IMPROVED INCOME STABILITY, TRAINING, MARKET FACILITATION AND THEIR IMPACT ON CHILDREN: AN EXPLORATION OF VILLA ANDINA

By Heather Esper, Ted London, and Yaquta Kanchwala

Income stability through regular and frequent payments, along with training and market facilitation can increase living standards for smallholder farmers and their families. This case examines the impacts a for-profit enterprise serving the Base of the Pyramid (BoP)[i] has on children and pregnant women and how these impacts can be enhanced. Villa Andina (henceforth called VA) is a BoP venture operating in the Peruvian Andes that produces high-quality agro-industrial food products through its work with local smallholder farmers. The venture trains farmers in organic cultivation techniques and provides guaranteed payment throughout the year for crops produced.

We assessed the company's impacts on its stakeholders' children age eight and under and on pregnant women. We found that VA's goldenberry farmers' children benefit mainly from the increased income stability that their parents gain from their work with the venture. VA's weekly payments for the goldenberry weekly harvests (throughout the year) allow farmers to be more consistent in providing basic necessities for their children. Children also benefit from the financial and social resources available through the farmer associations that their parents must join in order to work with VA, though the association's one-time fee of 50-200 soles (19-76 USD)[1] and other compliance costs can increase household expenditures.

Some farmers who previously traveled to the city or coast to earn a living in the dry season can now spend more time at home with their children.

The goldenberries that farmers grow can also have a number of positive nutritional impacts. However, in some instances, farmers may risk their income as well as the variety and quantity of household nutrition when they choose to farm more goldenberries by reducing production of subsistence crops. Children indirectly learn skills their parents learn during training and experience higher aspirations due to changes in their parents' traditional views and methods of farming. Organic methods of farming, which are also applied to subsistence crops, have positive impacts on the local environment, which farmers' children and all in the community can benefit from.

We find that the children of VA's BoP employees benefit from the additional income their parents contribute toward their immediate needs. Children in the broader community benefit from increased access to nutritious locally grown fruit, improvements to the local environment, and the additional income farmers spend in the local community throughout the year.

i The BoP—estimated at approximately 4 billion people—is the socio-economic segment that primarily lives and operates micro-enterprises in the informal economy, and generally has an annual per capita income of less than 3,000 USD in purchasing power parity (PPP).

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ABOUT THE SERIES

UNICEF states that poverty reduction should start with young children (UNICEF. 2000. Poverty Reduction Begins with Children). The first years of life have a large influence on an individual's long-term well-being. Poverty at an early age can cause lifelong damage to children's future and perpetuate the cycle of poverty across generations. Thus early childhood interventions offer an opportune time to influence the poverty cycle. The effects of poverty can be passed on to children through their parents; improving the well-being of parents therefore can also enhance the well-being of their children.

This series was funded by the Bernard van Leer Foundation, a private philanthropic organization focused on improving the lives of children from birth to age eight. The goal of these cases is to gain a greater understanding of the ways in which businesses in emerging markets impact young children's lives and the potential to optimize impact on children. We also hope that these case studies will influence development and impact investing leaders to include metrics related to young children in their measurement systems.

IN THIS SERIES

IMPROVED HOUSING AND ITS IMPACT ON CHILDREN: AN EXPLORATION OF CEMEX'S PATRIMONIO HOY

Patrimonio Hoy provides construction materials to low-income consumers in Mexico, Nicaragua, Costa Rica, Colombia and the Dominican Republic through a 70-week payment plan that allows its customers to build onto their current homes or build new homes room by room.

IMPROVED SANITATION AND ITS IMPACT ON CHILDREN: AN EXPLORATION OF SANERGY

Sanergy builds 250 USD modular sanitation facilities called Fresh Life Toilets (FLTs) in Mukuru, a large slum in Nairobi, Kenya, and sells them to local entrepreneurs for about 588 USD. Franchisees receive business management and operations training and earn revenues by charging customers 0.04-0.06 USD per use.

DIVERSIFIED FARM INCOME, MARKET FACILITATION AND THEIR IMPACT ON CHILDREN: AN EXPLORATION OF HONEY CARE AFRICA

Honey Care Africa (HCA) of Kenya supplies smallholder farmers with beehives and harvest management services. HCA guarantees a market for the beekeeper's honey at fair trade prices, providing a steady source of income.

ACCESS TO CLEAN LIGHTING AND ITS IMPACT ON CHILDREN: AN EXPLORATION OF SOLARAID'S SUNNYMONEY

SunnyMoney sells pico-solar products to BoP communities with limited access to electricity in Tanzania, Malawi, Kenya, and Zambia. It markets the lamps through schools and existing entrepreneur networks.

IMPROVED INCOME STABILITY, TRAINING, MARKET FACILITATION AND THEIR IMPACT ON CHILDREN: AN EXPLORATION OF VILLA ANDINA

Villa Andina of Peru produces high-quality agro-industrial food products through its work with local smallholder farmers. The venture trains framers in organic cultivation techniques and provides guaranteed payment for the crops produced.

IMPROVED HEALTH CARE AND ITS IMPACT ON CHILDREN: AN EXPLORATION OF PENDA HEALTH

Penda Health provides high-quality, evidence-based, standardized primary care, both curative and preventative, to low- and middle-income families in Kenya while also specializing in women's health care.

BUILDING A SCALABLE BUSINESS WITH SMALL-HOLDER FARMERS IN KENYA: HONEY CARE'S BEEKEEPING MODEL

This teaching case study examines Honey Care Africa's transition from obligating farmers to maintain their own hives to providing hive management services. Readers will explore strategies to reduce side-selling and opportunities to generate greater impacts on farmers' families, in particular young children. The case can be found on GlobaLens.com.

Also included in the series is a summary article, Focusing on the Next Generation: An Exploration of Enterprise Poverty Impacts on Children, that aggregates findings across the above six ventures.

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TABLES, FIGURES, AND BOXES

EXECUTIVE SUMMARY

Smallholder farmers in the informal economy live from harvest to harvest. During dry seasons, they must often leave their homes and their families behind to find other sources of income to support their households. For children this means spending less time with the parent who is the main breadwinner of the family (mostly the father), and decreased access to basic necessities like food, clothing, books, and school uniforms during their parents' income gaps. Smallholder farmers supply local and export populations with essential food and nutrition, but crop sustainability is often threatened. Peruvian smallholder farmers, who work on approximately 60% of the country's farmland, are mostly poor. These farmers are constrained by limited information about market connections, prices, lack of training, degraded soil due to poor soil management, land erosion, and limited irrigation support. Many rural Peruvians struggle to support their families; in the rural highlands, 36% of the population is poor and some 60% of the population is considered extremely poor.[2]

Increasing income stability through crop diversification by introducing a new crop such as goldenberry on a part of the farm and a guaranteed market for the produce can result in substantial supplemental income gains for smallholder farmers at the Base of the Pyramid (BoP). The BoP—estimated at approximately four billion people—is the socio-economic segment that primarily lives and operates micro-enterprises in the informal economy, and generally has an annual per capita income of less than 3,000 USD in purchasing power parity. We explore the impacts of the BoP venture Villa Andina (henceforth called VA) on children age eight and under and pregnant women from the Base of the Pyramid (BoP), from the introduction of guaranteed market connections, training and provision of income stability to farmers who grow a highly nutritious crop-goldenberry.

Stakeholders

Farmers
VA trains local subsistence farmers to grow goldenberries using organic cultivation techniques. The farmers sign a contract to uphold VA's organic standards, and sell the crops to the venture.

Local Staff
VA hires workers from the local BoP community, on a part-time basis, to peel and prepare the fruit for processing in its Cajamarca facility.

Broader Community
Individuals who do not have any relationship with VA other than living near VA farmers.

VA produces high-quality agro-industrial food products through its work with smallholder farmers. Based in Cajamarca, a city situated at an altitude of more than 2,800 meters above sea level in the northern Andes of Peru, VA collects, processes, and sells dehydrated goldenberry fruit, fresh goldenberries, and dehydrated mangos, while providing guaranteed weekly payments to its network of approximately 700 Peruvian farmers for the fruit they grow.

Focusing only on VA's goldenberry farmers: farmers obtain most of their goldenberry income by farming 0.1 - 0.7 hectares[ii] of land. VA pays 2.2 soles (0.86 USD) per kilogram for the fruit. Farmers account for the amount they produce during harvest in a term called 'arroba'[iii] (1 arroba = about 12 kg). VA pays a steady 26.4 soles (10.34 USD) per arroba, compared to the local price of 5-10 soles (2-4 USD) per arroba for nine months of the year and 30-32 soles (about 12 USD) per arroba during the dry season. (See **Table 1** for prices paid by VA versus the local market.)

Table 1: Prices Paid by VA and by the Local Market

Time of Year	Price Paid Per Arroba by VA	Price Paid Per Arroba by Local Market
Regular season (9 months)	26.4 soles (10.34 USD)	5-10 soles (2-4 USD)
Dry season (3 months)	26.4 soles (10.34 USD)	30-32 soles (about 12 USD)

ii One hectare (or 1 ha) = a plot of land that is 100 meters by 100 meters = 10,000m^2.
iii Arroba is a local term for how much one can carry or about 12 kilograms.

We gained an initial understanding of the impacts that crop diversification, income stability, organic farming practices, farmer training, and guaranteed markets have on our target population through a literature review. We then investigated VA's impacts on our target population across three dimensions of well-being—economic, capability, and relationship—through in-depth qualitative interviews with key VA stakeholders in Cajamarca. Both direct impacts on children as well as indirect impacts on children through their parents and the environment were assessed across the stakeholders (see **sidebar**).

We found that VA has the greatest impacts on its farmers' children (see **Table 2**).

Table 2: Substantial Impacts on VA's Farmers' Children

Economic Well-Being	**Change in Wealth:** VA's farmers' children benefit from the increased income stability their parents gain through the venture. Parents are able to consistently direct financial resources to their children's basic needs such as food, clothing, shelter, medicines, and school fees. In order to work with VA, farmers join farmer associations that extend savings and credit programs to members. The resources are most often directed toward children's needs. However, fees to the association and other compliance costs can increase household expenditures and impact the amount farmers spend on their children's needs.
Capability Well-Being	**Improved Physical Health:** Considered a superfood by nutritionists, goldenberry is an excellent source of bioflavonoids, Vitamin A, Vitamin C, and complex B vitamins. Additionally, organic methods applied to goldenberries are also used for subsistence crops, further improving crop quality. At the same time, there is a risk that farmers may reduce the variety and quantity of subsistence crops, since they now have more income available to buy food at the local market and/or want to increase land space for goldenberry cultivation. **Increased Knowledge:** Children learn the importance of environmental conservation through observation of their parents' adherence to VA's organic standards. Children are also introduced to new financial concepts through their parents' work with VA. **Higher Aspirations:** Parents develop higher aspirations for their children, and develop a sense of pride for their livelihood when they have a steady source of income from the activity. Children observe these changes in their parents and their surroundings, and raise their expectations for the future. **Unchanged Amount of Leisure Time:** VA's farmers' children do not have to reduce leisure/ play-time with the introduction of new income-generating crops
Relationship Well-Being	**Improved Interactions:** As part of their work with farmer associations, farmers learn better communications and negotiation skills. These skills are used within, and transferred to the family unit. Parent-child interactions also improve as parents experience less stress due to gaining more income stability. **Improved Support:** The main breadwinner (usually the father) does not need to leave the family to find work on the coast/city during the dry season. This increases the amount of time spent in the home area with children. **Improved Local Environment:** VA's farmers improve their farm and the local environment surrounding their homes due to using organic methods to grow crops as required by VA.

