Linking Smallholder Cash Crops to the Tourism Sector

Project Design submitted to SNV (Netherlands Development Organisation)

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LIST OF ACRONYMS

ACIAR	Australian Centre for International Agricultural Research
ADB	Asian Development Bank
ADI	Agricultural Development International
AQIP	Agricultural Quality Improvement Project
ATSA	Agricultural Technical Services Association
AusAID	Australian Agency for International Development
AVRDC	Asian Vegetable Research and Development Centre
CADF	Cambodian Agri-Business Development Facility
CAMIP	Cambodia Agricultural Marketing Information Project
CARDI	Cambodian Agricultural Research and Development Institute
CAVAC	Cambodian Agricultural Value Chain Project
CEDAC	Centre d'Etude et de Developpement Agricole Cambodgien
CIDA	Canadian International Development Agency
CRS	Catholic Relief Services
DANIDA	Danish International Development Agency
DFID	UK Department for International Development
FAO	Food and Agriculture Organisation
FFV	Fresh Fruit and Vegetables
FMS	Farmer Marketing School
GAP	Good Agricultural Practices
HURREDO	Human and Rural Economic Development Organization
IDE	International Development Enterprises
IFC	International Finance Corporation
IPM	Integrated Pest Management
LCB	Local Capacity Builder
MAFF	Ministry of Food and Fisheries
MBS	Market Based Solutions
MFI	Micro Finance Institute
MOU	Memorandum of Understanding
MPDF	Mekong Partnership Development Fund
NGO	Non-Government Organisation
NPV	Net Present Value
PEA	Private Extension Agent
PH	Post Harvest
PSA	Private Sector Agent
PUAC	Peri-Urban Agricultural Centre
RCG	Royal Government of Cambodia
ROI	Return on Investment
SHCC	Small Holder Cash Crops
SMS	Short Messaging Service
SUSPER	Sustainable Development of Peri-urban Agriculture in South-east Asia
TOR	Terms of Reference

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1 Executive Summary

In September, 2008, SNV Cambodia engaged the Consultants to perform a study of the potential to improve market linkages between Cambodian smallholder fruit and vegetable producers and key buyers in the Phnom Penh tourism market. The team of consultants, in partnership with CEDAC, a leading Cambodian NGO dedicated to farmer empowerment and organic agriculture, conducted the study in the period of September to November, 2008.

The objective of the study is to formulate recommendations for demand-driven interventions related to Smallholder Cash Crops. This executive summary outlines the key findings of the team's research and makes recommendations for SNV interventions to improve the coordination of Cambodia's core Fresh Fruit and Vegetable (FFV) Supply Chain in a manner that provides smallholders with significant opportunities for market participation and improved incomes. It also recommends ongoing engagement with non-traditional FFV buyers ensure that interventions are demand-focused and that information on product requirements are effectively transmitted though the core FFV supply chain.

1.1 Review of Relevant Projects and Studies Related to Cambodian Agriculture

The Cambodian FFV industry consists of thousands of small family businesses, each making a small profit that is not sufficient to support investment in business improvement. Local product of generally low quality flows through a broken supply chain and low technical skill in production and post-harvest lead to low yields and high losses. As with any product, it is more difficult to sell poor quality and can lead to unfair practices on both the producer and buyer sides. As a consequence, relationships in the value chain are usually not built on trust and mutual gain, but are generally opportunistic and exploitative. Working in such an environment requires higher overheads for gathering marketing intelligence, checking quality, maintaining larger networks etc. All these factors combined with Cambodia's geographic proximity to two highly developed and competitive fruit and vegetable markets, causes higher risk for local production and financing, and leads to the current situation where approximately 70% of produce is imported.

The seemingly large opportunity of import replacement has been a tantalizing goal for a variety of donor based interventions in the past. However, it has proven to be a rough road. Most research to date suggests that despite concerted efforts, donor interventions have not significantly changed the fundamental conditions of the Cambodian smallholder FFV markets.

1.2 Identifying Potential Tourism Sector Partners for Demand-Driven Interventions

The study aimed to identify and assess the FFV needs of major players in the tourism, hospitality, and non-traditional retail industries in Phnom Penh who would be willing to substitute imported products with Cambodian products, or whose current or projected needs require products that are not currently available from Cambodian or imported sources.

In collaboration with SNV and CEDAC, the consulting team developed an initial list of potential partners for a demand-driven SNV initiative. The list of potential partners was comprised of four distinct groups of major FFV buyers: major hotels, tourism-focused restaurants and restaurant groups; boutique and speciality restaurants serving the expatriate and tourist markets, and non-traditional retail outlets. The choices of businesses and groups was motivated by the team's intention to include core tourist markets as well as other promising potential markets focused on expatriate and non-traditional Cambodian buyers.

An interview guide was designed to elicit detailed information regarding potential partners, their needs, and interest in forming partnerships to utilize local FFV supplies. Specific question areas included business volume and seasonal variation; FFV supply strategies and relationships; Challenges and areas of dissatisfaction in current FFV supplies; FFV product quality parameters and requirements; Specific product needs and consumption volumes, with attention to seasonal variations; Interest in partnership with local FFV producers; and, Parameters (requirements) of interest for partnership with local FFV producers;

1.2.1 Key Demand-Side Findings

Through the interview process, several overall key findings were apparent, some of which raised important questions about the linkage of tourism and FFV/SHCC. The most important findings are:

Wholesale FFV suppliers provide poor service to buyers and are considered to be un-trustworthy.

Nearly 100% of respondents indicated strong dissatisfaction with current wholesale FFV supply arrangements and wholesaler business practices. Buyers report that they cannot enter long-term supply relationships because, once such a relationship is established, wholesalers provide declining product quality, unreliable service, non-transparent and extortionate pricing, and a range of other infractions that undermine business relationships.

FFV supply is not a binding constraint on tourism sector.

Despite the general dissatisfaction with the restaurant-facing FFV wholesale suppliers, nearly all required FFV products are available through these channels, and only tomatoes are considered inadequate both in terms of quality and variety. Buyers reported that they typically cope with temporary product unavailability or poor quality by changing menus, and that this is occasionally inconvenient but somewhat expected in the restaurant marketplace. However, changing the menu is not an option for the 5-star establishments, and they must obtain the stock, irrespective of the price offered.

There are Viable Niche FFV Product Opportunities

Organics are not important to the tourism sector as a whole, but FFV safety, focusing on pesticide and chemical residues, is moderately to highly important for a few specific high-end and expatriate-serving specialty outlets. There is generalized concern and uncertainty about the quality and safety of FFV among suppliers serving the expatriate market, but this is not an "urgent" matter for most buyers, except those later identified in this section.

Those buyers who are concerned with FFV safety, or who serve more safety-conscious customers, indicated that their customers are willing to pay a price premium for supplies of exotic FFV, and to commit to fixed year-round prices to obtain reliable, consistent, organic/pesticide free supplies. For these buyers, the

"story" of food safety, organics, and local suppliers is compelling as a branding activity that results in higher potential prices and profit margins.

A reliable supply of such specialty organic, traceable, chemical/pesticide residue-free FFV is not currently commercially available in Cambodia. Numerous buyers, however, mentioned the Peri-Urban Agricultural Center (PUAC), a Belgian-supported NGO FFV supplier and contract farmer. PUAC is currently the most reliable supplier for exotic and chemical-free leafy green vegetables—particularly salad ingredients used by restaurants that are tourist- and expatriate oriented. They are a key potential solution provider for potential the SNV interventions.

1.2.2 Screening of Potential Tourism Sector Partners

The consultant team arrived at four key criteria to determine which of the interviewed potential partners offer the highest potential for SNV SHCC activities in the FFV sector :

1) Strength of Interest of relevant decision-makers in partnership with local FFV efforts.

2) Low Price Sensitivity of potential partner and higher sensitivity to other factors, including product quality, service levels.

3) Size of Opportunity as indicated by total FFV purchasing volumes and size and consistency of customer volume of potential partners.

4) Compatibility of sourcing with smallholder production parameters. Businesses that have flexibility in their product sourcing strategies are seen as higher-potential partners, since smallholder-focused efforts may not immediately yield year-round supplies.

The team identified four high-potential partners (Table Ex1).and three additional moderately high potential partners (Table Ex2) for SNV to engage in ongoing FFV efforts

Table Ex1. Tier 1 Potential Partners Identified in Research

Business Name	Interest Level	Volume	Price vs Quality Sensitivity	Flexibility in Choice of Suppliers
Hagar Enterprises: Catering and institutional food service	High: due to local social enterprise focus	85,000-95,000 meals/month,	Balanced	Very High
Friends/ Romdeng: Training-focused tourism restaurants	High: due to local social enterprise focus and key role in hospitality industry training	4500-9000 meals/month in prime location	More quality sensitive	High
Khmer Surin: Expanding multi-location/ expat/ tourism restaurant	High: due to health focus of owner, local embededness	4800-9300 meals/month in main location.	More quality sensitive	Very High
Lucky Market Group: Multi-location retail supermareket market leader	High: due to ability to charge higher prices for traceable and "safer" products	500 kg/day total FFV purchase.	Very quality sensitive. Moderately price sensitive	High

Table Ex2. Tier 2 Potential Partners Identified in Research

Business Name	Interest Level	Volume	Price *vs* Quality Sensitivity	Flexibility in Choice of Suppliers
Cambodiana Hotel: 5 star international, multirestaurant	High mainly due to good experience with PUAC	15,000 – 20,000/mth. Sensitive to wedding numbers	Very quality sensitive. Moderately price sensitive	High
Intercontinental Hotel: 5 star international, multirestaurant	High – want competition for PUAC (!)	9,000 – 12,000	Very quality sensitive. Moderately price sensitive	High
FCC Group: expanding boutique tourist, restaurant and accommodation	Moderate	33,000	High quality sensitivity, Some price sensitivity	Very High

The highest potential partners, somewhat unexpectedly, had relatively little to do with the tourism marketplace. This conclusion became clear when the team compared purchasing practices with larger buyers serving principally *tourist* markets to those buyers whose customers (or ownership) had a greater awareness of (and sensitivity to) food safety issues or a social enterprise focus. At the same time, larger tourism-related buyers (especially major hotels) have a moderate to high level of price sensitivity and a *customer base that is largely uninformed of the food safety issues in Cambodia* (and therefore less likely to select restaurants based on their perceptions of chemical risk).

While all identified partners indicated an interest in working with local FFV supply efforts, they did place conditions on their interest, and a few expressed disappointment with previous NGO-supported FFV efforts that would require providers to demonstrate competency to overcome. The main conditions raised by buyers were, a high degree of professionalism in commercial relationship, consistency and reliability of delivery, transparency in pricing and quality standards, and, to a lesser extent, traceability and food safety (pesticide/chemical).

1.2.3 Product Selection for Value Chain Analysis

Based on the demand figures reported by potential partners, numerous products and product families offer entry points for FFV initiatives. Furthermore, partners did not identify large numbers of "niche" products as high-demand (i.e. with potential to support medium- or large-scale efforts). As a result, the team's initial selection criteria and were of agronomically similar product "groupings" that met five criteria: (1) market depth and diversity; (2) production feasibility; (3) similarity of production requirements; (4) success potential; and, (5) profit potential.

