help each other with technical advice	
8.	Seek technical advice from other sources	
9.	Borrow money to/from each other	
10.	Other (specify)	

4. Which of the above activities is most helpful to your enterprise? |___| |___|

5. Which is the second most helpful activity of the group? |___| |___|

6. Have you ever been one of the leaders of the group? Yes → 1 No → 2 |___|

7. How often does the leadership of the group change? |___|

1. Once a year or more often
2. Every 2 years
3. Every 3 years
4. Every 4 years
5. Every 5 years or less often
6. It does not change

8. Are the leaders elected directly by the group members? Yes → 1 No → 2 |___|

9. Does the group maintain written business records? Yes → 1 No → 2 |___|

10. Is information on financial dealings made available to all of the group members, for example information about how group funds are used and the details of financial agreements with buyers? Yes → 1 No → 2 |___|

11. Is there a paid manager for the group? Yes → 1 No → 2 |___|

12. In the past two years, have there been any opportunities for group members to receive training in leadership and group management skills? Yes → 1 No → 2 |__|
13. About how many members are there in the group? |__| |__| |__| |__|
14. About how many members of the group can speak Spanish well? |__| |__| |__|
15. About how many members of the group can read a letter without assistance? |__| |__| |__|
16. How many hours each month do you spend being involved with your group? This time might be spent working as a leader, attending group meetings, helping to organize a group order, traveling for the group, going to a market or store for the group, going to talk about your group with other members, or doing anything related to your participation in the group. |__| |__|
17. Thinking about the time you spend on these group activities, would you say it is... |__|
1. An acceptable amount of time
 2. Too much time
 3. I should participate more
18. Are you currently one of the leaders of the group? Yes → 1 No → 2 |__|

If yes, ==> skip to section F.

19. Do the members of the group generally trust the leaders to make decisions that will benefit the group? Yes → 1 No → 2 |__|
20. I am going to read a list of problems that groups might have with their leaders. Please tell me whether your group has had any of these problems.

Read each alternative and record response Yes → 1 No → 2

1.	Leaders did not inform members about orders from buyers	
2.	Leaders did not share orders fairly	
3.	Leaders lied about the price received for the product	
4.	Leaders did not share the advances fairly	
5.	Leaders stole money from group funds	
6.	Leaders threatened or forced group members to do things that group members did not want to do	
7.	Other (specify)	
8.	Other (specify)	

Section F: Upgrading Practices

1. Which of the following crops have you cultivated in the past five years?

Read the name of each crop. If F.1. is "2-No" then do not ask F.2. or F.3. for that type of crop. Record answers to G.11, G.12 and G.13 in table below.

2. Do you know which agrochemicals are currently approved for **[type of crop]**?
3. Have any of your harvests of **[type of crop]** ever been rejected for use of unapproved agrochemicals?

Type of Crop	Yes → 1 No → 2	F.1.	F.2.	F.3.
1. Arveja china				
2. Arveja dulce				
3. Arveja criollo				
4. Ejotes				
5. Ejotes franceses				
6. Ejotes amarillos ("yellow wax")				
7. Mini zanahoria				
8. Calabacines				
9. Elotín				
10. Brocoli				
11. Coliflor				
12. Repollo				
13. Col de brucelas				
14. Lechuga				
15. Apio				

4. Which of the following is your most important source of information on approved agrochemicals? |__|

Read the alternatives and select one.

1. The buyers of my crops and/or the agrónimos who work for them
 2. The stores and suppliers who sell me the agrochemicals
 3. Other producers or a producer group
 4. Public information, such as flyers, newspapers, radio, television, internet
 5. Other (specify): _____
5. For any of the crops we mentioned, do you maintain a written record of your pesticide use ("llevar un registro del uso de plaguicidas")? Yes → 1 No → 2 |__|
6. For any of the crops we mentioned, do you maintain a written harvest registry (llevar un registro de rastreo), which includes such information as the amount harvested and who you sold it to? Yes → 1 No → 2 |__|
7. Has the water that you use for agriculture ever been tested for microorganisms (microbios)? Yes → 1 No → 2 |__|
8. Do you have Certificación de Inocuidad, or any other type of certification to indicate that you use Buenas Prácticas Agrícolas? Yes → 1 No → 2 |__|

If "2-No" ==> go to question F.10.

9. How many months did it take for you to receive certification, from when you first began the process until you were completely certified? ||

Go to question F.11.