The experiences of children in the 0-5 age group differ from those in the 6-8 age group. Impacts on the youngest children (ages 0-5) are mostly related to changes in their physical health as a result of improvements in their nutrition and changes in amount of time parents spend with them. Older children (ages 6-8) appear to experience additional impacts resulting from time spent bonding with parents on the family farm, and learning about the environment, agriculture, and basic bookkeeping skills.

In addition to its farmers' children, VA positively impacts BoP staffs' children and those in the broader community. The children of part-time peelers benefit from the additional income their parents contribute toward their immediate needs. VA impacts the children in the broader community mainly by providing increased access to a nutritious, locally grown fruit, improvements to the local environment, and the economic activity generated by VA's farmers in the community. These children benefit from better educational opportunities, new business creation, and increased access to goods and services.

Based on likely outcomes that VA has on children of key stakeholders and pregnant women, we identify opportunities for VA to enhance, deepen, and expand its impacts:

- **VA should explore methods to increase smallholder farmer crop yields through additional education on methods and benefits of organic farming and equipment support.**
- **VA can explore partnerships to work with clubs at primary schools focused on protecting the environment.**
- **VA should continue with plans to introduce quinoa, maca, and yacon to farmers in an effort to diversify the farmers' income base.**
- **VA should identify research questions and their answers to allow a thorough understanding of the associated cost of compliance and explore methods to reduce such costs. For example, VA should analyze how farmer associations spend their collected fees and identify how farmer associations can subsidize the cost of compliance for their members.**
- **VA can look into methods to educate farmers on the benefits of a balanced diet for their children, and to incentivize them to continue to grow subsistence crops, engage in dairy farming, and to avoid over-reliance on goldenberry cultivation.**
- **VA can explore methods to advocate to the government for basic services for farmers in the Peruvian Andes, in addition to connecting farmers and VA part-time staff with outreach services via CBOs, NGOs, and government extension workers.**
- **VA can explore new models of farmer financing to enable very poor farmers to join the network.**

Beyond these key recommendations, we also offer guidance on conducting impact assessments in a systematic and manageable manner.

Note: Due to similarity in impacts across the six cases and in an attempt to be concise, we only include secondary research supporting and further exploring impacts in the first case study of this series—Patrimonio Hoy. Please also note that since these cases were developed over the course of 2012-2013, a number of our recommendations to enhance positive and mitigate negative impacts for the venture, have been implemented since we visited the venture. As such, please visit the enterprise's website for more information on their latest practices

COMPANY BACKGROUND

THE GENESIS OF VILLA ANDINA

Founded in 2007 by Pedro Martinto, Daniel Martinto, and Juan Antonio Portugal,[3] Villa Andina (henceforth called VA) is a Cajamarca, Peru-based venture that works with local smallholder farmers to produce premium agro-industrial food products for export and sale in large domestic cities, in an effort to contribute to the sustainable economic development of Peru's most isolated, impoverished rural communities. VA provides guaranteed market connections to approximately 700 smallholder farmers who produce organic goldenberry and mango harvests for the company. The venture provides seeds, training and technical assistance in organic and sustainable crop management to the farmers.

The company's founders began their venture in 2007 by selling organic products on Alibaba.com and signed their first export contract in October 2008 (see **Table 3** for growth in number of goldenberry farmers). The market demand for seven tons of goldenberry each week far outpaced supply. In 2011, the venture generated revenues of 713,000 USD, but believes it could generate much more. In 2012, VA received a six-year investment from Grassroots Business Fund (GBF) to assist with increasing its network of farmers and building its own processing facility, which will be completed at the end of 2013. The venture currently rents a processing facility in Cajamarca close to its farmers. GBF is also providing VA with business advisory services in several core areas, including finance, operations, and governance.

Table 3: Growth in Number of VA Farmers (Goldenberry only) from 2009-Present

Year	Number of Farmers
2009	1
2010	34
2011	62
2012	166
2013	393

VA is a member of the Union for Ethical Bio-trade, an association that promotes "Sourcing with Respect," and follows these principles:

- **Conservation of biodiversity**
- **Sustainable use of biodiversity**
- **Fair distribution of benefits and profits among members of the BoP**
- **Sustainable socio-economic production, financing, and marketing management**
- **Compliance with national and international regulations regarding the rights of individuals involved in bio-trade**
- **Transparency regarding land ownership, and the use of and access to natural resources and information**

FARMING IN THE PERUVIAN ANDES

Physalis, also known as goldenberry, Incan berry, Cape Gooseberry, and locally, the Aguaymanto, Capuli, or Tomatillo, is the edible fruit of Physalis peruviana, a plant native to the Peruvian Andes.[4] Commercial goldenberry farming was introduced to the region by a few NGOs, but the crop was grown ineffectively and strong market connections were not introduced.[5]

Poverty in Peru is almost three times higher in rural areas than in urban areas, and is more severe in the Andean region. The Peruvian Andes have a difficult climate for farming. Depending on the altitude of the farm, it takes farmers six months to a year to begin cultivation of goldenberry. Farmers also lack irrigation infrastructure, making it difficult to produce harvests during the dry season from August-October. Farmers grow their crops in cold temperatures; their soils are subject to water and wind erosion due to the steep land gradient.[6] Farmers in these regions mainly grow wheat, barley, peas, and potatoes for their personal consumption and sell any extra produce at local markets. This type of smallholder farming generates little income consistency, driving main breadwinners (mainly fathers) to the coast or cities to find work to support their families during the dry season. The subsistence farmers also often turn to dairy farming or are forced to sell their animals during this time to support their families.

VILLA ANDINA BUSINESS MODEL

The company sells dehydrated goldenberry and dehydrated mango to national and international markets. Goldenberry, the venture's main crop, was grown in these communities and consumed locally before the arrival of VA. VA has been able to train local smallholder farmers in organic cultivation techniques and consistently collect an aggregate supply of the fruit to create a stable market and guaranteed market connections for farmers. In this case, we focus on the impacts on smallholder farmers from growing goldenberries.

Fresh unpeeled goldenberries.

Dehydrated goldenberries.

VA's business model has four main stakeholders (see **Figure 1**):

- **Non-governmental organizations (NGOs):** VA partners with NGOs to provide organic farming training to its smallholder farmers. VA staffers train the NGO partners prior to their field work with local smallholder farmers. The venture is compiling training programs that are in compliance with regulatory environments in the US, Europe, and Peru. This training helps farmers produce larger crop yields while ensuring the sustainability of their land and natural resources. Despite this training, VA farmers are sometimes reluctant to adapt new farming practices, and as a result their crop yield is not as large as it could be.

- **Farmers:** VA works with farmers to convert their small plots to sustain goldenberry cultivation, increasing family earnings by an average of 3,000 USD per year.[7] The crop's 7-15 day harvest cycle, which can occur up to 52 times per year, depending on the climate and the amount of water available, ensures farmers receive a steady stream of income. Farmers who work with VA dedicate 0.1 - 0.7 hectares of their land for goldenberry cultivation. On average, most farmers cultivate 1 - 1.5 hectares of land in total.[8] Farmers typically dedicate the less fertile areas of their property to the crop. VA works with farmers on an annual contract, providing them with the seeds to grow goldenberries at a fixed price. Farmers can sell their goldenberries only to VA. VA offers a consistent price to the farmers throughout the year—nine months of the year, VA's price is much higher than the local market for the crop, but during the three months of the dry season (August-October) local market price is slightly higher, which can sometimes entice farmers away from VA and farmer associations. See **Figure 2** for area of operations.

  VA also buys goldenberries from farmers that belong to cooperatives and farmer associations that manage their own organic certifications (i.e. VA does not provide technical assistance here). In this report, we only focus on farmers that are managed by VA (i.e. are part of the company's organic certification program, and receive training from VA).

- **Farmer Associations**: Farmers must join their local farmer association before working with VA. Several farmer associations exist in the northern Andes of Peru where VA operates. VA farmers form new or revive old associations around their work to enter into contract with the venture. These farmers associations typically consist of 20-50 smallholder farmers who reside in one community. VA currently works with 16 farmers associations and six other co-operatives but pays its farmers individually. Each week, members bring their produce to the association's meeting place for collection by VA. VA also meets with the associations about once a month to offer group trainings. VA has brought new life to farmer associations that support members through savings programs. The VA team works with its network of farmers and farmer associations to ensure that its products are sourced from safe, high-quality farms that adhere to the venture's organic standards.

  Note: Not all farmers in an association that works with VA are part of the VA network, as some farmers within the association do not wish to apply organic standards. Fees to the farmer associations are an additional expense. For example, the one-time fee for one of the more expensive farmer associations in the area is 200 soles (76 USD).

- **Markets:** VA sells its finished products to Europe and US markets, in addition to some large domestic cities. VA's production processes are certified under the United States Department of Agriculture's Organic National Organic Program (NOP), European Community Standards, Union for Ethical Biotrade (UEBT), FairTrade USA, and the Hazard Analysis and Critical Control Points Standards (HACCP). The company is also in the process of obtaining ISO 22000, and Japanese and Swiss Organic certifications, and has secured grants to support this work. The International Trade Center (ITC) is currently working on a market analysis of goldenberries in the US. The export markets were slow in 2012 but demand has improved since the beginning of 2013. VA tracks demand through conversation with clients and purchase of commercial information.