Ultimately, a total of seven products were identified as high priority for further analysis:

- Selected ***vegetable*** products are capsicum, cucumber, tomato, and yard long bean;
- Selected ***fruit*** products are papaya, pineapple, and watermelon.

Despite this robust product selection process, it must be highlighted that the *value chain coordination system has the greatest need for improvement*. A robust system that instils the benefit of quality and demand responsiveness can manage any crop,

irrespective of changing seasons or trends that will change demand for specific varieties. Thus, while product selection is important, a wide variety of products meeting these criteria could be selected for intervention.

1.3 Value Chain Analysis

The Value Chain "Map" for vegetable and fruit products is basically similar, as they are comprised principally of imported FFV products. The value chain is comprised of three "sub-systems"—(A) PRODUCTION, (B) the CORE SUPPLY CHAIN and; (C) the MARKETING SYSTEM (Figure Ex1).

In analysing the value chain, price changes were followed through fives stages using current "spot" prices from September, 2008. The segments analysed are:

i. Farmer
ii. Middleman
iii. Wholesaler
iv. Retailer
v. Consumer

To reflect the two modes for final sales in Phnom Penh, the Retailer stage was segmented into Traditional (Local) Markets and Supermarkets. To ensure completeness of analysis, post-harvest loss scenarios were developed for each product based on empirical research in Cambodia on the percentage loss at different stages of the value chain.

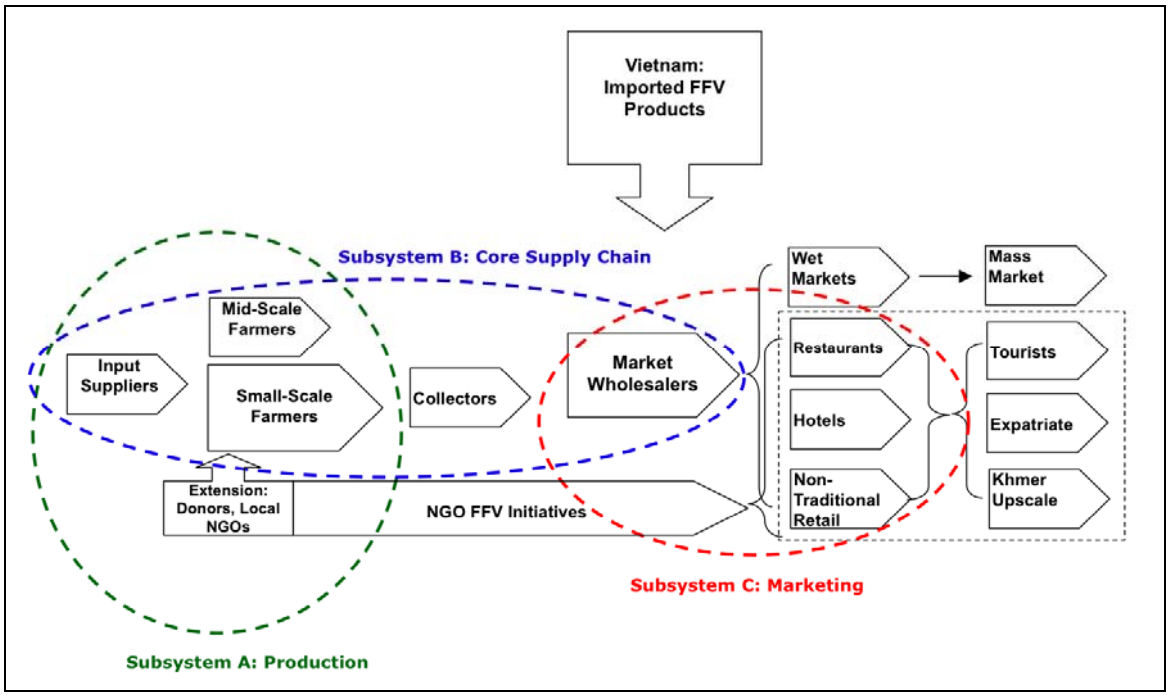

Figure Ex1. Value Chain of Map of Fresh Fruit and Vegetables in Cambodia

For each of the crops, the consulting team also calculated financial returns for three production scenarios. Using currently reported production costs and returns as the baseline, the team calculated two alternate scenarios for smallholder upgrading. The scenarios are distinguished by the level of intensity and skill of management, as well as labour and capital inputs, that each requires.

1.3.1 Value Chain Findings on Selected Vegetable Products

Based on analysis of production upgrading scenarios, significant cash returns could be generated for small producers by adopting more intensive management practices, yielding additional crops in a given cycle. The highest gross margins and ROI would be obtained in yard long bean production, while capsicum offers the second highest returns in each scenario (Tables Ex3 and Ex4). Tomato could also yield significantly improved financial returns, though percentage returns on investment are much lower than the two most favourable options, though tomato product differentiation offers potentially much higher returns due to widespread demand for improved varieties.

Table Ex3. Scenarios for Producer Gross Margins for one year, three scenarios, 500m^2 plot

	Low-Technology Traditional Techniques	Medium-Management Scenario	High Management Scenario
Tomato	268,125	2,016,917	4,912,875
Capsicum	350,000	1,288,125	6,484,750
Cucumber	292,157	626,250	2,478,750
Yard Long Beans	302,750	1,930,000	8,271,000

Table Ex4. Scenarios for Producer Return on Investment for one year of production, 500m^2 plot*

	Low-Technology Traditional Techniques	Medium-Management Scenario	High Management Scenario
Tomato	20%	57%	77%
Capsicum	26%	45%	134%
Cucumber	24%	27%	51%
Yard Long Beans	57%	133%	277%

*assumes one year repayment schedule for initial investment costs

1.3.2 Value Chain Findings on Selected Fruit Products

Similar calculations were performed for each of the three identified fruit products. While there is room for improvement in fruit production, none of the products offers the kinds of very high potential returns suggested by vegetable production. Overall, fruit products offer marginally lower profit potential and will require more significant investments on a currency and percentage basis (Tables Ex5 and Ex6). The team recommends considering the risks and rewards of fruit production very carefully prior to selection fruit as a targeted intervention.

Table ExEC5. Scenarios for Producer Gross Margins for one year, three scenarios, 500m^2 plot

	Low-Technology Traditional Techniques	Medium-Management Scenario	High Management Scenario
Papaya	238,462	500,000	1,063,636
Pineapple	581,125	946,000	1,375,000
Watermelon	693,550	2,025,000	5,980,000

Table Ex6. Scenarios for Producer Return on Investment for one year, three scenarios, 500m^2 plot

	Low-Technology Traditional Techniques	Medium-Management Scenario	High Management Scenario
Papaya	31%	29%	47%
Pineapple	54%	52%	52%
Watermelon	18%	51%	64%

1.4 Value Chain Constraints and Market-Based Solutions

Consistent with the SNV value chain methodology, the study team focused on identifying key constraints in the value chain and market-based solutions to the obstacles to smallholder participation in more lucrative markets, particularly non-traditional and tourism-focused markets in Phnom Penh. The premise of this approach is that a limited number of binding constraints to smallholder participation in these markets could be identified, local capacity builders identified, and SNV service packages tailored to address them, resulting in greater smallholder access to demanding buyers in the tourism- and expatriate-facing markets.

The study results demonstrated, however, that the principal requirements of working with identified tourism sector partners do not differ significantly *from the basic requirements for market participation, which are currently beyond the reach of smallholders. The general inability of smallholder FFV producers to participate in these markets is indicative of the overall limitations of Cambodia's FFV sector, and therefore not unique to the tourism sector's particular requirements.* Smallholder participation in the national market as a whole is extremely poor, due to a number of inter-linked capacity limitations that must be addressed to permit *any* significant national participation in the FFV sector.

Similarly, the key constraints related to identified high-potential products are generalized and systemic, rather than product-specific. These key constraints were identified through a combination of primary demand-side and value chain research, through extensive review of studies on Cambodian agriculture, and through recent work of the consultants in the Cambodian agriculture sector in donor-funded and NGO-supported contexts.

1.4.1 Constraints on the Production System (Sub-System A)

The average Cambodian farmer must contend with a group of constraints that limits their ability to develop their business and rise above the "subsistence plus opportunistic surplus" level. These constraints are :

1. Poor production and post-harvest technical skills leading to low quality and yield;
2. Lack of business orientation and poor connection with the value chain;
3. Uncertain access to credit and finance, particularly for long-term improvements in production systems;
4. Lack of trust between actors (relationships are basically exploitative);
5. Lack of market information, both related to price and product requirements;
6. Inability or unwillingness to implement production plans, even when advised by NGO or other more skilled actors.

The combination of these constraints means there is little opportunity for the farmers to gain knowledge to improve their production, and that production-focused solutions often fail to address off-farm constraints. However, if these constraints can be addressed, the profit potential analysis in Chapter 3 shows that there is good potential for economic benefit through improved incomes and high returns on investment.

1.4.2 Constraints on the Core Value Chain (Sub-System B)

Smallholder cash crops tend to be moderately- to highly-perishable horticultural products. Particularly where these products need to travel beyond the production area to reach markets that differ significantly from local markets (as in the case of the Phnom Penh tourism and other high-value markets), a relatively high degree of value chain coordination is required.

The most important constraint in Cambodian FFV core supply chain is the near complete absence of mutually-beneficial and rationally-managed coordination between production, transportation, wholesaling, and final markets/buyers, a function typically played by a leading wholesaler**.** Currently, no private sector actors possess the combination of skills required to support the technical, managerial, and logistical aspects of coordinated agricultural production among smallholders required to effectively serve the Cambodian FFV market.

While farmers need technical help to improve production to address the quantity/quality/continuity challenges, their connection with the market must be solidified to create a steady improvement in their understanding of the benefits of producing higher quality outputs (and the disadvantages and penalties associated with producing low quality). A fragmented supply chain cannot provider farmers with the knowledge, skills, and feedback necessary for sustained participation.

1.4.3 Constraints on the Marketing System (Sub-System C)

The tourism-facing FFV marketing system is characterized by poor quality wholesale relationships due to unprofessional and untrustworthy supplier behaviours among FFV wholesalers. This is the primary constraint in the marketing sub-system.

Nearly 100% of respondents indicated strong dissatisfaction with current wholesale arrangements, wholesaler business practices, which have led them to develop a range of coping strategies to ensure quality supplies in light of dishonest, corrupt, and unprofessional wholesaler behaviours. These include tendering out FFV orders monthly to deter price shifts; purchasing large volumes in retail markets on a daily basis; hiring buyers to purchase daily FFV needs in markets; and, hiring and supervising price-checking teams to regularly monitor current market prices and conditions.

All of these coping strategies result in significant overheads, or ‘transaction costs’ for tourism buyers in FFV markets.

1.5 Evaluation and Prioritisation of Market-Based Solutions

Because of the inter-related constraints to the three sub-systems of the value chain, the project team has examined both the probability of individual solutions ability to address the related constraints faced by the sector. Table Ex7 outlines our findings related to the potential of each market-based solution pathway to directly or indirectly

address the primary constraints of the other sub-systems that must be in operation to support sustained improvement.