10. Are you currently in the process of trying to obtain Certificación de Inocuidad or similar certification? Yes → 1 No → 2 |

11. Do you know of any other producers similar to you who have received Certificación de Inocuidad or similar certification? Yes → 1 No → 2 |

12. Do you know of any buyers in your area who pay higher prices to producers who are certified or who use Buenas Prácticas Agrícolas? Yes → 1 No → 2 |

13. Do any of the buyers for your crops provide any of the following kinds of support?

Kinds of Support	Si →1 No →2
1. Training and/or technical assistance with “Buenas Prácticas Agrícolas”	<input type="text"/>
2. Pay some or all of the cost of the certification process	<input type="text"/>
3. Provide credit to help producers meet certification requirements	<input type="text"/>
4. Give purchase preferences to crops produced by certified producers	<input type="text"/>
5. Pay higher product prices to certified producers	<input type="text"/>
6. Supply certified producers with more and/or cheaper agrochemicals and seeds	<input type="text"/>
7. Help certified producers find other buyers or markets for their products	<input type="text"/>
8. Other (specify):	<input type="text"/>

Section G: Demographic and Household Information

READ: This is the final set of questions that I have for you, and I want to thank you for your patience up until now. We are almost finished. These last questions are about you and the members of your household.

1. Counting yourself, how many people live and eat with you in your household?

READ: Now I have a few questions about the ways that you and the other members of your household earn money. I am interested in all of the sources of income that your household received in the last 12 months. I already know that you have a horticulture enterprise. I will start by listing this enterprise.

Probe carefully for each type of income source, recording all answers in the table on the next page. It is very important to list all sources of income in the first column of the table. Pause after probing for each type to give respondent time to consider and list all income sources of that type. Ask frequently if the respondent or members of the respondent's household earned any other income of that type. After all sources of income are listed in the table, ask G.3 and G.4 together for each source of income that the household receives.

2. In addition to your sales of horticulture products, what other ways have you and the members of your household earned money in the past 12 months? Have you or other members of your household
3. In the past 12 months, how many months did your household receive income from this source?
4. For the months that you received this income, how much were the "typical" or average earnings from this source of income for one month?

Sources of Income		G.2. Yes → 1 No → 2	G.3. number of months	G.4. earnings per month (Q)
ENTERPRISES				
A.	Operated any other enterprises?			
B.	Had any crop or livestock income?			
C.	Had full-time or part-time jobs?			
D.	Received any income from working as day laborers?			
E.	Received income from any side job (i.e., "moonlighting")			
F.	Received a pension?			
G.	Received a remittance from family members who live elsewhere?			
H.	Other (specify)			

5. How old are you?
6. What was the highest level of school that you completed? year
 (codes for levels) level
 1. Primary
 2. Secondary
 3. Other (specify): _____
7. If you receive a letter, do you need help in order to read it? Yes → 1 No → 2
8. What is your mother language? 1. Cakchiquel 2. Quiché 3. Tzutujil 4. Spanish
9. The majority of the people in my community speak the same language as I do.
 Yes → 1 No → 2
10. Around how many times per month do you participate in neighborhood or community activities, such as related to your children's' school, the church, sport's clubs, credit groups, business groups, aid associations, etc?
11. Around how many other producers of horticulture products do you know by name, where they produce, and who know the same information about you?

GRATITUDE AND PAYMENT

READ: Those are all the questions that I have for you and I want to thank you for your patience during this interview. Your answers are very important. When we combine them with the answers from the other 400 producers who participate in the survey, we should gain a good understanding of what producers need to become more successful. Because you have taken your time to answer my questions, I have a payment of 20 Quetzales that I want to give to you. [Give payment to respondent] Again, I want to tell you how much I appreciate your collaboration on this important study.

RECORD TIME AT END OF INTERVIEW

:

PRODUCER REFERRALS

READ: In order to continue this study, we would like to interview other producers of horticulture products. Would you please give me the names of 3 producers that you know who also produce horticulture products? I will also ask you to take me and introduce me to one or two of these producers. If I select any of these producers for an interview, and they agree to participate, then you will receive an additional 15 Quetzales.

As I explained at the beginning of this interview, the information that you have shared with me will remain strictly confidential and will be used only in this study. I will not show your answers to anyone. I will not tell your answers to anyone, not even any of the producers that you introduce me to. Would you please help me by providing the names of three producers of horticulture products?

1. Producer's Name: _____
 Address: _____
 Municipality and Department: _____
 Telephone Number: _____
 Referee Code (to be filled later) | H | _ | _ | _ | _ | _ |
 Priority given by random selection | _ |
 Priority given by logistical conditions | _ |

2. Producer's Name: _____
 Address: _____
 Municipality and Department: _____
 Telephone Number: _____
 Referee Code (to be filled later) | H | _ | _ | _ | _ | _ |
 Priority given by random selection | _ |
 Priority given by logistical conditions | _ |

3. Producer's Name: _____
 Address: _____
 Municipality and Department: _____
 Telephone Number: _____
 Referee Code (to be filled later) | H | _ | _ | _ | _ | _ |
 Priority given by random selection | _ |
 Priority given by logistical conditions | _ |