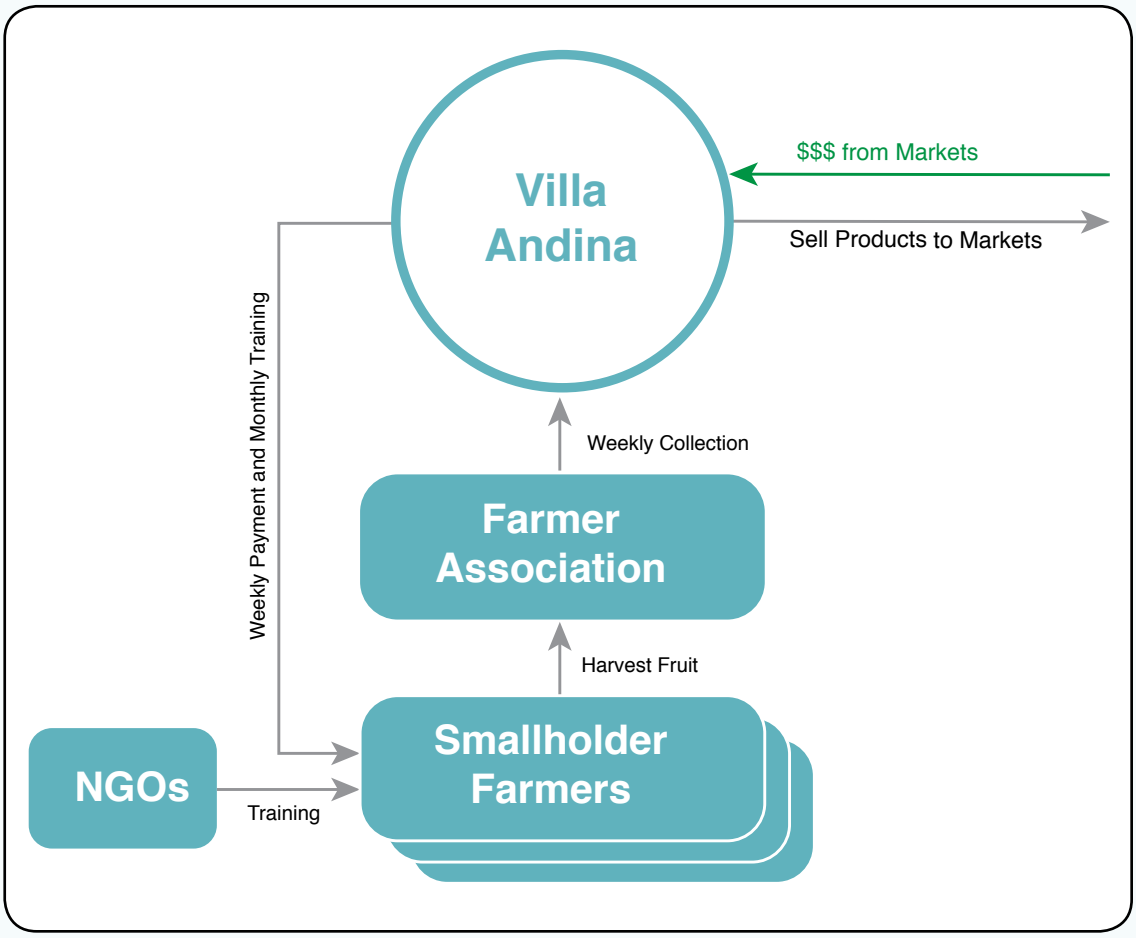
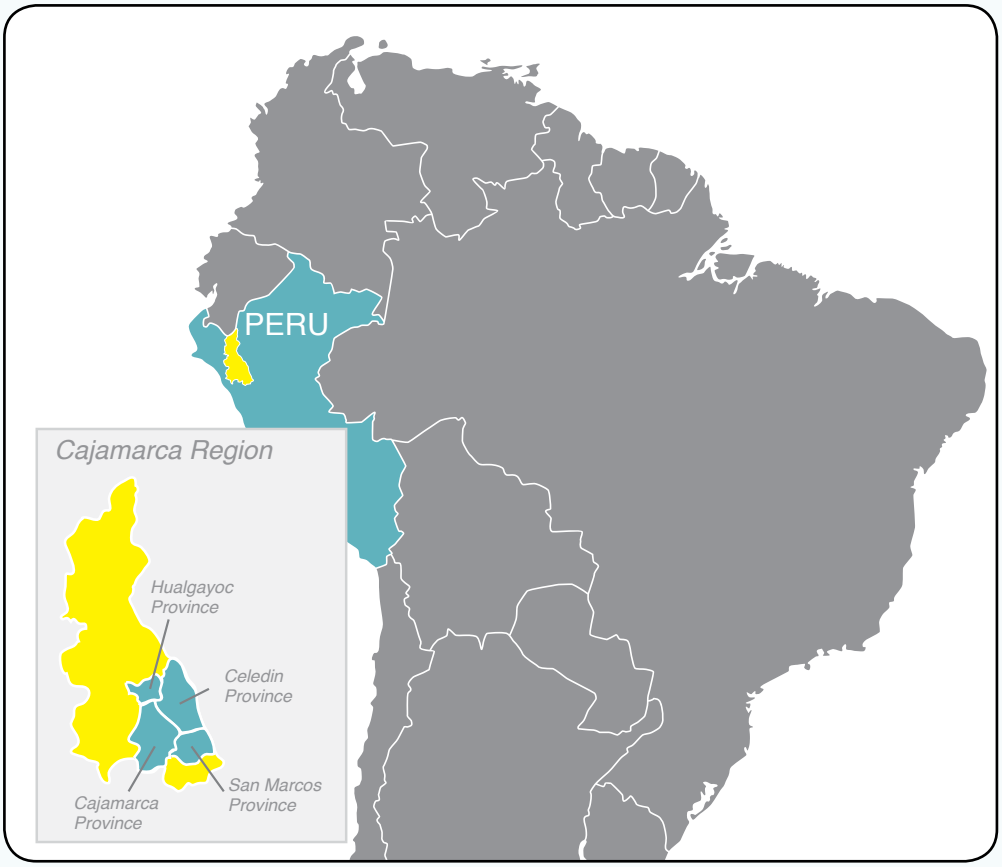


Figure 1: VA Business Model

Farmers are trained in four core areas, the first three of which seek to develop environmentally superior production systems:

- **Environmental care**—farmers learn how to compost; separate inorganics and trash from organics. VA trains farmers how to dispose of each type of waste.
- **Closed system farming**—with this training, farmers learn to ensure that there is no introduction of chemicals or substances that do not grow naturally on the farm. Farmers are advised to get special permission to introduce outside resources. They, for example, must obtain authorization to use manure from an outside source.
- **Soil protection**—VA's farmers learn how to prevent soil erosion and contamination through the introduction of trees, terraces, and barriers.
- **Record keeping**—as part of their VA training, smallholder farmers learn basic bookkeeping skills, including how to track their costs, payments, profits, harvest, and maintenance details.

Figure 2: Map of Villa Andina's Goldenberry Operations



It typically takes about six months to one year to start producing goldenberries, depending on the altitude in which the farmer is harvesting, and water resources available. In the lower valleys, VA is able to get farmers producing the fruit much quicker, at approximately six months, but their crops are more likely to be diseased. In the highest elevations—10,000 feet—it takes VA about a year to one and a half years to get its smallholder farmers producing the fruit. Farmers in the Peruvian Andes, nevertheless, are accustomed to delayed harvests. Potato harvests, for example, take approximately six months to produce, and peas approximately eight months.

After the first harvest, goldenberry plants produce fruits approximately every 15 days but farmers harvest them weekly, choosing only those berries that have the correct ripeness. In addition to goldenberries, VA buys mangoes from farmers who live in warmer climates (800-1000 meters above sea level). Mango trees can take up to three years to begin producing fruit and are harvested only once a year between December to March.

VA travels weekly to a central location in each of its farmer communities (usually the farmer association meeting place) to collect goldenberries and pay farmers for the harvest they deposited two weeks ago, i.e., farmers are paid weekly but there is a two-week lag in the payments. VA pays a steady 2.2 soles (0.86 USD) per kilogram. Farmers account for the amount they produce during harvest in terms of arroba, a local term for how much one can carry—about 12 kilograms. VA pays a steady 26.4 soles (10.34 USD) per arroba, compared to the local price paid nine months of the year of 5-10 soles (2-4 USD) per arroba and 30-32 soles (about 12 USD) per arroba during the dry season. The fresh produce is delivered to VA's rented facility in Cajamarca to be peeled and dehydrated prior to sale. The dehydrated fruit is certified under FairTrade USA and USDA NOP, and European Community Standards and is exported to distributors in the US and Europe.

VA is also working with farmers to produce and sell quinoa (a product high in protein and carbohydrates), maca, and yacon in local and export markets. Senior management estimates that this will be ready in 2-3 years, once they have completed construction of their Cajamarca facility and increased production capacity.

Organizational Structure

HEADQUARTERS

VA's founders established their venture's headquarters in Cajamarca to be near smallholder farmers and their farms. This proximity provides VA with a number of commercial advantages including:

- **Direct relationships with smallholder farmers**
- **Lower atmospheric pressures that allow VA to expend less energy to dry and process foodstuffs**
- **Reductions in logistical costs and waste from farm to factory**

VA has 21 permanent employees at its Cajamarca headquarters, as of November 2012. Examples of these are:

- **Peelers:** VA employs 15 women from the local community who peel goldenberries for dehydration. These workers are paid per kilogram peeled. Most of the women VA hire have no formal work experience, are 40 years or older, and lack a formal education.

Box 1: A Child's Perspective*

Four-year-old Diego's parents, Luis and Ofelia, allow him, his brothers and sisters to help them as they harvest goldenberries for VA. The couple began working with VA about two years ago, and have found that goldenberry farming is less labor intensive than the crops they used to farm. Goldenberry farming has become a bonding activity for the family. Since they began working with VA, Luis no longer has to travel to the coast to find work during the dry season. With the help of VA trainers, Diego's parents are able to grow goldenberries during the dry season, and a steady stream of income throughout the year. Diego says he likes helping his parents in the field, but Ofelia says he becomes easily distracted, and often runs off to play as they are working. Nonetheless, Diego says he wants to take over the family farm or have his own farm in the future.

** This fictional account is provided to represent a common VA stakeholder situation. The narrative sketch is based on information collected during interviews and focus groups.*

- **Internal Auditor/ Technical Assistance:** VA has two full-time staffers who provide technical assistance to farmers. The organization's internal auditor randomly checks farms to ensure crops are in compliance with the venture's organic standards. The other staffer concentrates on providing assistance to farmers who are growing fruit that is not adequate for harvest. As per VA, both individuals typically visit each farmer about once a month to provide technical assistance and training (VA plans to increase the number of visits its farmers receive from trainers to twice a month). If farmers do not adhere to the VA's standards, they cannot work with the venture and are not included in the audit.

COMPETITION

Goldenberry is native to high-altitude, tropical Peru, Colombia, and Ecuador, where the fruit grows in the wild. Goldenberry is also grown in south and central Africa, New Zealand, Australia, and the Pacific islands. The size of the market for dried goldenberry is estimated at 10 million USD, and the market for fresh goldenberry is estimated at 50 million USD. In 2011, supply was the primary constraint to market growth, as global demand outstripped supply by at least three times. Some of VA's prominent competitors are Fruander (Columbia) and Terra Fertile (Ecuador). Within Peru, the Cajamarca region has become the largest producer and exporter of goldenberry, representing 87% of the country's market share (cited from VA's investment profile description on Bernard van Leer Foundation website).