Most donor interventions to date have focused on developing interventions that directly impact the largest number of beneficiaries, and therefore have been drawn to production-focused work. However, the lack of progress in Cambodian agricultural development over the past decade clearly indicates that production-focused interventions that are not focused on the development of a better-coordinated core supply chain in which economic interests are aligned to meet market demand have *very low development impact and poor sustainability.*

As this matrix shows, the highest potential solution pathway relates to addressing the primary constraint of the Core Supply Chain (sub-system B), since it holds the potential to address other constraints in an integrated manner. Addressing the primary constraint in the Core Supply Chain (sub-system B) *may* result in improvements to the Production System (sub-system A) and the Marketing System (sub-system C), since a more integrated coordination role by domestic wholesalers implies a market-based interest in both producer performance and successful marketing.

Addressing the primary constraint in the Production System (sub-system A) would not address the deficiencies of the Core Supply Chain (sub-system B), or in the Marketing System (sub-system C), since the key impediment to agricultural success is the lack of constructive linkages of producers to markets, and the absence of required information flows through the value chain.

Table Ex7. Constraints and MBS

Sub-System Constraint	**MBS Pathway**	**Likely Impact on Related Sector Constraints**		
		A. Production	**B. Core Supply Chain**	**C. Marketing System**
A. Production	Improve farm-level production	Direct	None. Does not resolve market intermediation issues	None. Does not resolve marketing or wholesaler issues
B. Core Supply Chain	Wholesale sector as contract farmers	Basis for wholesalers to become involved in local production	Direct	Basis for predictability in relationships with buyers
C. Marketing	Wholesale business skills improvement	None: Favors imports if Core Supply Chain issues not addressed	Low: Favors imports, does not resolve production issues	Direct

Addressing the primary constraint in the Marketing System (sub-system C) on its own would not address the deficiencies of the Production System (sub-system A), and has a low probability of motivating value chain actors to address Core Supply Chain (sub-system B) issues, since imported products remain available and dominant. In fact, a narrow focus on the Marketing sub-system might produce good results for the tourism industry, but would likely result in fortification of commercial import relationships, reducing the prospects for Cambodian smallholders.

1.6 Market-Based Solutions, Interventions, and Action Plans

The study process has led Consultants to conclude that while many of the features of a productive SNV intervention may be consistent with the Action for Enterprise (A4E) methodology, the sector suffers from capacity limitations that are not possible to address through exclusive use of existing market-based solution providers.

A combination of targeted market-based based interventions and market-based capacity building interventions in the Cambodian agricultural services sector hold good potential for SNV to encourage a more inclusive FFV market for smallholders. However, SNV must acknowledge the sector's fundamental capacity limitations and accept two deviations from its standard intervention parameters:

(1) Improvement of the core supply chain must serve as the basis for all other smallholder-based interventions in FFV marketing or production.

(2) SNV will necessarily be involved in creating (or incubating), rather than enhancing, a workable commercial FFV supply chain.

Development impacts should be thought of in terms of catalysing a market-based model of value chain improvement that serves to demonstrate to donors and the private sector that improvement is possible, with benefits to the whole FFV value chain and a quantum leap forward for unskilled, poor farmers.

If, on the other hand, SNV is limited to a strict adherence the Action for Enterprise (A4E) approach to private sector development, the consultants cannot recommend a SHCC-focused intervention. The shortage of competent market-based solution providers in Cambodia, the lack of a tradition of employing the necessary professional services that are required to transform the sector, particularly where smallholders are involved, and the limited effectiveness of NGO models in the sector makes narrowly market-based interventions impractical.

1.6.1 Intervention Strategy

As suggested by the evaluation of two MBS components the consultants recommend a two-pronged intervention strategy for SNV aimed at (1) transformation of a limited number of Phnom Penh-area FFV wholesalers into strong coordinators of the FFV value chain through contract farming; and, (2) organization of key buyers to provide input into and feedback on development of product standards.

The diagram describing the intervention strategy linking with the value chain is presented in Figure Ex2.

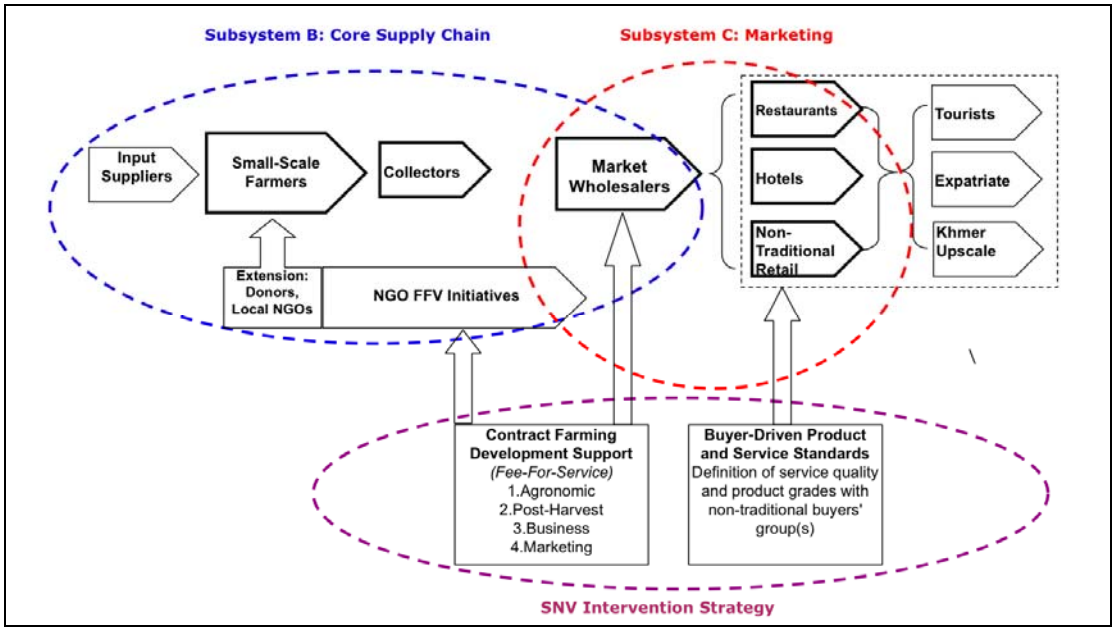

Figure Ex2. Proposed SNV Intervention Strategy

The benefits to poor farmers are a sustained improvement in their technical skills, perceptions and ability to engage with the market. Benefits for the poor are achieved through each of the value chain actors as described in Table 32Table Ex8.

Table Ex8. Intervention Targets, Purpose, and Benefits to Poor Farmers

Intervention Targets	Intervention Purpose	Benefit to Poor Farmers
Wholesalers	Build capacity to coordinate domestic FFV value chain through contact farming	Production management and connection to markets through contract farming system, resulting in improved productivity, competency, and incomes.
Tourism-focused and non-traditional buyers (Partners)	Build consensus on product quality requirements, standards. and grades	Through contract farming relationships, farmers receive actionable information to guide market-based production choices, resulting in higher and more stable incomes.
Service Providers	Facilitate wholesaler skill and capacity building and support farmer upgrading	Market-driven, production-related services improve farmer capacity and productivity.
NGOs	Build rural NGO capacity to support *market-driven* agricultural production among supported farmers within contract farming systems	Inclusion of additional farmers who do not have existing relationships with wholesalers; build local expertise to support farmers' in making better commercial farming decisions and executing plans.
Farmers	Link farmers to more demanding Phnom Penh markets through contract farming systems that provide appropriate extension, skill development, planning, and production systems	Improved participation in domestic supply chain, technical and commercial skill development, improved productivity, higher, more stable incomes, capacity for investment in upgrading production systems.

1.6.1.1 Intervention Strategy Component 1- Support Contract Farming System Development

The objective of this intervention is to develop the capacity for value chain coordination and active management of smallholder farming systems by wholesalers who are motivated by their own profit and business growth to work with Cambodian smallholders.

SNV should support a selected group of approximately ten Phnom Penh-based wholesalers in developing capacities and skills necessary to manage contract farming systems that produce agricultural products to meet domestic market demand. Training, development, and mentoring/coaching on technical, commercial, financial, and operational aspects of the business will be required with limited capacity for cost-sharing in the initial phases.

Wholesalers should be chosen based on their ability to assemble a network of approximately 25 poor or non-wealthy farmers with whom they will work throughout the intervention period. This, along with a willingness to assume part of the cost of training and development, should constitute a significant portion of the wholesaler selection process.

Wholesalers should be provided with appropriate services from Cambodian for- and non-profit service providers to support initial development and ongoing improvement of the contract farming systems. Because of the limited domestic capacity to support market-oriented production in Cambodia, both national and international resources must be deployed to train service providers in the set-up phase.

The intervention strategy must reach farmers ***through the core supply chain*** in order to achieve success and sustainability. SNV and its partners must resist the migration of this strategy towards direct, farmer-focused interventions, lest they contribute to the continued polarization of the value chain and existing anti-commercial sentiment among farmer-facing NGOs and community-based organizations. The identification of wholesalers and development of their "proprietary" farmers' networks must be the primary focus on operations until such time that SNV is satisfied with the outcome.

To ensure that the model reaches the maximum number of appropriate farmers, SNV should also engage the ***farmer-facing NGO community*** that has an interest in moving towards market-based agriculture. This can create a second focal-point for intervention (in addition to wholesalers). However, the strategy must view NGOs and other farmers' groups as potential participants in wholesaler-led contract farming systems, not as intervention targets in their own right.

1.6.1.2 Intervention Strategy Component 2: Organizing Key Buyers

SNV should regularly convene key buyers in the Cambodian tourism-facing and non-traditional retail sectors, beginning with those businesses identified as partners in the study, to build stronger participation of buyers in standards-setting for Cambodian agriculture. While the contract farming-oriented intervention of Component 1 might function without this activity, it is unlikely that FFV products would reach these markets without explicit efforts to inform supply chain actors of the needs of these key buyers. Component 2 also provides a platform for relationship development between wholesalers and buyers, which is necessary to overcome the deep mistrust that buyers have for wholesalers.

Key activities of this component include education of buyers on the standards-setting process, reaching agreement on product standards, and providing feedback to wholesalers, extension agents, and ultimately to farmers, through a structured, regular process.

This intervention should be facilitated by SNV and performed, where possible, in conjunction with the Cambodia-Canada Agricultural Market Information Project (CAMIP) project. CAMIP is in process of collecting and integrating the existing wholesale product standards in provincial markets of Cambodia, and there is a clear opportunity for mutual benefit between the two projects in integrating buyers' opinions and needs into national grading standards.

1.6.1.3 Step-By-Step Intervention Plan

The intervention plan is focused on three groups of actors or intervention targets and is conducted in three phases, (1) liaison/selection, 2) capacity building; (2) ongoing operations. Specific steps are illustrated in Table Ex9.