Box 2: Portrait of VA's BoP Market in Cajamarca, Peru

In 2010, an estimated 31.3% of Peru's population lived in poverty, and 9.8% of the population lived in conditions of extreme poverty. Agriculture is one of the most important sectors of Peru's economy. Approximately 17% of Peru's land is used for agriculture. Farming (including livestock) makes up 7% of Peru's GDP, and 23.3% of the economically active population works in agriculture. In the rural highlands, 36% of the population is poor and some 60% of the population is considered extremely poor. Most areas lack electricity and there is a limited water supply, although some areas show signs of electricity infrastructure. Residents have access to some health services, but these services are typically of very low quality. Although the high altitude of the region is not conducive to growing crops quickly, it does protect the crops from many diseases. Smallholder farmers obtain most of their income from plots of 1.5-3 hectares. The farmers harvest their crops twice a year, which leaves their families little to survive on between harvests. During this time, the families live off their earning from dairy cows or sell their animals, or the main breadwinner travels to the coast or city to find work. The families that VA works with have an average of five family members. The annual agriculture income of these families is typically between 900-2,500 USD per year or 2.46-6.84 USD a day.[9]

Goldenberry plants.

Goldenberry farm in Cumbico.

FOCUSING ON IMPACTS ON CHILDREN AGE EIGHT AND UNDER

FRAMEWORK AND METHODOLOGY

The BoP Impact Assessment Framework (BoP IAF) provides a structured approach for gaining a holistic understanding of an enterprise's impacts on key BoP stakeholders. It assesses how BoP stakeholders are impacted across three areas of well-being: economic, capability, and relationship. We customized the BoP IAF to analyze VA's potential impacts on children along its value chain including children of smallholder farmers, VA staff, and children in the broader community.

We also adapted the framework to explore both direct and indirect impacts on these children (see **Figure 2**). Direct impacts are those impacts that directly result from VA on children, and indirect impacts are those impacts that occur on children as a result of a direct impact from VA on their caregivers, another adult, or the environment.

Figure 3: Direct and Indirect Impacts on Children

The customized set of potential impacts we explored across the BoP IAF's three areas of well-being:

- **Economic Well-being:** These are mainly impacts that result from changes in a caregiver's wealth (income and savings) and economic stability (expenditures and employment) that create changes in assets and resources provided to children.
- **Capability Well-being:** These impacts affect children directly, as well as indirectly through direct impacts on their caregivers. Impacts within this area include changes in the child's physical health, psychological health, leisure time, aspirations, skills, and education and knowledge.
- **Relationship Well-being:** These impacts affect children both directly and indirectly through direct impacts on their caregivers. The impacts include changes in the types of interactions and support children receive from adults and other children in the community as well as changes to their social networks. They also include changes in the home and local environment.

To gain an initial understanding of VA's influence on young children and pregnant women, we conducted a literature review of smallholder farmer opportunities in BoP markets, and spoke with thought leaders about types of impacts that occur on children from providing training, support, and guaranteed market connections. To gain a holistic sense of VA's impacts, we conducted in-depth qualitative interviews with key VA stakeholders in Cajamarca to explore the BoP venture's impacts on children across the three areas of well-being. Interviews and focus groups were conducted with people directly impacted by the venture such as VA smallholder farmers and employees. We also spoke with people aware of the

venture, but who were not impacted by it, such as farmers who had not worked with VA and external organizations that have experience working with farmers in the area including NGOs, a local school, and a clinic. The interviews were semi-structured conversations that comprised of a standardized set of open-ended questions that allowed us to ask follow-up questions to elicit more detail. We used follow-on questions such as "Is there anything else related to this topic that you haven't shared with us yet?" which encouraged interviewees (see **Table 3** for a list of respondents) to share additional information with us. We also incorporated insights from earlier interviews in later interviews to develop a more refined understanding of impacts.

Table 4: Description of Primary Interview Respondents

Type of Respondent	Number of Individuals
VA farmer	9
Non-VA farmer	6
VA staff	4
External organizations	12[a]

[a] Includes one focus group with three teachers at a local school, one focus group with six students at a local school, an interview with a local clinic and two interviews with local NGOs.

Methodological Limitations

It is important to note that our evaluation of VA's impacts on our target population is qualitative rather than quantitative i.e., our findings are interpreted from the qualitative evidence we collected. Therefore, our findings consist of likely impacts of VA on the children of its farmers, employees from the BoP and members of the wider community.

The methodology used in this study does not allow us to substantiate the impacts beyond attributing them to the respondents. Some of our findings may also suffer from recall inaccuracy, since we did not measure all impacts at the exact time of occurrence. We informed VA of the different types of stakeholders we would like to interview and relied on them to select interviewees; as a result our sampling may be biased toward those who had time or felt strongly about sharing information about VA.

This study methodology was adapted from a well-developed approach that has been implemented in Africa, Asia, and Latin America. The adapted methodology was designed to present findings with the objective of demonstrating the value of collecting such impact data in more rigorous ways over time. The Capturing Impacts section demonstrates how to measure the most substantial impacts within the Impact section in a rigorous way in order to quantify them.

IMPACT FINDINGS

The degree to which VA impacts children differs based on their parents' relationship with the venture. Among our study's target group, we found the greatest impacts occur on VA farmers' children. Children of staff and those in the broader community are also discussed in the following section. **Table 4** summarizes direct and indirect impacts on the children of all VA stakeholders that we observed on our field visit. Impacts in bold font are explored in more detail in the section immediately below, while details of non-bolded impacts can be found in **Appendix B and C**.

Table 5: Summary of Impacts on Children Age Eight and Under and Pregnant Women Across VA's Stakeholders

	Economic Well-Being	Capability Well-Being	Relationship Well-Being
VA Farmers' Children	Wealth • **Changes in financial resources available for child's well-being due to changes in parents' income stability from a guaranteed market connection, weekly payments, and reliance on the crop (Indirect)** • **Increased financial resources available for child's well-being due to increases in parents' savings via participation in farmer associations (Indirect)** • **Reduced financial resources available for child's well-being due to parents' increased expenditures (Indirect)**	Physical Health • **Improved child health due to benefits from goldenberry consumption (Direct)** • **Improved child health due to improved nutrition from applying organic standards to subsistence crops (Direct)** • **Risk of reduced variety and quantity of food available for a child due to cash cropping (Direct)** • Reduced stress on fetus through mother's improved health from farming goldenberry, a less labor intensive crop (Indirect) Education/Knowledge • **Children learn skills that parents learn at training (Indirect)** Leisure Time • **Children's leisure time does not change with goldenberry farming (Direct)** Aspirations • **Children develop higher aspirations due to changes in parents' traditional views and methods of farming (Indirect)**	Interactions • **Improved family interactions due to parents' membership in a farmer association (Direct)** • Improved interactions between parents and children as parents experience less stress and tension due to a newfound increased income stability (Indirect) Support • **Children experience more support from their parents due to parents living at home and working in the local region in the dry season (Indirect)** • Children spend less time with parents due to weekly harvest of goldenberry (Indirect) Adaptability in School • Children benefit from earlier school enrollment (Indirect) Local Environment • **Children benefit from an improved local environment (Direct)**
BoP Staffs' Children	Wealth • **Increased financial resources available for child's well-being due to increase in parental income (Indirect)**		Support • Children experience a change in support from their parents, due to their role as VA peelers (Indirect)
Children in the Broader Community	Wealth • **Increased financial resources in the community can benefit children due to their parents' increased access to goods and services in the local community (Indirect)**		Support • **Increased social capital from parents' increased social network results in increased resources for children (Indirect)**

Note: Impacts that are likely to have the largest impact on children are in bold font. Bolded impacts are explained in more detail in the following sections whereas explanations of non-bolded impacts can be found in Appendix A and B.

Impacts on VA's Farmers' Children

ECONOMIC WELL-BEING

Indirect Impacts

Wealth: Changes in financial resources available for child's well-being due to changes in parents' income stability from a guaranteed market connection, weekly payments and reliance on the crop

Farmers who work with VA have guaranteed market access, which gives them a sense of stability and confidence that their produce will be bought.[10] Having a guaranteed source of income likely influences the consistency with which farmers provide necessities to their children. Resources for children are also more consistent as a result of parents' receiving weekly payments. VA's farmers express confidence in the company and see working with the venture as a good way to support their families.

Goldenberry, in many cases, becomes the main source of income for farmers who had once relied on subsistence farming, dairy farming, selling animals, and working on the coast/city during the dry season. Prior to working with VA, many families relied on dairy farming as their main source of income: one farmer we spoke with said that her family earns more now from cultivating goldenberry than it did from dairy farming. As a result of the increased income, VA's farmers are able to provide better nutrition for their children. The farmers purchase a wider variety of foods at the local market and introduce goldenberry to their children's diet.[11] The way one farmer indicated that his children are eating better now was "the teeth are more happy."[12] Another farmer's way of saying that she is able to provide more fish and meat for her children was "the saucepan has improved."[13] Another indicated that before it was very rare to have rice, meat, and noodles, and now all three are common staples in his home. Instead of just buying one kilo of rice, he now buys a whole sack, and often stores it.[14] And the children we spoke with say they are eating much more fresh fruit, including apples, bananas, and mangoes.[15]

VA's farmers have made other lifestyle changes: before working with VA, one farmer said that he used to walk four to five hours to reach town; now, he takes the bus at a cost of 6 soles (a little over 2 USD).[16] Parents are also able to make home improvements through the income they receive from VA. In the Cumbico area, for example, families used to live in one-room homes with their animals. Now these families have built two to three rooms for their houses and are painting the exterior.[17] Improving the kitchen is also very important to VA farmers. Many of them used to cook with wood using a traditional cookstove in a room with poor ventilation, filling the house with smoke (inefficient burning of fuel releases soot and smoke that comprise of particulate matter that is dangerous for the lungs). The smoke often irritates parents' and childrens' eyes so many farmers are installing gas ovens or chimneys.[18] Impacts from replacing a traditional stove with an improved cookstove include financial savings if the household buys its fuel source, time savings if the household collects fuel wood and other biomass, reduced household air pollution, and according to some research studies, reduced degradation of the local environment.

Box 3: A Child's Perspective*

Xavier, 8, is benefitting from the increased income his parents, Rafael and Pilar, are receiving through their work with VA. He now has better food, more school supplies, and a much warmer coat. His parents have even bought him, his brothers and sisters a couple of toys, he says. However, Xavier once overheard his parents talking about how everything would change if VA left their village – they would no longer have guaranteed sale of the crop and his father would have to go back to looking for seasonal jobs on the Peruvian coast. Xavier understood that this has not happened and so he pushed these thoughts away. However, he worries, from time to time, about his father having to move away from home, leaving his mother, his siblings, and himself alone again.

** This fictional account is provided to represent a common VA stakeholder situation. The narrative sketch is based on information collected during interviews and focus groups.*

One farmer we spoke with said he is now able to buy clothes, shoes, books, and school uniforms for his children. VA parents are often the first to pay for school fees, and their children go to school equipped with books and supplies.[19] As a result, VA farmers say that they have noticed their children's school performance has improved[20] (as corroborated by teachers).[21] Some VA parents are now sending their children to a school outside the village, and some are even sending their children to private schools.[22] Parents are also making certain that the youngest children receive a quality education. A group of farmer families in Cumbico, for example, organized a kindergarten class for their neighborhood. The class for children ages 3-5 is being led by a local teacher whose salary is paid by the farmers.[23] Additionally, while health care is free, medicine often is not. Through their work with VA, farmers are also able to buy the medicine they need for themselves and their children.[24]

At the same time, resources for children can be at risk, by an over-reliance on the goldenberry crop. Most farmers only invest a small portion of their land to growing goldenberries as a supplemental income source. However, for some VA farmers, goldenberry has become their main source of income generation.[25] Many farmers in the area have replaced their former dairy farming income because goldenberry is less expensive than the maintenance of cows.[26] Many farmers mentioned that they worry about putting all their effort into one crop and also about losing everything if the crop fails.[27] Some farmers also indicated worry over what would happen to their crop if VA left their community.

Wealth: Increased financial resources available for child's well-being due to increases in parents' savings via participation in farmer associations

VA farmers revive old or form new farmer associations to work with VA. Many of these associations have savings programs that assist them with providing for their children's needs. Education is free in Peru, but many parents do not have enough money to purchase books or uniforms for their children. With financial assistance from associations such as these, farmers are now able to send their children to school with all supplies—books, uniform, stationery, etc.[28] Many farmers also told us that they re-invest their savings in land or machinery.[29] Children benefit from the increased resources that become available to them through this network.

Wealth: Reduced financial resources available for child's well-being due to parents' increased expenditures

Growing goldenberry can sometimes create additional expenses for farmers. When farmers do not have organic manure available on the farm, for example, they must purchase it at a cost of approximately 15 soles (6 USD) every 30 days.[30] Some farmers also hire help at a cost of 15 soles (6 USD) per day to assist with the goldenberry crop.[31] Depending on the recurrence of these costs and the amount of income the farmer earns from VA and other sources, these additional expenses can influence the amount of money available for meeting their children's needs. Fees to the farmer associations that farmers must join as part of their work with VA are an additional expense. For example, the one-time fee for one of the more expensive farmer associations in the area is 200 soles (76 USD).

CAPABILITY WELL-BEING

Direct Impacts

Physical Health: Improved child health due to benefits from goldenberry consumption

Most of the farmer families the venture works with previously had a diet of potatoes, wheat, barley, and milk.[32] The families we spoke with say that they now also consume goldenberry fruit, marmalade, and juice.[33] Goldenberry is a good source of protein[34] (lacking in the diets of most local farmer families), and the fruit is high in phosphorous, one of the minerals necessary for healthy bones and teeth.

Box 4: Goldenberry's Nutritional and Health Benefits

Goldenberry is a good source of protein[35] and is high in phosphorous, an essential one of the mineral required for healthy bones and teeth. Goldenberry is also rich in Vitamin A. Vitamin A deficiencies are very prevalent in undernourished children—the World Health Organization (WHO) estimates roughly 190 million children, worldwide, under age 5 suffer from the effects of Vitamin A deficiency. Vitamin A interventions can help prevent measles, diarrhea, and malaria. Goldenberry is also an excellent source of Vitamin C, a powerful antioxidant, required by more than 300 metabolic functions in the body including tissue growth, adrenal gland function, healthy gums, and a healthy metabolism. And goldenberry provides families with a source of complex B vitamins including B1, B2, B6, and B12. These complex B vitamins reduce stress, improve memory, improve energy, reduce fatigue, spur metabolism, and reduce the risk of heart disease. Goldenberry is also a good source of bioflavonoids, which possess antiviral, anti-carcinogenic, anti-inflammatory, antihistamine, and antioxidant properties.[36]

Physical Health: Improved child health due to improved nutrition from applying organic standards to subsistence crops

VA's farmers are applying organic methods they learn through VA to other subsistence crops they grow. As a result, there is an improvement in the quality and quantity of crop yield.[37] One farmer said that he is producing more food since he applied organic standards to his subsistence crops, and as a result his children are eating better quality food.[38]

Physical Health: Risk of reduced variety and quantity of food available for a child due to cash cropping

As goldenberry is introduced to smallholder farms, there is less acreage for other types of subsistence crops. We find that most farmers are now producing only one cash crop i.e., goldenberry for VA. Farmers still maintain subsistence crops. However, in some cases they reduce the amount of acreage dedicated to subsistence crops and choose to buy the supplemental food at the local market. This may negatively affect their children's nutrition, especially in cases where farmers are not purchasing food at the local market to make up for what they have reduced growing. Their health can also be negatively impacted if their parents have over-relied on the goldenberry and are unable to harvest it to earn income.

Leisure Time: Children's leisure time does not change with goldenberry farming

Working together as a family in the fields is a common activity in Peru. On weekends, the mother cooks early in the morning and packs food for the family to eat while they are in the fields. Children help with farming goldenberry, but their work in the fields is not labor-intensive, does not impact their studies, and is a good family bonding activity. The children of VA's farmers also combine playing in the fields with helping their parents.[39,40] Although their work with VA requires a larger time investment compared to other crops due to the venture's weekly harvest collections, goldenberry is less labor-intensive than most crops. The children enjoy helping select the fruit for harvest, especially the youngest children ages 0-5 who take their time, carefully looking for the best goldenberries to show their parents.[41] Older children, those ages 6-8, help more with field work and learn more about the environment and agriculture than younger children.

Indirect Impacts

Education/Knowledge: Children learn skills that parents learn at training

As a result of their parents' work with VA, farmer associations, and NGO trainers, children learn about organic farming. In addition to cultivation techniques during the trainings, VA's farmers learn more about environmental conservation, and pass these lessons on to their children, who are showing an increased interest in caring for the environment.[42] Research shows that a sense of care for the environment is

conditioned in childhood through prolonged, repeated interaction with the natural world. Encouraging deeper levels of commitment to the environment can improve quality of life for small communities, and these attitudes and behaviors are carried into adulthood.[43]

Children are also introduced to new financial concepts through their parents' work with VA. The local economy before goldenberry was mainly trade-based. Through the introduction of a cash crop to the local economy, farmers are acquiring new financial skills, and are passing this knowledge on to their children. Research in the area of early childhood development has found that children can understand basic financial and economic concepts as early as age 4, including scarcity, production, specialization, consumption, saving, distribution, supply and demand, business, money, and barter.[44] Although financial skills can be taught in formal educational settings, research demonstrates a strong link between the home environment and children's acquisition of financial skills.

Aspirations: Children develop higher aspirations due to changes in parents' traditional views and methods of farming

As their parents' trust for VA increases, including their income, children begin to look to farming as a way to make a living and support a family. Before VA, local children thought about opportunities in the city when they look for work as adults. Many VA's farmers' children now believe that they can make a good living as farmers.[45] Through their parents' work with VA, they are also being exposed to new opportunities in business, education, community, and NGO work, and they believe that they can have better life than their parents.[46]

Box 5: A Pregnant Woman's Perspective*

Isabel is preparing for the birth of her child, expected in a month. She and her husband, Manuel, have borrowed money from the local farmer association that they belong to in Cajamarca, Peru. They joined the farmer association before they began their work with VA. Through VA, they have been able to earn a stable income by growing goldenberry, a fruit that can be harvested up to 52 times a year. Isabel and Manuel hope to provide their newborn with a good home, good nutrition, and other necessities. They say that they are benefitting from both their relationship to VA and their membership in the association. VA trainers have taught them how to grow and harvest quality organic crops, and the farmer association is available to support them with financial assistance when they need it. Isabel also finds it easy to continue with goldenberry farming so late into her pregnancy.

** This fictional account is provided to represent a common VA stakeholder situation. The narrative sketch is based on information collected during interviews and focus groups.*

RELATIONSHIP WELL-BEING

Direct Impacts

Interactions: Improved family interactions due to parents' membership in a farmer association

As a result of their membership in farmer associations, parents are improving their interactions with their children.[47] Through their work with the associations, farmers are learning better communications skills, including how to actively listen and respect others' opinions. These lessons are being transferred to their children. Women's opinions in the associations and at home are being heard and valued more, making men less dominant heads of households.[48]

Local Environment: Children benefit from an improved local environment

Through the use of organic methods (training VA and its NGO partners provide), farmers are able to improve the quality of their soil and the environment surrounding their farms. Farmers and their families care more for the environment as a result of receiving such training; recycling is one such requirement. Where farmers used to leave rubbish outside near their farms, they now recycle the waste or dispose of it properly.[49] Children benefit from the aesthetic and cleanliness improvements to their local environment.

Indirect Impacts

Support: Children experience more support from their parents due to parents living at home and working in the local region in the dry season

Many VA farmers we spoke with indicated that they make enough money through their work with VA to stay at home with their children during the dry season from August-October. Before VA operations began, the main breadwinners (usually fathers) often traveled to the city or coast to find work during these months. One farmer we spoke with said he used to work from 4 a.m. to 10 p.m. on the coast for 12 soles (about 4.6 USD) per day.[50] Another farmer said her husband used to go to the coast to work during the dry season for up to four months, but since the family began working with VA, he stays at home. Her children are happy that their father is home, and he often helps them with their homework.[51] Another farmer said that before VA, he worked harder, invested more time and effort, and gained comparatively less. Now he invests less, has a higher crop yield, and makes more money through the market access VA provides. He also spends more time with his children, helping them improve their grades.[52] Parental stimulation in the first three years of life is particularly important; stimulation helps to ensure that each child reaches his or her potential and becomes a future productive member of society.[53]

Impacts on BoP Staffs' Children

The BoP staff of VA mainly consists of women who work part-time at headquarters peeling the goldenberry fruit. The majority of these women were not employed previously.

ECONOMIC WELL-BEING

Indirect Impacts

Wealth: Increased financial resources available for child's well-being due to increase in parental income

VA's BoP staff members are better able to meet their children's basic needs as a result of their earned wages. Peelers that work a full day make approximately 35 soles (12.5 USD) as per VA. Most of VA's staff are earning more money through their work with VA, and are able to provide a higher standard of living for their children. One VA peeler, who did not work before joining VA, said that before she had a lot of free time, and was dependent on her husband's income. Depending on how many kilos she is assigned each day, she now makes 20-25 soles (8-10 USD) a day (she works part-time). Now she can decide how to spend the money she earns. She told us that she uses the money to buy necessities for her children, ages 3, 8, 10, and 13, and to include more potatoes, rice, and vegetables in their diet; she is even able to save some money now.[54] Another peeler told us that she did not work prior to her relationship with VA; her husband paints houses for a living, and sometimes his income is not enough to provide for basic necessities and school fees at the private school their children attend. She and her husband make household financial decisions together, and currently they are spending her earnings on food and school fees, and have also been able to save some money.[55] When women become economically independent and/or have a greater say in household decision-making and finance, more money is channeled into resources for children. Evidence from Brazil, China, India, South Africa, and the UK demonstrates that when women have more control over household income—either through their own earnings or through cash transfers—children benefit as a result of their mother's increased spending on food and education.[56]

Impact on Children in the Broader Community

ECONOMIC WELL-BEING

Indirect Impacts

Wealth: Increased financial resources in the community can benefit children due to their parents' increased access to goods and services in the local community

VA farmers are earning more money through the initiative, and the money they make is kick-starting the local village economy and staying within the community. VA farmers are spending more at local shops and markets, and shopkeepers are stocking and moving more inventory than before. These increased

economic transactions may also be causing others in the community to start new businesses, adding further goods, services, and job opportunities to the community. There are businesses that did not exist 10 years ago, including a carpentry shop and new grocery stores, and people within the community are eager to buy.[57] A local Saturday market opened three years ago in Cumbico, increasing the diversity of food and nutrition for families in the area. The market also serves as a central meeting place where the farmers from the high and low sides of the mountain meet.[58] Residents now communicate both differently and more often with cell phones. An NGO member we spoke with said, "there is progress; perspective of improvement" in the areas where VA is operating.[59]

RELATIONSHIP WELL-BEING

Indirect Impacts

Support: Increased social capital from parents' increased social network results in increased resources for children

The increased local business activity is impacting parents in the local community by expanding their social networks and children by providing them access to resources available within these networks.