Table Ex9. Intervention Plan

Intervention Target	Intervention Phase: Liaison / Selection	Capacity Building	Operations
Buyers	**1** Key buyers identified in scoping study Convene meeting to build support for core product and service standards Clarify long-term participation arrangements	**6** Education on FFV Quality/Grading Standards Development of agreed-upon product standards with wholesalers	**10** Buyer feedback on initial crops
Service Providers	**2** Outreach to identified service providers Indications of interest in LT collaboration Capacity and Interest Assessment Performance-based contracting	**3** Capacity development for service providers on (1) agronomics and production (2) business (marketing) approaches to commercial agricultural development	**9** Supervise initial planting Feedback mechanisms Continuous improvement development
Wholesalers	**4** Develop selection criteria for collaborators List of potential wholesalers through network Open canvasing at key wholesale FFV markets Convene promotional event to inform wholesalers of program, costs, and benefits **Indications of interest and application process** **Final selection of Wholesale Collaborators**	**7** Analysis of wholesalers' business systems Contract farming management training GAP Training Farmer Marketing School Training Marketing/ Customer Skills and Feeback Training Systems Development	**9** Production scheduling Supervise initial planting Supervise growing Supervise harvesting Mentoring/continuous improvement Development of finance relationships
Farmers	**5** Farmers identified by wholesalers Input from NGO communities to identify clustered farmers Collaboration Agreements with Wholesalers and SNV	**8** Farmer Marketing School Training Agronomic & technical skills training (Farmer Field School) Finance and contracting training (Farmer Finance School)	**9** Planting & Inputs Growing/crop management Harvesting & Post-Harvest Management
NGO	**5a** Direct canvassing of potential NGO partners with organized farmers' groups based on interest in Market-Based Solutions Discussion of collaboration expectations including interaction of service providers with current NGO arrangements Final selection of NGO Collaborators	**7a** Rapid analysis of NGO extensions/business/marketing systems Intensive training of NGO extension workers on market-based production strategies, in conjunction with wholesaler marketing/CS and Feedback Training Relationship development with Wholesaler contract farming clients & buyers' group(s)	**8a** Learning and Innovation Network: Monthly convening of NGO extension managers to communicate technical innovations and new market information. Ongoing farmer group management and capacity building

1.6.1.4 Development Risks

The main risks for the intervention strategy revolved around introducing a system where none has developed naturally. We are assuming that most of the direct and indirect consequences of this combination of actions have been identified either in previous attempts or by the current project team.

Grouping the major risks, we find they follow the major constraints identified: include (1) bringing together actors who currently have adversarial relationships; (2) changing perceptions (eg from short term to long term perspectives; exploitative to supportive practices, competitive to collaborative); (3) Technology changes from subsistence to higher technology where attention to detail is critical; (4) capacity (innate and developing) of all actors to make these changes.

1.6.1.5 Resource Requirements

Tables Ex10 and Ex11 outline the expected resource requirements and the progress indicators or milestones linked to each phase of work.

Table Ex10. Program Establishment Costs, 6 to 8 Months.

Program Establishment Cost- Initial 6-8 Months						
Step	**Intervention Target/Phase**	**SNV Staff Resources**	**MBS or Other Providers**	**Cost**	**Cost Comments**	**Progress Indicators and Milestones**
1	**Buyers** **Liaison/Selection**	National Advisor(s) International Advisor	None	$ -	Staff and Meeting Costs Only	Milestone in Step 6
2	**Service Providers** **Liaison/Selection**	National Advisor(s) International Advisor	None Consultancy to assess capacity	$ 4,000	Staff costs only	Performance Contracts Established
3	**Service Providers** **Capacity Building**	Intensive oversight by NA and IA	International and Cambodia-based trainers/resources, PUAC Fresh Studio (VN) Swift Co. Ltd. (TH) **Katalyst (Bangladesh)/ Jobs Group** Local training specialists	$ 22,800	Conservative estimate: assumes maximum training needs.	Measured by pre/post test/assessment
4	**Wholesalers** **Liaison/Selection**	National Advisor(s)- Minimum 2 International Advisor	PUAC ATSA Additional Identified Private Extension and Business Services Providers	$ 3,500	Total no. of working days = 10 including meeting, field visites, and advitising, and selection process	Milestone: Identification and selection of wholesalers: client agreements
5	**Farmers** **Liaison/Selection**	National Advisor(s)- Minimum 2 International Advisor	Possible verification by PUAC, ATSA	$ 4,000	Depending on location of identified farmers	Collaboration agreements.
5a	**NGO** **Liaison/Selection**	National Advisor(s)- Minimum 2 International Advisor	Possible verification by PUAC, ATSA	$ 4,000	Depending on location of identified NGO Farmer Networks	Collaboration agreements.
6	**Buyers** **Capacity Building**	National Advisor International Advisor and SNV Regional Staff (Baan/Janssen)	Minimal MBSP input CAMIP Collaboration	$ 1,500	SNV staff-related costs Cost-Sharing- Possible to cover CAMIP costs of $150/day x 10 days	Milestone: Mutually acceptable product standards agreed by buyers and wholesaler
7	**Wholesalers** **Capacity Building**	National Advisor(s)- Minimum 2 International Advisor	PUAC ATSA Additional Identified Private Extension and Business Services Providers (CIEDC) CAMIP Fresh Studio (VN) Swift Co. Ltd. (TH)	$ 19,500		5-10 Wholesalers' Businesses Assessed 5-10 Wholesalers Complete Training Program
7a	**NGO** **Capacity Building**	National Advisor(s)- Minimum 2 International Advisor	PUAC CAMIP Swift Company (TH)	$ 7,000		Completion of FMS training by partner NGO staff.
8	**Farmers** **Capacity Building**	National Advisor(s)- Minimum 2	CAMIP ATSA/Independent Extension Providers	$ 25,000	3 days/farmer, 10 groups of farmers 10 days training/farmer, 250 total farmers	Completion of FMS process and additional training on Finance and Contracts
				$ 91,300		

Ongoing costs of the operation and maintenance of the program, steps 8a-10 are presented in the subsequent table. The consultants expect that development and smooth operation of the system will require at least 3 years of supervision, each year with 4 cycles. Costs should decline over this time due to greater cost sharing with participating wholesalers, and planned levels of cost-sharing should be determined within SNV prior to recruitment of wholesalers. Nonetheless, the total maximum cost for maintenance of the system once initial training has been established should be approximately $118,800 to serve the initial network of approximately 10 wholesalers, 250 wholesaler-identified farmers, and an undetermined number of NGO-identified farmers continue to participate. Further scaling up should be expected to hold incremental costs proportionate to numbers of wholesalers and farmers, and NGO farmer networks participating.

Table Ex11. Repeating Resource Requirements for Project Operation

Repetitive Resource Requirements- Per 3 Month Cycle						
Step	**Intervention Target/Phase**	**SNV Staff Resources**	**MBS or Other Providers**	**Cost**	**Cost Comments**	**Progress Indicators and Milestones**
8a	**NGO Ongoing Capacity Building**	National Advisor(s)	PUAC ATSA/Independent Extension Providers	$ 900	1 day/month, 3 months 2 providers	Attendance and growth of Learning and Innovation Network
9a	**Service Providers Ongoing Operations**	National Advisor(s) International Advisor	PUAC ATSA/Independent Extension Providers	$ 1,230		None identified
9b	**Wholesalers** **Ongoing Operations**	National Advisor(s)	PUAC ATSA/Independent Extension Providers	$ 1,230	Should be cost-shared with wholesalers Should be cost-shared with wholesalers	Ongoing evidence of direct wholesaler involvement in farm-level operations
9c	**Farmers** **Ongoing Operations**	National Advisor(s)	PUAC ATSA/Independent Extension Providers	$ 6,540 $ -	Should be cost-shared with wholesalers Should be cost-shared with wholesalers	Production planning and harvesting executed according to wholesaler production plans
10	**Buyers Ongoing Operations**	National Advisor(s) International Advisor	PUAC ATSA/Independent Extension Providers		Minimal costs included in engagement with PUAC/ ATSA	Buyer feedback obtained and ongoing consensus on conditions of supplies and supplier relationships
				$ 9,900		

1.6.1.6 Performance Measurement System

The intervention plan outlines specific milestones for the implementation of first year (6-8 month) activities by step. Measuring development impact will require adopting and refining a set of indicators that track the performance of the intervention as a whole, which means adopting indicators first related to participating wholesalers, secondly, measuring impacts on farmers, and finally, measuring buyer satisfaction with the overall results.

1.6.2 Assessing Pro-Poor Impact

For the purpose of assessing pro-poor impact, assumptions must be made about the intervention's success and scale of impact. Using conservative assumptions in a success scenario, the direct impact of these interventions is significant improvement of incomes for a modest base of approximately 250 farming families in Southern Cambodia. Assuming that each farming family focuses on vegetable production, achieves only 50% of the income improvement that represents the potential of this project over a three year period, the net impact of the project on anti-poverty efforts would be approximately $1,436,045, a ratio of benefit to cost of 6.8 (Table Ex12).

Table Ex12. Potential Pro-Poor Impacts of Proposed Intervention

	@ 50% of potential improvement	@ 100% of potential improvement
Baseline Annual Income from FFV- 3 years	$222	$222
Improvement in Income/farmer- 3 years	$5,744	$11,488
Net Anti-Poverty Impact @ 250 Farmer Participation Level*	$1,436,045	$2,872,090
Estimated maximum total 3 year SNV direct costs**	$210,100	$210,100
Benefit/Cost Ratio	6.8	13.7

*Assumes 3 crops/year at current prices. Cyclicality of prices could reduce seasonal benefits by 20-40% for 1 production cycle/year.
**exclusive of SNV staff and overhead costs

On the basis of these highly favourable benefit-cost ratio alone, the intervention has large direct impacts on participating farmers should be considered economically effective. However, if the successful development of contract farming systems becomes a self-propagating process as a result of the project's success, the potential direct and impact could be much larger still, as SNV would germinate a system that has great promise for Cambodian farmers and wholesalers alike (Table Ex13).

Table Ex13. Direct and Indirect Anti-Poverty Impacts: National, Meso- and Micro-Levels

Level	Direct Anti-Poverty Impact(s)	Indirect Anti-Poverty Impact(s)
National	Limited: project success does not significantly reduce poverty at the national level	Moderate: Demonstration of potential for poor to participate in mainstream FFV markets, possibility of import substitution
Meso (value chain and market area)	Moderate: Mainstreaming of poor farmers into regional markets and value chains	High: Overcoming exploitative relationships between farmers and traders/wholesalers. High: Improving agriculture-supporting NGO culture and skills related to commercial farming requirements and skills.
Micro	High: Direct FFV income enhancement with moderate success	Implantation of commercial skills in rural communities and empowerment of farmers to understand and work with commercial system(s)

In addition, the potential indirect benefit of cultural change among agriculture-supporting local and international NGOs would have dramatic benefits in improving the culture and operating environment of all market participants. While the impact of a 3-4 year intervention in this area is likely to be modest, the intervention is designed to maximize learning and knowledge transfer among NGOs through a learning and innovation network focused on both technical and commercial aspects of agriculture, an approach which we believe holds good potential in Cambodia.

2 Review of Relevant Projects and Studies Related to Cambodian Agriculture

The Cambodian Fresh Fruit and Vegetable industry consists of thousands of small family businesses, each making a small profit that is not sufficient to support investment in business improvement. Local product of generally low quality flows through the supply chain and low technical skill in production and post-harvest lead to low yields and high losses. As with any product, it is more difficult to sell poor quality and can lead to unfair practices on both the producer and buyer sides. As a consequence, relationships in the value chain are usually not built on trust and mutual gain, but are generally opportunistic and exploitative. Working in such an environment requires higher overheads for gathering marketing intelligence, checking quality, maintaining larger networks etc. All these factors combined with Cambodia's geographic proximity to two highly developed and competitive fruit and vegetable markets, causes higher risk for local production and financing, and leads to the current situation where approximately 70% of produce is imported.