Box 6: Exploration of Individuals Who Choose Not to Work with Villa Andina

In addition to VA's farmers, there are four types of farmers in the community: those who grow commercial crops, those who sell goldenberry to the local market, dairy farmers, and subsistence farmers. The farmers who grow commercial crops, such as avocado, typically work with other international dealers to market their products. During the course of our interviews and focus groups, we found the following reasons why some farmers do not choose to work with VA:

- **Cost of VA compliance: Many farmers who produce commercial crops are former VA workers who have decided to leave VA mainly because they find it too time-consuming and expensive to maintain the organization's organic farming standards. Coming into compliance with the venture's standards typically means two hours dedicated to paperwork each week and often purchasing approved manure at a cost of up to 15 soles (almost 6 USD) a week.**
- **Cost associated of joining farmer associations: VA only works with farmers who are part of a farmer association. To be a member, a farmer must pay a fee, which is an additional expense to his household. The association can also require farmers to put in an amount as monthly savings.[60]**
- **Farmers leave VA due to better prices at local markets during the dry season: Six members of the Cumbico farmers association quit in 2012 because the market price was higher than VA's during the dry season.[61]**
- **If a farmer breaks a contract with VA, he/she is unable to work with the venture again: This may occur if the farmer decides to end the contract, grows goldenberry using non-compliant methods, and/or engages in side-selling to brokers.**
- **Other reasons include: Some farmers do not live in the right climate to grow goldenberry; some farmers prefer not to sell in groups; a farmer may not get along with someone who is already in the farmer association that sells to VA, and as a result may choose not to join.[62]**

OPPORTUNITIES FOR GREATER IMPACT

Through the course of our interviews we found that VA has a broad range of impacts on our target population. Gaining access to a guaranteed market substantially improves the lives of children in the 0-8 age category, but VA has opportunities to further amplify its positive impacts, mitigate negative impacts, increase penetration into its existing markets and expand into new regions. Each of our suggestions for enhancing, deepening, and expanding these impacts can generate more business for VA, but depend on the resources the BoP venture has at its disposal. **Tables 6-9** below present potential ways VA can deepen its impacts; prioritized recommendations are bolded.

ENHANCE POSITIVE IMPACTS

Table 6: Opportunities to Enhance Positive Impacts

Opportunity	Potential Response
Quantity of crop yields	**Explore methods to increase smallholder farmer crop yields through additional education on organic farming and equipment support**
Children's education on environmental conservation	**Explore partnerships to work with clubs at primary schools focused on protecting the environment**
Pride and ownership over goldenberry products	Explore methods to make the finished product (packaged goldenberry) available to farmers to increase their sense of pride and ownership
Nutrition-based education to farmers on the benefits of goldenberry	Explore methods to share information about nutritional benefits of goldenberry when interacting with farmers at their homes and at farmer association meetings

Prioritized recommendations are bolded.

- **Explore methods to increase smallholder farmer crop yields through additional education on organic farming and equipment support**

  VA can help farmers further increase their crop yield through further training and support by setting up a model farm. Many farmers do not currently follow VA's advice about planting goldenberry plants at a certain distance from one another to increase yields and quality of crop, and instead plant several plants in one spot. VA plans to have demonstrations to show farmers the benefits of goldenberry farming when they follow VA's planting and care advice. We suggest VA explore partnerships with an organization that is deeply trusted by the farmers to set up an independent model farm that demonstrates and convinces farmers of the efficiencies achieved through organic farming. We believe this should be a non-VA-owned farm, to ensure that farmers have no doubt of proof of method. VA can use this model farm for experiments in crop cultivation to enable a robust R&D program.

  VA could also enhance its farmers' income by providing them with crates (see picture) that are used in the factory to transport goldenberries to collection points. Farmers currently transport the fruit in sacks, which can damage the fruit.[63] Additionally, VA should conduct research into irrigation technologies and rain-harvesting methods that improve a farmer's access to water during the dry season, and reduce water-waste throughout the year. If appropriate technologies

Plastic crates of goldenberries at Cajamarca factory.

A school in Cajamarca that many VA farmers' children attend.

are found, VA can explore partnerships or funding resources (through impact investing, philanthropists, and foundations) to bring these irrigation systems to the field.

- **Explore partnerships to work with clubs at primary schools focused on protecting the environment**
  VA can explore ways to increase children's knowledge of environmental conservation through organic farming and natural resource management. An early introduction to such issues will allow children to adapt environmental-friendly behaviors early in life, and become farmers who support sustainable agriculture. VA can encourage the creation of eco-clubs or 4K clubs at primary schools to teach children to love and respect nature and we use natural resources in a sustainable manner. Children can then share what they learn with parents to further disseminate this information. To increase awareness of organic farming and the importance of environmental conservation, VA could work with NGOs and primary schools to increase the number of environmental lessons in their curricula.
- **Explore methods to make the finished product (packaged goldenberry) available to farmers to increase their sense of pride and ownership**
  VA can explore ways of increasing pride and ownership over goldenberries by showcasing packaged products sold in western markets e.g. at farmer associations, explain verbally how the products are sold miles away in national markets like Lima and international markets like the US and Europe, and post photographs of the packaged product in superstores. Another option is to set up tasting sessions during trainings at farmer association meetings; this would allow farmers to taste packaged products that they had a primary role in producing. We expect this to increase pride and a sense of ownership, and hence increase farmer efforts in producing high-quality, large yields.
- **Explore methods to share information about nutritional benefits of goldenberry when interacting with farmers at their homes and at farmer association meetings**
  VA can explore methods to remind farmers of goldenberry's nutritional benefits at multiple times; e.g., during the marketing phase with potential farmers and during trainings with current farmers, either on the field or at the farmer association. This information and potentially information about child nutrition and health can educate farmers and their families on the benefits of different nutrients needed for a balanced diet.

REDUCE NEGATIVE IMPACTS

Table 7: Opportunities to Decrease Negative Impacts

Opportunity	Potential Response
Dependence on single income generating crop	**Continue with plans to introduce quinoa, maca, and yacon to farmers in an effort to diversify the farmers' income base**
Financial constraints for farmers	**Conduct research to gain a thorough understanding of the associated cost of compliance and explore methods to reduce such costs for farmers**
Subsistence crop cultivation and dairy farming	**Explore methods to educate farmers on benefits of a balanced diet for their children, to incentivize them to continue to grow subsistence crops and engage in dairy farming, if already doing so.**
Advocacy and identification of basic services	**Explore methods to advocate to the government for basic services for farmers in the Peruvian Andes, in addition to connecting farmers and part-time staff with outreach services via CBOs, NGOs and government extension workers**
Farmers' negative experiences	Explore methods to track and rectify farmers' negative experiences with VA and with growing goldenberry
Market development for goldenberry	Conduct research into demand fluctuations of goldenberry in international and national markets to ensure supply equates demand; use this information to develop the supply market and create a business-enabling environment in Cajamarca
Payment delivery timeline	Explore ways to move toward providing payment on-the-spot for goldenberries, to increase trust with farmers
Process modification for farmers	Dedicate more staff time or hire an additional worker to assist farmers with their weekly paperwork; explore partnerships to assist improving farmers' literacy skills
Dairy farming and small business development	Explore methods to make dairy farming more attractive to avoid over-reliance on goldenberry cultivation
Side-selling	Explore methods to reduce side-selling
Research on pests, diseases and management	Research possible pests and diseases to goldenberries and organic-certified methods to prevent such risks

Prioritized recommendations are bolded.

- **Continue with plans to introduce quinoa, maca, and yacon to more farmers in an effort to diversify the farmers' income base**
  To reduce the risk of farmers growing only goldenberry, we applaud VA's strategy to introduce sustainable cultivation of quinoa, maca, and yacon to its farmers in an effort to diversify their income base. The venture plans to do so once it has increased both farming and processing capacity.
- **Conduct research to gain a thorough understanding of the associated cost of compliance and explore methods to reduce such costs for farmers**
  We strongly suggest that VA identify and answer research questions around the cost of compliance. For example, we believe that VA should have a thorough understanding of how farmer association fees are set and how these fees are spent. VA should identify what is the optimum fee that a farmer is willing to pay per month to be part of an association. At the same time, VA can research ways farmer associations can subsidize costs for their farmers, e.g., the cost of natural manure, and other associated costs of working with VA.
- **Explore methods to educate farmers on benefits of a balanced diet for their children, to incentivize them to continue to grow subsistence crops and engage in dairy farming, if already doing so**
  We found that some farmers have reduced other food cultivation and income-generating activities to focus on goldenberry cultivation; we believe this over-reliance on a single crop can be risky to

the farmer's household. Additionally, we also found that, with increased income, some farmers buy food from the stores and reduce growing subsistence crops. We encourage VA to explore methods to educate their farmers on the importance of providing their family with a balanced diet, to strongly incentivize them to continue to grow subsistence crops and engage in dairy farming, if they already do so.