2.1 Fresh Fruit and Vegetable Diagnostics

The most comprehensive diagnostic of Cambodian agriculture was conducted under the AusAID-funded AQIP (Agricultural Quality Improvement Program) program (Hickey, 2002). Hickey's main findings are presented in two tables on the subsequent pages, and paint an extremely unfavourable picture of the condition of Cambodian agriculture as a whole (Table 1). The overall finding is that the sector lacks the infrastructure, knowledge, supply, goods transportation methods, market access and linkages, market information, and regulatory framework necessary for sustained growth. Nearly seven years later, most sector diagnostic studies closely echo the findings of this assessment.

The SUSPER (2004) project provided the first comprehensive analysis of product flows through the Phnom Penh market. The project found good potential for import substitution if the water availability is improved during the dry season and if innovations are promoted, to grow tomato, cabbage and Chinese cabbage in the rainy season.

Table 1. Key Agricultural Value Chain Constraints- 2002 to Present (Hickey, 2002 - updated in ADI, 2008)

Value Chain Level	Area	Constraint Description
Production	Seeds	• Seeds and planting materials not currently accredited as virus-free, true to type and non-uniformity, minimum germination % guaranteed. • Seed containers lack labels with Khmer description and language instructions • Most varieties not selected for suitability to agro-ecological zone. • Lack of Khmer language labels for pesticide and fertilizer • No analysis of product on label, or inaccurate labels
	Credit	• Larger, reputable credit schemes not operating in some vegetable production areas • Local lending rates are exorbitant, sometimes 3-4 percent per month for one crop cycle.
	Information and Knowledge	• Lack of information on upland zones and higher altitude locations not utilized • Lack of farmer skills • Lack of extension material on growing new crops • Lack of reliable statistics on import volumes
	Pest Management	• Lack of knowledge of pests and damage levels • Lack of understanding of pesticide rotation to avoid resistance build-up • Lack of observance of withholding period • Lack of appropriate safety equipment and procedures in the application of pesticides
	Irrigation	• Existing structures inadequate in key locations for vegetable production • Few formal water-user groups to manage water resources effectively • Drainage is periodically difficult • Traditional growing districts (e.g. Kandal) increasingly subject to flooding.
Post Harvest	Storage and Transport	• Low cost packaging materials not available or affordable • Lack of knowledge of losses incurred by poor storage and transport
	Postharvest Treatments	• Lack of dipping tanks • No use of post-harvest fungicides • Lack of knowledge of benefits of post-harvest treatments
	Cool Storage	• No small to medium size cool-stores currently used for horticultural produce • Import duties unreasonably increase expenses for private business investors
	Quality Assurance Systems	• Quality Assurance is a new concept in Cambodia • Only examples are ISO9000 type systems which are too complex for small scale producers. • Many importing countries (e.g. EU) require some form of quality assurance be in place for export contracts • Cambodia's reputation as an exporter is at risk if lacking appropriate documentation when problems arise (e.g. pesticide residues).
Industry Regulation	Phyto-sanitary inspections	• Limited ability of current inspections to detect violations • Inadequate number of checkpoints to adequately secure the border
	Pesticide residue testing regimes	• CODEX regulations on maximum allowable pesticide residues in feedstuffs not currently applied on imported horticulture • Limited testing facilities inside Cambodia
	Imported Products	• Relatively unhindered entry of produce from neighboring countries • Importers give preferences to imported product, as they need to sell pre-purchased imports prior to sale of domestic produce regardless of quality • Border controls not adequately regulated (tariffs not adhered to) • Cambodian produce is sometimes inferior to imports
	Taxation	• Unofficial taxes collected by government officials to supplement income • Domestic production seen as an easy target

Key Agricultural Value Chain Constraints- 2002 to Present (continued)

Value Chain Level	Area	Constraint Description
Industry Development	Access to credit	• Private credit scheme rates are exorbitant • Credit repayments not aligned to production cycle • Development of small scale industry hampered by a lack of appropriate credit
	Land Titles	• Lack of security of land ownership is a disincentive for investment in permanent tree plantings
	Formation of marketing groups	• Currently no formal groups based on commodity • Communications and road access between growing districts is poor • Vested interests may limit involvement in commodity based groups, as they may regard other growers etc as competitors.
	Market information	• Current AMIS is not reaching farmers in a timely and appropriate manner • Lack of resources for collection and dissemination of marketing information
	Market reforms	• Horticulture sales at markets are often on the periphery of main sales points, lack of definition (mixed with other products) and generally unattractive to consumers • Certain points of retail sales pose health risks to consumers due to poor hygiene • Despite good returns by collectors and agents, growers are often paid poor prices. Mark-ups in prices are disproportionate to grower payments.
	Minimum quality standards	• Virtually no surveillance of quality standards for horticulture in the market place. • Lack of qualified horticulturalists present in the market as local government has jurisdiction over the marketplace • Lack of information available on quality standards
	Gender balance	• Women comprise at least 50 percent of the horticulture farmers and almost 90 percent of the retail and wholesale sellers in the market place, but women are not always given the responsibility to make decisions regarding market strategy or means of transport for produce. • Literacy in rural women is low compared with the general population
	Communication	• There is currently no formal channel for consumers or market retailers to feed back information to growers on quality, variety suitability, consumer preferences and growth trends in market demand etc.
	Transportation	• 90 percent of transportation of horticulture is by bicycle or motorbike • Up to 40 percent postharvest losses result from product deterioration due to poor transport methods • Roads from most production districts to the market are in poor condition making transport slow and expensive • Some potentially highly suitable production areas such as Pailin are serviced by poor roads
	Promotion and advertising	• No budget available to fund advertising for horticulture • Retail and supermarket industry is not mature enough • Increased consumption could result in increased imports to meet demand rather than increased sales of Cambodian products • Profile of fresh produce is low compared with fast food and beverages
	Research and Extension support services	• Few trained specialists existing in MAFF or DAE • Few PhD or Masters level horticultural graduates in Cambodia • Linkages to NGO programs on horticulture are not strong
	Education and training	• University and college courses are not currently orientated towards horticultural disciplines • There is little opportunity for well paid employment at present in the horticulture industry.

The IFC MPDF Value Chain project design document, prepared by ADI in 2008, also observed the underdeveloped value chain linkages and recommended that, instead of focusing on individual products, far greater benefit could be derived from developing the value chain systems through which all produce could flow more smoothly. Suggestions for smallholder-focused horticulture included establishing GAP standards, improving quality, and cold chain demonstrations. Contract farming was proposed as the best available option to improve market coordination and link more smallholders with the market. This study also verified that the constraints identified by Hickey (2002) remained pervasive in the Cambodian agricultural system.

AusAID's long awaited CAVAC (Cambodian Agricultural Value Chain) program has identified the lack of capacity (number and skill level) in the agricultural-related service provision sector. One of the central tenets of the project (as it is expected to be implemented) is the need for Business Development Services to start by bringing fledgling service enterprises up to a standard where users (farmers, wholesalers, contract farmers) can see benefit in forming business partnerships with them. It is worth noting that the severity of difficulties related to designing market-based solutions for improving the Cambodian agricultural situation has resulted in an extended period of scoping and re-scoping of the project that has, to date, taken more than four years.

2.2 Smallholder Cash-Crop Focused Research and Interventions

Comprehensive, whole-of-market based interventions started with the SUSPER project in the early 00's and since 2005 a variety of large projects have developed plans to work in this area.

Opportunities in the Siem Reap tourist market were explored in 2007 by the Cambodian Agri-business Development Facility. The study, consistent with other fruit and vegetable studies, found that that, in perishable products, supply chains tend to organize around relationships that ensure high quality supplies, year round supplies at competitive prices and at present, imported produce has the largest capacity to meet these requirements (CADF, 2007).

The HURREDO project's first attempts at supplying the Siem Reap tourist market using higher technology practices highlighted the difficulty in production/supply management, even in an environment of high demand opportunity (Dalton, 2006). Also introduced is the Siem Reap Chef's Association that suggested a quality assurance based tracking system. Enforcement of product quality standards and contracts on farmers is also an issue, especially where fixed prices are offered. The TripleF Farming Association is now using this infrastructure and supplying year-round leafy vegetables and herbs to the Siem Reap and Phnom Penh markets.

The Peri-Urban Agricultural Centre in Kampong Speu has successfully developed an integrated value chain that is supplying year-round produce from 150 smallholder farmers to 60 clients in the Phnom Penh restaurant and hotel market. A critical part of their strategy is an extension service that visits each farmer 2-3 times per week to ensure the growing plan is being adhered to and that any issues are attended to rapidly. Despite their success, PUAC is still facing many of the issues highlighted by the HURREDO project – contract compliance from producers and maintaining constant, good quality supply.

Over the past 11 years CEDAC has played a major role in developing farmer groups around Cambodia and training them in organic growing techniques. Since 2006, CEDAC has developed a complete supply chain that links the farmer producers with the Phnom Penh market through their own shop and restaurants. In common with other projects, supply of quality produce is CEDAC's biggest constraint, particularly due to the organization's gradual change in part of its focus from supported-subsistence to more commercial agriculture.

2.3 Private Extension Efforts

Several efforts have been made to address the lack of government agricultural extension service. Private Agricultural Support Service models have been tried on a pilot basis by a variety of organizations (NGOs – IDE, CRS, Bilateral – AQIP). The comparative study found that all have good potential to become agribusiness planners while augmenting the government extension system (Roberts et al 2007). IDE is continuing the development of the Private Extension Agent model with CIDA/DFID funding (2008-), focused around the Highway 1 corridor in Prey Veng and Svay Rieng.

Year round production is particularly challenging in the wet season, where improved technologies are required. Few extension resources (materials and trainers) are available that are appropriate to the local situation. CADF has produced a guide to wet season production for brassica crops that gives excellent, practical local information (CADF, 2008).

IPM (Integrated Pest Management) was the MAFF-national program of integrated pest management, supported by funding from FAO, the World Bank, DANIDA, and other donors (1995-2006). It was implemented as a commune-based development activity. The program was designed to promote and broaden farmer institutional training based on key issues facing Cambodia's farm systems. The IPM program mobilized support through community-based IPM activities with the objective of reducing dependence on agricultural chemicals, developing the technical capacity of farmers, and educating farmers about agriculture technologies. The program produced a strong group of well-trained extension workers with good reputation in agricultural technologies and pest management. A group of these trained specialists were formed into Agricultural Technical Services Association (ATSA) (www.atsacambodia.org). ATSA now is a training provider with a large amount of work in the D&D system for commune livelihood improvement programs. Due to their heritage being firmly based in technical agronomy, the market-based orientation of ATSA would benefit from further capacity building.

In support of quality assurance programs, the government encourages projects that can adopt the ASEAN Good Agricultural Practices (GAP) program (2006). This comprehensive package describes best practices from crop planning, through harvest, packaging, storage, transportation, reporting, traceability, and food and personal safety. The Department of Agronomy and Land Improvement has a MOU with agricultural input supplier Syngenta to provide training in GAP.

Post-harvest losses in vegetable production are a significant problem, both on-farm and throughout the FFV supply system, due to inadequate harvesting, storage, packaging, and transportation methods. A 2005-2006 AVRDC/ADB study on "Postharvest Loss in the Supply Chain for Vegetables" focused on key vegetable growing provinces of Kampong Cham, Kampot, Siem Reap, Kandal and Battambang, and estimated the 2006 value of post-harvest vegetable losses at $24.6 million per year. Research-based estimates of post-harvest losses in this study—for most products in the 20-30% range—are significantly lower on a percentage basis than regular reports from traders and from current projects, suggesting that these estimates may be very conservative.

AusAID (and ACIAR) are the major funders of agricultural research in Cambodia. Recent research on vegetable, varieties and post-harvest care has good relevance to the SNV project. The project "Improvement of vegetable production and post-harvest

management systems" has produced excellent yield increases in Tomato (4 kg/m^2 *vs* < 1 kg/m^2 traditional). Also being researched are improved transport methods and packaging. Ensuring that the results of these projects are widely distributed is another challenge faced in Cambodia. ACIAR also has a large body of past projects with relevance to Cambodia on their website (www.aciar.gov.au).

The Agricultural Quality Improvement Program (AQIP) was another Australian funded activity concentrated on quality systems within agricultural value chains. Excellent improvements in wholesaler performance were shown to be possible, but still the challenge in engaging with a large number of actors remained. AQIP performed research on market analysis and appropriate packaging for transportation and reduction of post-harvest losses (e.g. their strengthened baskets were economically superior to the currently available products).

The marketing work pioneered by AQIP is being continued by the (Canadian) CIDA funded, Cambodia Agricultural Market Information Project. Components of the project deal with market information collection, better contact between traders and farmers, and real time price availability through an SMS system designed for use by farmers, traders, and wholesalers. The Farmer Marketing School, developed in partnership with the initial CAVAC program, takes farmers through best practice post-harvest techniques, as well as marketing/negotiation skills and provides an understanding of product grades.

2.4 Summary of Identified Constraints and Implications.

The seemingly large opportunity of import replacement has been a tantalizing goal for a variety of donor based interventions in the past. However, it has proven to be a rough road. Most research to date suggests that despite concerted efforts, donor interventions have not significantly changed the fundamental conditions of the Cambodian smallholder FFV markets.

3 Key Findings from Partner Identification Process

3.1 Partner Identification Process

The objective of this phase of research was identification and assessment of major players in the tourism, hospitality, and non-traditional retail industries in Phnom Penh who would be willing to substitute imported products with Cambodian products, or whose current or projected needs require products that are not currently available from Cambodian or imported sources.

3.1.1 Targeted Segments for Potential Partner Interviews

In collaboration with SNV and CEDAC, the consulting team developed an initial list of potential partners for a demand-driven SNV initiative. The list of potential partners was comprised of four distinct groups of major FFV buyers, as summarized in Table 2. The choices of businesses and groups was motivated by the team's intention to include core tourist markets as well as other promising potential markets focused on expatriate and non-traditional Cambodian buyers. A list of interviews completed appears in Annex 2.

Table 2. Initial List of Interview Targets

Large High-End Hotels & Fine Dining	**Boutique & Specialty Restaurants and Food Service Enterprises**
Cambodiana Hotel	CEDAC Restaurant
Phnom Penh Hotel	HAGAR Enterprises
Himawari Hotel	Living Room Café
Sunway Hotel	**Tourism Focused Restaurants & Groups**
Intercontinental Hotel	FCC Group of Restaurants
Le Residence	Khmer Surin Group of Restaurants
Non-Traditional Retail Outlets	Bodhi Tree Hotel Group
Lucky Market Group	Elsewhere, Pavillion, Villa Lanka
Pencil Market & Fresh Co.	Friends Group
Thai Huot	7 Lucky Group
Bayon Market	Punlo
CEDAC Shop	Knyay
Korean Market	La Korea Restaurant

3.1.2 Interview Questionnaire

Subsequently, the consulting team, in collaboration with SNV and CEDAC team member, developed and tested an interview guide for gathering standardized information on potential partners in SNV FFV initiatives. The interview guide, which appears in Annex 1, was designed to elicit detailed information regarding potential partners, their needs, and interest in forming partnerships to utilize local FFV supplies facilitated by SNV. Specific question areas included:

- Business volume and seasonal variation;
- FFV supply strategies and relationships;
- Challenges and areas of dissatisfaction in current FFV supplies;
- FFV product quality parameters and requirements;
- Specific product needs and consumption volumes, with attention to seasonal variations;
- Interest in partnership with local FFV producers;

- Parameters (requirements) of interest for partnership with local FFV producers;

It is important to note that the interview process was not intended as a structured survey instrument or analyzed as a quantitative exercise. While quantitative data was collected from each respondent, the main purpose of the research was identification and screening of high-potential partners for pilot projects, rather than estimates of total consumption or market demand of particular products.

3.1.3 Overall Findings on Tourism-FFV sector

Through the interview process, several overall key findings were apparent. These are presented prior to presentation of partners because they impact the overall direction of our findings, and raise important questions about the linkage of tourism and FFV/SHCC.

The following significant FFV supply issues were identified as important by interviewees:

Wholesale FFV suppliers provide poor service to buyers and are considered to be un-trustworthy.
Nearly 100% of respondents indicated strong dissatisfaction with current wholesale FFV supply arrangements and wholesaler business practices. Buyers report that they cannot enter long-term supply relationships because, once such a relationship is established, wholesalers provide declining product quality, unreliable service, non-transparent and extortionate pricing, and a range of other infractions that undermine business relationships.

Because major buyers don't trust wholesale suppliers, they have developed a range of "defensive" coping strategies that keep suppliers "on their toes" by threatening a loss of business in response to poor practices. The main strategies employed by buyers include :

- Tendering out FFV orders monthly to a revolving group of suppliers to deter price shifts and quality deterioration. This was the most common strategy, particularly among large buyers;
- Purchasing large volumes in retail markets on a daily basis to ensure quality;
- Hiring independent buyers to purchase daily FFV needs from a combination of wholesale and retail suppliers;
- Sending price-checking teams to markets to verify current prices.

Each of these strategies results in significant and unnecessary overhead costs for buyers, which should be viewed as the transaction cost of the fragmented and poorly managed wholesale sector. Yet, these transaction costs appear to have created market opportunities for independent buyers, for NGO-supported FFV projects, and potentially for an SNV intervention.

FFV supply is not a binding constraint on tourism sector.
Despite the general dissatisfaction with the restaurant-facing FFV wholesale suppliers, nearly all required FFV products are available through these channels, and only Tomatoes are considered inadequate both in terms of quality and variety. Buyers reported that they typically cope with temporary product unavailability or poor quality by changing menus, and that this is occasionally inconvenient but somewhat expected

in the restaurant marketplace. However, changing the menu is not an option for the 5-star establishments, and they must obtain the stock, irrespective of the price offered.

Overall, this suggests that there is little or no *market failure* in the supply of FFV products, despite the fact that existing supply is import-dominated. Buyers estimate that at least 70% of FFV supplies are imported from the highly professionalized Vietnamese agricultural market, that all products are available, though some products may be expensive or slightly different from the "ideal" variety.

Viable Niche FFV Product Opportunities

Organics are not important to the tourism sector as a whole, but FFV safety, focusing on pesticide and chemical safety, is moderately to highly important for a few specific high-end and expatriate-serving specialty outlets. There is generalized concern and uncertainty about the quality and safety of FFV among suppliers serving the expat market, but this is not an "urgent" matter for most buyers, except those later identified in this section.

Those buyers who are concerned with FFV safety, or who serve more safety-conscious customers, indicated that their customers are willing to pay a price premium for supplies of exotic FFV. These buyers also indicated a willingness to commit to fixed year-round prices for supplies that are reliable, consistent, organic/pesticide free, and that come with a moderate service package including delivery, returns of damaged or inadequate products, replacement supplies.

For these buyers, the "story" of food safety, organics, and local suppliers is compelling as a branding activity that results in higher potential prices and profit margins. The evolving tourist and expatriate markets also create opportunities for restaurants to engage in supply strategies to serve more discerning and less cost-sensitive customers.

A reliable supply of such specialty organic, traceable, chemical/pesticide residue-free FFV is not currently commercially available in Cambodia. Numerous buyers, however, mentioned the Peri-Urban Agricultural Center (PUAC), a Belgian-supported NGO FFV supplier and contract farmer. PUAC is currently the most reliable supplier for exotic and chemical-free (safe) leafy green vegetables—particularly salad ingredients used by restaurants that are tourist- and expatriate oriented. PUAC supplies approximately 20 "non-certified organic" products on a six month fixed-price basis, and has sufficient product variety to constitute a "purchase category" for the restaurants and hotels that it serves. Their relative reliability and trustworthiness as a FFV provider has created a unique commercial niche for the entity as a producer and, upon request of some restaurant entities, as a turn-key wholesale FFV supplier.

3.2 Screening and Identification of Highest Potential Partners

The consultant team arrived at four key criteria to determine which of the interviewed potential partners offer the highest potential for SNV SHCC activities in the FFV sector :

> **1) Strength of Interest** of relevant decision-makers in partnership with local FFV efforts. Partners indicating stronger interest in sourcing local FFV were given priority.
>
> **2) Low Price Sensitivity** of potential partner and higher sensitivity to other factors, including product quality, service levels. Buyers who consider factors beyond price in their purchasing decisions, or who will pay higher prices for differentiated products are more likely to support local FFV efforts, though price competitiveness must be maintained.
>
> **3) Size of Opportunity** as indicated by total FFV purchasing volumes and size and consistency of customer volume of potential partners. Buyers with large and/or very consistent FFV needs are seen as more stable partners.
>
> **4) Compatibility of sourcing with smallholder production parameters.** Businesses that have flexibility in their product sourcing strategies, and whose interest is not diminished by the reality that smallholders may not be able to provide year-round supplies immediately are seen as higher-potential partners.

The selection process was ultimately a one of elimination based on these factors. Full interviews were performed with each interviewee, but in each case, the real level of interest in FFV efforts became evident after a discussion of the buyer's price sensitivity and purchasing practices. A few buyers were interested in such partnerships and had low price sensitivity, but did not meet a minimum 'threshold' for opportunity size (consistency or volume of purchases).

3.3 Identified Potential Partners

The screened list of potential partners generated "first tier" and "second tier" priorities, which appear in **Table 3** and **Table 4**. The team identified four high-potential partners and three additional moderate-potential partners for SNV to engage in ongoing FFV efforts.

The highest potential partners, somewhat unexpectedly, had relatively little to do with the tourism marketplace. This conclusion became clear when the team compared purchasing practices with larger buyers serving principally *tourist* markets to those buyers whose customers (or ownership) had a greater awareness of (and sensitivity to) food safety issues or a social enterprise focus. At the same time, larger tourism-related buyers (especially major hotels) have a moderate to high level of price sensitivity and a *customer base that is largely uninformed of the food safety issues in Cambodia* (and therefore less likely to select restaurants based on their perceptions of chemical risk). Furthermore, drawing attention to these risks would not be in the interest of the tourism sector as a whole, particularly where reliable organic or chemical-safe FFV supply strategies are not currently viable.