- **Explore methods to advocate to the government for basic services for farmers in the Peruvian Andes, in addition to connecting farmers and part-time staff with outreach services via CBOs, NGOs and government extension workers**
  We suggest that VA use its position to advocate to the government on behalf of its farmers to increase access to basic services in the areas it operates. We also suggest that VA identify outreach activities and services offered by government, schools, CBOs, and NGOs to connect farmers with the same in an effort to reduce any negative impacts VA farmers might face while waiting for their crops to harvest. Providing such support to VA's part-time staff is especially important since they do not receive health insurance. VA should identify and connect with NGOs that deliver health support services to such groups. Both farmers and part-time staff would benefit from afterschool programs available through such organizations, and this would decrease the likelihood that peelers' children spend time home alone. VA could also encourage its farmers to start informal preschools by sharing the Cumbico kindergarten story: VA farmers began a preschool by paying a local teacher's salary.
- **Explore methods to track and rectify farmers' negative experiences with VA and with growing goldenberry**
  We strongly suggest VA explore different methods to collect farmer grievances related to VA staff or service, or growing goldenberries in general. This could be done through in-person visits at the office or via mobiles. VA should then work to rectify these complaints in order to retain farmers and develop strong bonds with them; this feedback should also be addressed in staff training programs.
- **Conduct research into demand fluctuations of goldenberry in international and national markets to ensure supply equates demand; use this information to develop the supply market and create a business-enabling environment in Cajamarca**
  We suggest that VA conduct research on the demand for goldenberries in the markets they sell and, if resources permit, globally. We believe it is important to understand demand fluctuations in order to balance the supply side of the equation. This information can then be used to develop a consortium of like-minded businesses to advocate to the regional and national governments for more business-enabling policies and regulations in the region. This business ecosystem and policy factors will be beneficial for VA, for other businesses that grow goldenberries in the region and to attract new business to the region so as to develop, strengthen and expand this market to make it competitive. This will also ensure that a stable export market for goldenberries remains in the region, if VA should ever leave the area.
- **Explore ways to move toward providing payment on-the-spot for goldenberries, to increase trust with farmers**
  We suggest that the venture work toward eliminating the two-week delay in payments to farmers, essentially to strengthen trust between the farmer and VA. As individuals at the BoP have small amounts of disposable income, cash on delivery is an important feature that farmers wish to have when working with social enterprises.
- **Dedicate more staff time or hire an additional worker to assist farmers with their weekly paperwork; explore partnerships to assist improving farmers' literacy skills**
  Many of the farmers who work with VA are illiterate or have very poor reading and writing skills. Preparing the paperwork required by VA to come into compliance with its organic standards is time-consuming and difficult for such farmers and can add a barrier to entry. The paperwork takes each farmer approximately two hours each week to complete. We suggest that VA dedicate more staff time or hire an additional worker, if possible, to assist farmers with this task. VA could also work with its current partners, or seek new partnerships to improve farmer literacy skills.

- **Explore methods to make dairy farming more attractive to avoid over-reliance on goldenberry cultivation**
  Explore partnerships that provide inputs, support, or subsidies to dairy farmers to help reduce costs associated with the activity. Research the possibility of trade in by-products of cows, such asmanure production for organic crop use. The research should include process requirements on manure allowed for organic-certified foods; e.g., the Organic Trade Association states that "certified organic farmers are prohibited from using raw manure for at least 90 days before harvest of crops grown for human consumption."[64] Also, because this region is a main dairy production center, we believe the manure trade will reduce costs for dairy farmers while they engage in goldenberry cultivation and reduce the risk of over-reliance on goldenberry farming.
- **Explore methods to reduce side-selling**
  We suggest VA invest time and resources into understanding why side-selling might occur—why some farmers might sell to non-community-based brokers, at what prices, at what intervals, and for what other benefits, if any. We further suggest that VA use the information from this field research to explore options to counteract side-selling, such as farmer loyalty programs (platinum, gold, and silver levels depending on quantity of goldenberries sold), working with the brokers, or better communicating the long-term negative impacts of selling to brokers (poor access to capacity building trainings).
- **Research possible pests and diseases to goldenberries, and organic-certified methods to prevent such risks**
  We suggest that VA partner with local agricultural universities or other agricultural institutions to research potential threats to the goldenberry crop such as pests and diseases. Any identified threat should be studied in further detail, to determine an organically certified solution to eliminate the organism. However, if a method involves the introduction of a non-native species, research on impact on the ecosystem must also be analyzed. While this example is related to coffee, it highlights the extent of risk to smallholder farmers in the event of widespread disease to the crop: "the Guatemalan National Coffee Association declared a state of emergency due to the spread of rust disease [in its coffee plantations], which will generate losses of as much as 40% of the 2013-2014 national harvest and as many as 100,000 jobs, association President Nils Leporowski said. Coffee growing nations in Central America will need $300 million to fight the disease spreading in the region."[65,66] VA should also research any risks to soil quality from growing the same crop season after season.

INCREASE PENETRATION INTO CURRENT MARKETS

Table 8: Opportunities to Increase Market Penetration

Opportunity	Response
Organic cultivation	Increase recruitment through an emphasis on organic cultivation techniques used by VA
Exchange programs	Explore exchange programs to introduce new farmers to goldenberry farming as an income-generating activity
Incentivize current member farmer	Explore incentives to current farmers to bring new members into the VA network

Prioritized recommendations are bolded.

- **Increase recruitment through an emphasis on organic cultivation techniques used by VA**
  To reach more farmers, VA and the farmers associations it works with could emphasize the benefits of organic farming on the yield quantity and the environment. The organization's current farmers are proud of their organic status; they have also learned, through their training, about the risks associated with chemical pesticides, such as environmental pollution and negative impacts on all members of the community.[67]

- **Explore exchange programs to introduce new farmers to goldenberry farming as an income-generating activity**
  VA could create an exchange program in which farmers from other communities visit VA goldenberry farms (also the model farm discussed earlier) and see firsthand the income-generating potential of goldenberry. Through this type of information dissemination and networking, farmers can learn about farming techniques, and about VA's guaranteed market access.
- **Explore incentives to current farmers to bring new members into the VA network**
  VA can explore approaches and incentives for current farmers to attract new members to the VA network, e.g., farmer referral programs that give cash rewards on a successful entry or discount programs on seeds and other inputs.

  VA should explore methods to incentivize farmers that belong to associations and cooperatives that manage their own organic certifications to join VA. VA already purchases from such farmers (as mentioned in the business model section) but to increase scale and impact, and provide more support and training to all farmers equally, we recommend VA attract these self-managed farmers to the organization.

EXPAND TO NEW POPULATIONS AND MARKETS

Table 9: Opportunities to Expand to New Populations and New Markets

Opportunity	Potential Response
Farmer financial constraints	**Explore new models of farmer financing to enable very poor farmers to join the network**
Scale to other locations	Explore scaling to new locations via partnerships with NGOs in the agriculture space. Develop financial and non-financial relationships with large foundations and NGOs to leverage their funds, networks and high-quality expertise
Build on market intelligencer	Continue gathering market intelligence through regular dialogue with farmers to attract new members to VA

Prioritized recommendations are bolded.

- **Explore new models of financing to enable very poor farmers to join the network**
  VA should continue exploring partnership models with farmer associations, NGOs, local banks, and large financial institutions in order to provide better financing options for potential farmers. VA should explore working with farmers whose land is too small to grow goldenberries by aggregating land across such farmers or finding a community area that can be used to grow the crop (co-operative model).
- **Explore scaling to new locations via partnerships with NGOs in the agriculture space. Develop financial and non-financial relationships with large foundations and NGOs to leverage their funds, networks and high-quality expertise**
  VA should focus on scaling to new locations through partnerships with NGOs in the agriculture and environment space. Scaling would attract further capital and allow VA to increase quality production, increase profits and enhance sustainability of its business model. VA should also focus on directly attracting more investment capital to scale to other sites in the region and beyond, in order to expose more children to the benefits of organic farming.
- **Continue gathering market intelligence through regular dialogue with farmers to attract new members to VA**
  VA should continue gathering market intelligence through regular dialogue with its farmers in order to better understand their needs and grievances. This information could help develop strategies to attract new farmers to the VA community.

CAPTURING IMPACTS

In this section, we outline at a high level how VA can quantify a set of impacts identified in the Impact Findings section and move toward regularly measuring its outcomes on its stakeholders and their children age eight and under. We suggest that VA consider conducting its own study or commission a study from an outside source (preferred method) to learn more about its impacts. By conducting a thorough assessment of impacts, VA can:

- **Assess opportunities to enhance value to its stakeholders.**
- **Create additional revenue-generating models to better meet the needs of stakeholders and seek partnerships to facilitate them.**
- **Demonstrate the success of its business model to external stakeholders.**

MOVING TOWARD A SYSTEMATIC IMPACT ASSESSMENT

We recommend that VA systematically measure its impacts on its stakeholders' children in the 0-8 age category, as well as pregnant women. Taking a deeper and quantitative assessment will allow VA to gain a more nuanced understanding of the needs of young children as well as how these needs change over time. Rather than focus on measuring the impact it has on all its stakeholders' children, we recommend that VA start by first measuring its impacts on its farmers' children. Once VA develops a regular system to capture this, the BoP venture can, in a targeted way, measure its impacts on employees' children and those in the broader community.

In order to capture VA's impacts on children in a manageable way, we suggest that the venture incorporate a short, mostly quantitative set of questions on core impact areas (such as impacts bolded in **Table 4)** affecting children age eight and under. VA should survey new farmers at three key intervals: 1) when they first start working with VA (after the contract is signed but before the crop is planted), 2) after the first harvest, at the respondents' home, and 3) one year after the first harvest, at the respondents' home. Recording GPS coordinates will help interviewers to find respondents' homes at later data collection points. This schedule of surveys will help VA capture both short- and long-term impacts and demonstrate changes in impacts over time. VA should continue to collect impact data even if farmers stop working with the organization.

We recommend that the survey be administered by interviewers rather than filled out by farmers directly. This will help ensure respondents fully understand the questions and do not leave any blank. We also recommend that VA hire a third party to conduct the interviews to reduce response bias. A less expensive alternative would be to have VA conduct the surveys itself. If VA chooses the latter option, we recommend that it still commission an independent assessment every few years to ensure objectivity of the findings. Regardless of who conducts the surveys, VA should hold a brief workshop to ensure that the interviewers understand the purpose of each question.

Based on the likely direct and indirect impacts we found in the field on the majority of farmers' children, we identified core impact areas for VA to consider measuring using subjective questions, many of which can be quantified using Likert scales of 1-5 (see **Appendix C**). Since the impacts are likely to vary by the child's age, we specify which questions should be asked according to age group. The survey should begin with a question about the number of children in the house and their age so that the interviewer knows which questions are appropriate. During the survey, the interviewer should also observe each child's appearance and behavior, if present. At the end of the survey, the interviewer should ask an open- ended question to capture any other differences parents have noticed in their children or in the mother, if she is pregnant. The questions in **Appendix C** are suggestions, and should be pre-tested with customers for adaptation to the local context.

We suggest that VA continue to use the BoP IAF to systematically capture its impacts on farmers' children. The tool will provide a structure through which VA can categorize and track new findings on impacts derived from its surveys. VA may also find the tool helpful if the organization decides to capture impact data on its BoP employees' children and children in the broader community in the 0-8 age group. A benefit of using the BoP IAF is its flexibility—VA can customize the tool to its needs, which will allow the organization to measure its impacts in a manageable way.

CONCLUSION

Introducing farmers to opportunities for increased income and income stability through market facilitation and training can have a number of positive impacts on children. In our assessment, we find that the children of VA's farmers benefit from the guaranteed weekly payments to farmers for the goldenberries they produce. The increased income stability allows the farmers to consistently direct resources to basic necessities for children, including better nutrition, medicines, books, school uniforms, and educational opportunities. Children also benefit from the financial and social resources available through the farmer associations, though fees to the associations and other organizational compliance costs can increase household expenditures.