Table 3. Tier 1 Potential Partners Identified in Research

Business Name	Interest Level	Volume	Price vs Quality Sensitivity	Flexibility in Choice of Suppliers
Hagar Enterprises: Catering and institutional food service	High: due to local social enterprise focus	85,000-95,000 meals/month, majority food service	Balanced	Very High
Friends/ Romdeng: Training-focused tourism restaurants	High: due to local social enterprise focus and key role in hospitality industry training	4500-9000 meals/month in prime location	More quality sensitive	High
Khmer Surin: Expanding multi-location/ brand expat/ tourist rest.	High: due to health focus of owner, local embeddedness	4800-9300 meals/month in main location. Tour buses in high season	More quality sensitive	Very High
Lucky Market Group: Multi-location retail supermareket market leader	High: due to ability to charge higher prices for traceable and "safer" products	500 kg/day total FFV purchase.	Very quality sensitive. Moderately price sensitive	High

Table 4. Tier 2: Potential Partners Identified in Research

Business Name	Interest Level	Volume	Price *vs* Quality Sensitivity	Flexibility in Choice of Suppliers
Cambodiana Hotel: 5 star international, multirestaurant	High mainly due to good experience with PUAC	15,000 – 20,000/mth. Sensitive to wedding numbers (hundreds per event)	Very quality sensitive. Moderately price sensitive	High
Intercontinental Hotel: 5 star international, multirestaurant	High – want competition for PUAC (!)	9,000 – 12,000	Very quality sensitive. Moderately price sensitive	High
FCC Group: expanding boutique tourist, restaurant and accomoddation	Moderate	33,000	High quality sensitivity, some price sensitivity	Very High

Comprehensive two-page summaries of each potential partners' FFV purchases and interests appear in Appendix 3. Analysis of the specific product needs and high-potential opportunities appear in Chapter 3: Value Chain Analysis.

3.4 Partnership Conditions

While all identified partners indicated an interest in working with local FFV supply efforts, they did place conditions on their interest, and a few expressed disappointment with previous NGO-oriented FFV efforts that would require providers to demonstrate competency to overcome. The main conditions raised by buyers were:

i. High degree of professionalism in commercial relationship
ii. Consistency and reliability of delivery
iii. Transparency in pricing and quality standards
iv. To a lesser extent, traceability and food safety (pesticide/chemical).

Organic "Certification" was considered unnecessary by all buyers, though some felt that certification would be attractive and permit additional price premiums, or that it might be considered a worthy long-term goal, but lack of certification would not prevent their participation in SNV-convened initiatives.

4 Value Chain Analysis

Objective: Produce maps the value chains of four crops or crop families, each including six value chain segments (tiers). Consultants will articulate ***known obstacles and challenges in the production, storage, transportation, and marketing of each crop family****, as well as identifying the most important wholesale nodes in each chain. The emphasis of this task will be on identifying the most critical challenges in market development.*

4.1 Product Selection

Based on the demand figures reported by potential partners, numerous products and product families offer entry points for FFV initiatives. Potential partners demonstrated through their current purchasing behaviour that a coherent market offering of specific in-demand products, offered as a "set," would be more likely to alter purchasing strategies than a fragmented set of offerings. Furthermore, the limitations of domestic production capacity, inadequate farmer technical skills, and low extension capacity, suggested that the most appropriate "mix" crops for further exploration would have similar production requirements, permitting a focused effort on improved productivity.

Furthermore, partners did not identify large numbers of "niche" products as high-demand (i.e. with potential to support medium- or large-scale efforts). This led the team to consider the total volume of reported purchases as key criteria in the initial screen, since large purchase volumes among potential buyers suggest greater opportunities for import substitution, and market diversity. In sum, the team's initial selection criteria and were of agronomically similar product "groupings" that met five criteria, as follows:

i. Market Depth and Diversity
ii. Production Feasibility
iii. Similarity of Production Requirements
iv. Success Potential
v. Profit Potential

In addition, CEDAC provided input based on two broad selection criteria:

i. Production feasibility (based on geographic factors)
ii. Poverty Alleviation potential

Final product selection was conducted as a joint analytical activity of the Consultants, CEDAC team members, and SNV personnel. The project team chose a list of crops consistent with the following criteria:

i. *Existing demand, with desire for local supply, accompanied by a good profit potential*. For example, the chosen fruits are standard inclusions on every fruit platter served in Phnom Penh.

ii. *Ease of production*. Farmers have some current experience with the crop and there is a lower requirement for specialized skills. For example, brassica crops (cabbage/cauliflower) have excellent profit potential in the wet season but the team considered the cost of technology (cover, fungicide, etc) plus required skill level was too high for inclusion in the first level. These crops represent good options for second tier starters after farmers have developed more confidence. By contrast, tomatoes also have a perception of being

challenging to grow but demand is so strong that it is worth extra extension attention to achieve better results.

iii. *Production possible in close proximity to Phnom Penh*. Exception here is pineapple. The crop needs good drainage and Kampong Cham is closest growing area. The highest quality (sweetest) pineapple is grown in Kratie, but transport costs negate the premium prices paid.

Ultimately, a total of seven products were identified as high priority for further analysis (Table 5).

Table 5. Fruit and Vegetable Products Selected for Further Analysis

Vegetable	**Fruit**
Tier 1	**Tier 1**
Tomato	Papaya
Cucumber	Pineapple
Capsicum	Watermelon
Tier 2	**Tier 2**
Mushrooms	None
Cabbage	
Cauliflower	

The study found that there is a large list of potential fruits and vegetables in short supply and for which strong demand exists. Many also share similar profit potential. Therefore, the choice of crops to be the first focus of the SNV intervention is somewhat open with only a small degree of difference between those selected and those on the second list.

Once again, the point should be made that it is the *value chain management system that has most need of improvement*. A robust system instilling the benefit of quality and demand responsiveness, can manage any crop, irrespective of changing seasons or trends that will change demand for specific varieties.

4.2 Value Chain Analysis Method

4.2.1 Value Chain Mapping

A visual map of the value chain system is presented for fresh fruit and vegetables. The project Terms of Reference calls for separate maps for each commodity. Because these maps are remarkably similar and not particularly illuminating, the project team and SNV agreed that the report would contain price and production cost information in the form of a small model of the value added of the chain.

4.2.2 Calculation of Prices, Costs, and Share of Value Added

Price changes along the value chain were followed through fives stages:

vi. Farmer
vii. Middleman
viii. Wholesaler
ix. Retailer
x. Consumer

All products are marketed fresh and so the 'processor' stage was removed.

To reflect the two modes for final sales in Phnom Penh, the Retailer stage was segmented into Traditional (Local) Markets and Supermarkets.

At each stage, prices from three enterprises were sought (Table 6). For the Wholesaler stage, six enterprises were interviewed, three from each of the two major wholesale markets. This was not possible in the Retailer (Supermarket) segment where only two major entities exist.

Table 6. Enterprises interviewed for each value chain stage

Farmers	Middleman	Wholesaler	Retailer	
3 for each selected crop		Psar Demkor Psar Chbar Ampou	Local Psar Beong Keng Kong Psar O'Ruessei	Supermarket Lucky Pencil

Prices are presented as an instantaneous 'spot' and are therefore relevant to the specific supply/demand conditions prevailing on the day of collection. For most produce, wet season supply is limited and prices tend to be higher. The following annual price trend for Cucumber and Tomato demonstrates this point with October having the highest prices (Figure 1).

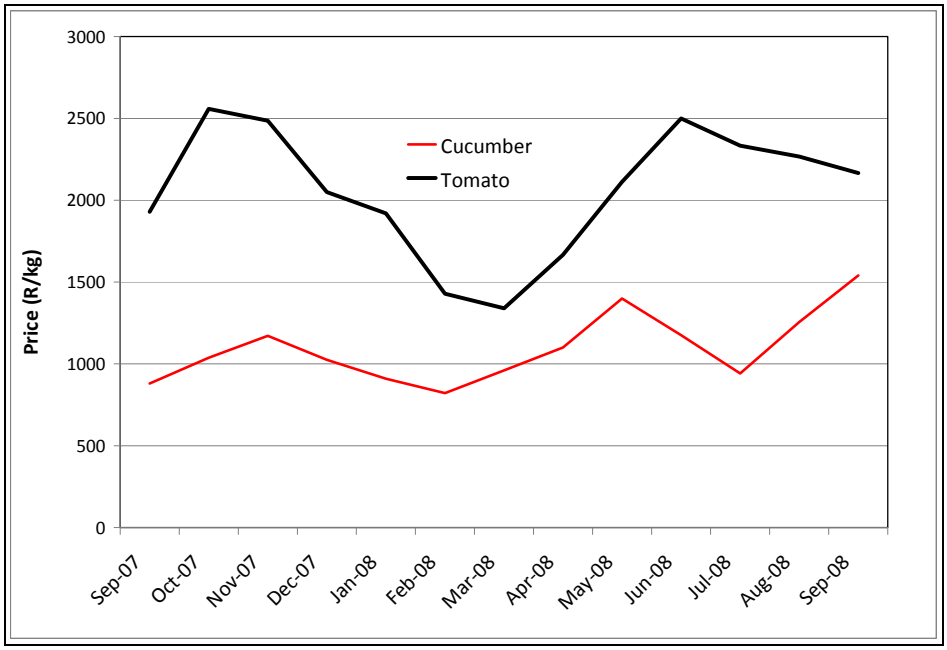

Figure 1. Annual price fluctuation for Tomato and Cucumber at Psar Demkor Wholesale Market (Phnom Penh) (Source: Agricultural Marketing Office, MAFF, September 2008).

To ensure completeness of analysis, post-harvest loss scenarios were developed for each product based on empirical research in Cambodia on the percentage loss at different stages of the value chain. The range of post-harvest losses in this model is derived from two sources. Total estimated losses were derived from synthesis of existing estimates, while the distribution of losses across chain segments was taken from the AVRDC/ADB study on "Postharvest Loss in the Supply Chain for Vegetables" cited in the study review.

4.2.3 Calculation of Alternative Production System and Producer Return Scenarios

For each of the crops, the consulting team also calculated financial returns for three production scenarios. Using currently reported production costs and returns as the baseline, the team calculated two alternate scenarios for smallholder upgrading. The scenarios are distinguished by the level of intensity and skill of management, as well as labour and capital inputs, that each scenario requires, as summarized in Table 7.

Table 7. Assumptions for Three Smallholder Production Scenarios

Management Inputs	Level of Management		
	Baseline	Medium	High
Number of crops/year	1	2	3
Irrigation method	None/Hand	Drip	Drip
Crop covered	No	No	Yes
Plastic mulch	No	No	Yes
Pest management skill	Low	Medium	High
Nutrient addition	Low	Medium	High
Post harvest care	Low	Medium	High

For each of these scenarios, gross margins in Riel and percentage, and return on investment (ROI) were calculated. ROI calculations used two alternative scenarios

for payback periods of initial investments (start-up costs), the first assuming a three year period at 36% interest rate per year, and the second assuming all start-up costs would be paid in the first year, also assuming 36% interest rate per year. Because only first year costs and returns were calculated, no net present value (NPV) calculations were undertaken.

ROI calculations are used because they indicate how efficiently poor farmers' scarce resources can be used relative to other remunerative opportunities. In Cambodia, local money-lending markets and MFIs lend money at approximately 36%-48% per year (3%-4% per month). Most rural dwellers also have access to moneylenders who will loan small amounts of capital out on their behalf at similar rates, so the threshold rate of return in Cambodia for rural dwellers is approximately 36%.