The goldenberries farmers grow for VA can also have a number of positive nutritional impacts on their children, and organic methods of farming taught by VA are also being applied to subsistence crops. However, in some instances, farmers appear to be risking the variety and quantity of household nutrition when they choose to reduce the land area under subsistence crops. We find that farmers no longer leave their families to find work on the coast/city during the dry season because goldenberry is harvested 52 weeks a year. As a result, these farmers are spending more time at home. VA's farmers improve their farms and the environments surrounding them through their VA training, and pass these best practices on to their children. Organic methods of farming also have many positive impacts on the local environment, which farmers' children and all in the community can benefit from. We also find that VA's farmers spend more money in the local community, impacting children in the broader community through new business creation and increased access to goods and services. We find that the children of VA's BoP employees benefit mainly from the additional income the employees earn and contribute toward their children's immediate needs.

Based on likely outcomes that VA has on children of key stakeholders and pregnant women, we identify opportunities for VA to enhance, deepen, and expand its impacts:

- **VA should explore methods to increase smallholder farmer crop yields through additional education on methods and benefits of organic farming, and equipment support.**
- **VA can explore partnerships to work with clubs at primary schools focused on protecting the environment.**
- **VA should continue with plans to introduce quinoa, maca, and yacon to farmers in an effort to diversify the farmers' income base.**
- **VA should identify research questions and their answers to allow a thorough understanding of the associated costs of compliance and explore methods to reduce such costs. For example, VA should analyze how farmers associations spend their collected fees and identify how the associations can subsidize the cost of compliance for their members.**
- **VA can look into methods to educate farmers on the benefits of a balanced diet for their children, and to incentivize them to continue to grow subsistence crops, engage in dairy farming, and to avoid over-reliance on goldenberry cultivation.**
- **VA can explore methods to advocate to the government for basic services for farmers in the Peruvian Andes, in addition to connecting farmers and VA part-time staff with outreach services via CBOs, NGOs, and government extension workers.**
- **VA can explore new models of farmer financing to enable very poor families to join the network**

Together these suggestions will help VA improve its operations to better meet the needs of children.

APPENDICES

APPENDIX A: ADDITIONAL IMPACTS ON VA'S FARMERS' CHILDREN

Impacts that occur on VA's farmers' children that are not bolded in **Table 5** are explored here:

CAPABILITY WELL-BEING

Indirect Impacts

Physical Health: Reduced stress on fetus through mother's improved health from farming goldenberry, a less labor-intensive crop

Since tending to goldenberry is less labor-intensive work compared to other crops, it has benefits for parents' health. As a result, parents are less physically fatigued which is is particularly important in the case of pregnant women.[68] According to a local clinic, goldenberry harvesting does not require carrying farm-tools or physical labor-intensive work on the farm.[69]

RELATIONSHIP WELL-BEING

Indirect Impacts

Interactions: Improved interactions between parents and children as parents experience less stress and tension due to a newfound increased income stability

VA's farmers told us that they and their families are happier than they were before; healthy family environments have positive impacts on the development of children.[70] The farmers we spoke with indicated that they are more at ease since working with VA. Before VA operations began, they were constantly concerned about cash shortfalls.[71,72] Parents who have less stress about their financial circumstances often also experience less depression, anxiety, and other forms of mental illness that are often transferred to children. According to the National Research Council and the Institute of Medicine, depressed pregnant women may be less likely to get prenatal care, and depressed mothers may be less attentive or less able to respond in a healthy way to their babies' needs.[73]

As the income levels of VA's farmers increase, families also begin to experience greater harmony.[74] There are fewer fights between parents and reduced depression among family members. Factors affecting parenting capacity include financial stress, parental depression, sickness in the home, and marital stress. Higher income levels influence parental mental health, and improvements are seen especially in maternal mental health and the maternal relationship with children during early childhood development.[75]

Support: Children spend less time with parents due to weekly harvest of goldenberry

Cultivating goldenberry is less labor-intensive compared to crops like vegetables, wheat and barley, and many mothers indicated that they are less tired from working in the field when farming goldenberry.[76] Goldenberry is, nevertheless, harvested more often, at weekly intervals throughout the year, and children do not always help their parents with the harvest.

School Adaptability: Children benefit from earlier school enrollment

The children of VA's Cumbico farmers, who have established a local kindergarten class, are better able to assimilate into school environments as a result of attending school earlier than their peers (those who can afford school fees).[77] Learning how to assimilate into education environments at an earlier age benefits children's cognitive development and future productivity.[78]

APPENDIX B: ADDITIONAL IMPACTS ON BOP STAFFS' CHILDREN

Impacts that occur on VA's BoP employees' children that are not bolded in **Table 5** are explored here:

RELATIONSHIP WELL-BEING

Indirect Impacts

Support: Children experience a change in support from their parents, due to their role as VA peelers

Part-time employees spend less time with their children when they work at the VA factory-site. Before they worked with the venture, they mostly spent their day at home. One peeler we spoke with indicated she is slightly uncomfortable with her children being alone at home, sometimes for about two hours at a time. Her 13-year-old watches over her younger children (ages 3, 8, and 10) while she is at work.[79] Another peeler we spoke with said working with VA has improved her relationship with her children; before, she used to feel worried about working because her 4-year-old daughter would miss her, but now her child wants her to work so she can buy her more things.[80]

There has been much research looking at the effects of early parental employment on children's cognitive outcomes, with varying results. Some studies have shown positive effects of maternal employment during the first year, but many have also found negative effects. Maternal employment during the second and third years has, across most studies, been linked to positive outcomes. Positive effects are often related to the caregiver's role in socialization, cognitive development, and self-esteem.[81]

APPENDIX C: ADDITIONAL IMPACT ASSESSMENT SUGGESTIONS

These questions provide a starting set of impacts we recommend VA use to begin regularly capturing its impacts on farmer's families. The questions below are illustrative of how VA could quantitatively measure some of its key impacts on children. These questions have not been tested and should be reviewed for reliability and for adaption to local context.

The surveys should be structured to ensure comparability across respondents. Therefore all surveys should include the same questions, so changes in customers' children's lives can be compared and measured over time. However, impacts will likely vary based on the age of the child and whether someone in the household is currently pregnant. Therefore we suggest that the surveys clearly mark questions intended for older children and use skip patterns to only ask questions that apply based on the child's age and whether there is a pregnancy in the household (see **Table 10**). The survey should begin with a question about the number of children in the house and their ages so that the interviewer knows which questions are appropriate.

Table 10: Suggested Impacts to Measure and Potential Questions

	Impact	Potential Question	Question Type
Economic Well-Being	Wealth	**What job and other sources of income does the male head of household have?**	
		What job and other sources of income does the female head of household have?	
		What is your average weekly income? Please include all sources of income.	
		Do you receive financial support from any organizations? If so, how often and much?	
		Please answer the question using the scale based on how true the following statement is: My household income is stable. *Scale: 1=Strongly agree, 2=Agree, 3=Neither agree or disagree, 4=Disagree, and 5=Strongly disagree*	
		How many loans do you currently have open? Please tell the amount and when you estimate they will be paid off.	
		In an average week, how much money do you spend on your child? How much of that is health-related expenditures?	Ask caregiver about both younger and older children; ask pregnant women
		Over the past week to what extent were you able to meet your child's clothing needs?* *Scale: 1=Not at all, 2=A little, 3=A moderate amount, 4=Very much, and 5=An extreme amount* *This question can be repeated to ask about other material needs a child has such as school supplies and fees.	Ask caregiver about both younger and older children

	Impact	Potential Question	Question Type
Capability Well-Being	**Leisure Time**	**How, if at all, has your child's leisure time changed since you started selling goldenberry to VA?**	Ask caregiver about both younger and older children
	Physical Health	**How many times has your child gone to the doctor in the last week? The last month?**	Ask caregiver about both younger and older children; ask pregnant women
		How many times did your child have diarrhea in the last month?	Ask caregiver about both younger and older children
		How many times did your child have a cough or cold in the last month? *On a scale of 1 to 5 how severe was it, with 5 being very severe and 1 being not at all severe.*	Ask caregiver about both younger and older children
		How many times has your child missed school due to health reasons in the last month?	Ask caregiver about both younger and older children
		Please answer the question using the scale based on how true the following statement is: The quantity of the food my child is getting is sufficient. *Scale: 1=Strongly agree, 2=Agree, 3=Neither agree or disagree, 4=Disagre,e and 5=Strongly disagree*	Ask caregiver about older children
		Please answer the question using the scale based on how true the following statement is: The quality of the food my child is getting is sufficient. *Scale: 1=Strongly agree, 2=Agree, 3=Neither agree or disagree, 4=Disagree, and 5=Strongly disagree*	Ask caregiver about both younger and older children; ask pregnant women.
	Psychological Health	**Please answer the question using the scale based on how true the following statement is: My child has high self-efficacy (or feels that s/he can accomplish tasks).** *Scale: 1=Not at all, 2=A little, 3=A moderate amount, 4=Very much, and 5=An extreme amount*	Ask caregiver about older children
	Education	**How much, if at all, has your child's grades improved at school?** *Scale: 1=Not at all, 2=A little, 3=A moderate amount, 4=Very much, and 5=An extreme amount*	Ask caregiver about older children
		How much, if at all, has your child's understanding of the importance of conserving the environment changed? *Scale: 1=Not at all, 2=A little, 3=A moderate amount, 4=Very much, and 5=An extreme amount*	Ask caregiver about both younger and older children
	Aspiration	**How much, if at all, has your child's aspirations (i.e., plans for the future) increased?** *Scale: 1=Not at all, 2=A little, 3=A moderate amount, 4=Very much, and 5=An extreme amount*	Ask caregiver about older children
	Interactions		

	Impact	Potential Question	Question Type
Capability Well-Being	**Support**	**Please answer the question using the scale based on how true the following statement is: My child has developed a closer relationship with family members.** *Scale: 1=Strongly agree, 2=Agree, 3=Neither agree or disagree, 4=Disagree, and 5=Strongly disagree*	Ask caregiver about both younger and older children
		Please answer the question using the scale based on how true the following statement is: I feel like I spend enough time with my children. *Scale: 1=Strongly agree, 2=Agree, 3=Neither agree or disagree, 4=Disagree, and 5=Strongly disagree*	Ask caregiver about both younger and older children
	Local Environment	**Please answer the question using the scale based on how true the following statement is: My neighborhood is safe for my child/ren.** *Scale: 1=Strongly agree, 2=Agree, 3=Neither agree or disagree, 4=Disagree, and 5=Strongly disagree*	Ask caregiver about both younger and older children
		Please answer the question using the scale based on how true the following statement is: Our neighborhood is clean. *Scale: 1=Strongly agree, 2=Agree, 3=Neither agree or disagree, 4=Disagree, and 5=Strongly disagree*	Ask caregiver about both younger and older children
	Home Environment	**Please answer the question using the scale based on your level of satisfaction: In the past four weeks, how satisfied are you with the physical condition of your house?** *Scale: 1=Very dissatisfied, 2= Dissatisfied, 3=Neither dissatisfied or satisfied, 4=Satisfied, 5=Very satisfied*	Ask caregiver about both younger and older children

During the survey, the interviewer should observe each child's appearance and behavior, if present. At the end of the survey, the interviewer should ask an open-ended question to capture any other differences the parents may have noticed in their children or in the mother, if she is pregnant. The above questions are suggested questions and should be pre-tested with customers to adapt them to the local context.

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