4.3 Vegetable Products- Value Chain Summary

The Value Chain "Map" for vegetable and fruit products is basically the same, as they are comprised principally of imported FFV products. The map, as it relates to the terms of reference, is comprised of three "sub-systems"—(A) PRODUCTION, (B) CORE SUPPLY CHAIN and; (C) the MARKETING SYSTEM (Figure 2). The specific constraints in each of these sub-systems are discussed in Chapter 4- Market-based solutions.

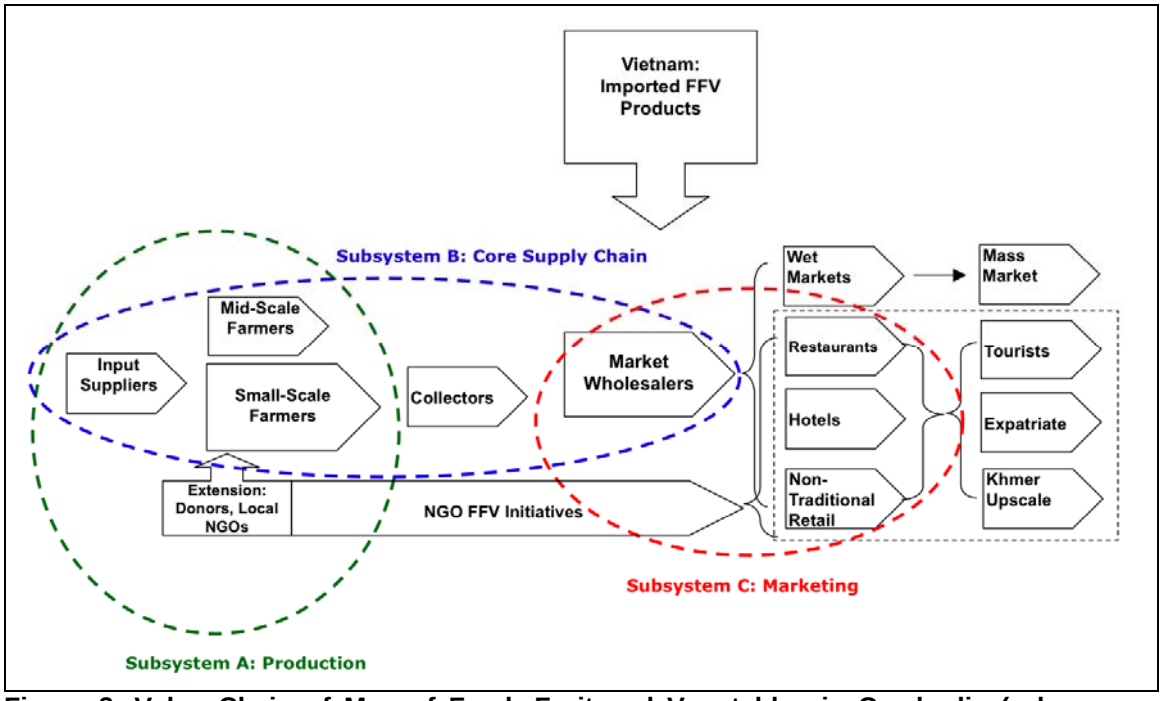

Figure 2. Value Chain of Map of Fresh Fruit and Vegetables in Cambodia (a larger version appears in Appendix 4)

4.3.1 Results of Producer Return Scenarios

Based on analysis of production upgrading scenarios, significant cash returns could be generated for small producers by adopting more intensive management practices, yielding additional crops in a given cycle. Gross margin and simple year 1 return on investment (ROI) scenarios are presented in the tables below. The highest gross margins and ROI would be obtained in yard long bean production, while capsicum offers the second highest returns in each scenario. Tomato could also yield

significantly improved financial returns, though percentage returns on investment are much lower than the two most favourable options.

Table 8. Scenarios for Producer Gross Margins for one year, three scenarios, 500m^2 plot

	Low-Technology Traditional Techniques	Medium-Management Scenario	High Management Scenario
Tomato	268,125	2,016,917	4,912,875
Capsicum	350,000	1,288,125	6,484,750
Cucumber	292,157	626,250	2,478,750
Yard Long Beans	302,750	1,930,000	8,271,000

Table 9. Scenarios for Producer Return on Investment for one year of production, 500m^2 plot*

	Low-Technology Traditional Techniques	Medium-Management Scenario	High Management Scenario
Tomato	20%	57%	77%
Capsicum	26%	45%	134%
Cucumber	24%	27%	51%
Yard Long Beans	57%	133%	277%

*assumes one year repayment schedule for initial investment costs

4.3.2 Tomato

Tomatoes are in high demand among both expatriate markets and all segments of the Cambodian marketplace, though persistent problems with quality and insufficient specialty varieties plague the marketplace. It would not be an exaggeration to say that demand for red tomatoes is virtually unlimited, and that significant opportunities to differentiate tomato products aimed at the Cambodian, western expatriate, Korean, and Japanese markets exist.

Most tomatoes in Cambodia are currently planted in dry season, with resulting low yields and low prices obtained, and Cambodian farmers are clearly unaware of the market opportunity or unable to produce consistently. Current yields of approximately 1 kg/m^2 can be raised to approximately 4 kg/m^2 with appropriate management, though this requires significant extension activities and quality seed to combat diseases such as anthracnose and bacterial wilt. ACIAR is currently conducting research on locally appropriate varieties to deal with soil pH, and good varieties have been brought from AVRDC (The World Vegetable Center, Taiwan) for seed multiplication.

4.3.2.1 Existing Value Chain

Price commences at the farmer with 1600 r/kg and sells to the end consumer for 2600/3800 for local and super markets, respectively. Profit margins are in the 8-11 % range or 44 % for the supermarkets.

Table 10. Existing value chain - Tomato

	Producer	Middleman	Wholesaler	Local Market Retailer	Supermarkets
Costs	See Below	1600	1800	2250	2250
Market Price- RL/KG	1600	1800	2250	2600	3800
Post Harvest Loss %	15%	3%	10%	9%	5%
Net Price Received (Less PH Losses)- RL/kg	**1363**	**1747**	**2017**	**2369**	**3610**
Value Added- RL/kg	1363	147	217	119	1360
TRADITIONAL CHANNEL					
% Total Value Added	73.8%	7.9%	11.8%	6.5%	
Profit Margin %	N/A	8.4%	10.8%	5.0%	
SUPERMARKET CHANNEL					
% Total Value Added (Supermarket)	44.2%	4.8%	7.0%		44.1%
Profit Margin %	N/A	8.4%	10.8%		37.7%

4.3.2.2 Monthly Wholesale Prices of Tomato

Seasonal variation in prices for tomato show lowest point is in the early dry season with twin peaks in June and October (Figure 3). The spot point taken for the current study was in October, showing that this price is the highest for the year.

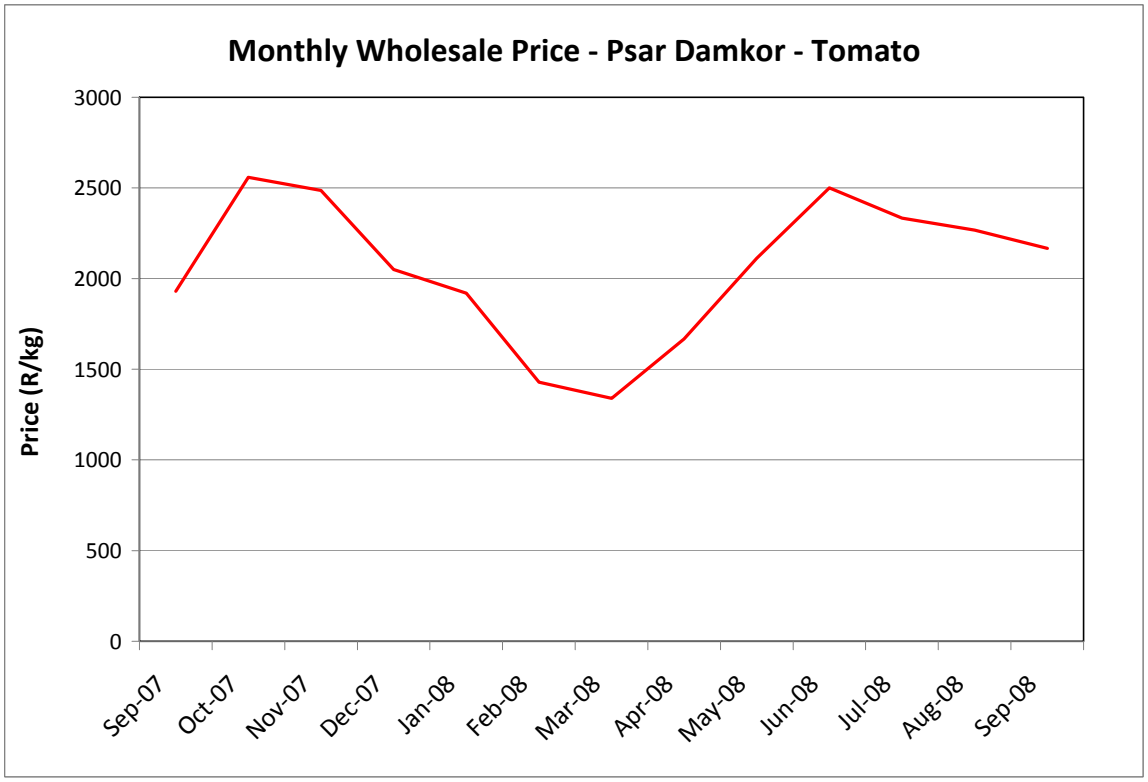

Figure 3. Wholesale market price - Tomato - Sept 07 to Sept 08.

4.3.2.3 Profit Potential Scenarios with Improved Production

Tomatoes have a reputation as being hard to grow. However, there are specialists (both extensionists and farmers) who have good success in wet season and dry, even in Siem Reap soils. Adhering to the guidelines, can produce good payback on investment in the second year (77% at end of first year). While the poorer farmer, with low yields and high wastage is more suited to subsistence production.

Table 11. Profit scenarios - Tomato

Tomato	Units	Baseline	Improved Production Systems	
		Current Practice	Medium Management	High Management
Production Costs	rl/year/500m^2	231875	1483083	2962125
Start-Up Capital Costs	rl	800000	1500000	2500000
Labor Input	days/year	10	28	40
Revenue	500m^2/year	500000	3500000	7875000
Gross Margin	rl/year	268125	2016917	4912875
Gross Margin	%	54	58	62
ROI (1)- 3 yr depreciation @ 36% p.a.	**%**	**45%**	**93%**	**120%**
ROI (2)- Startup Cost Paid in 1 Year)		**20%**	**57%**	**77%**

4.3.3 Capsicum

Capsicum is under-supplied in the Cambodian market, and offers a difficult but rewarding opportunity for smallholders in terms of stable demand and profit potential. Capsicum varieties include green (most common in Cambodia), red, and yellow. While green varieties are most common, the price premium for red and yellow varieties is greater than 100%, but higher value crops are also more reliant on good agricultural technique and more intensive management. Capsicum plants are sensitive to storms and strong winds, particularly during the flowering stage, and damage during this phase can be devastating to yields. In addition, they are particularly vulnerable to numerous pests. This creates the need for greater labour inputs, pest management, irrigation, as well as plant nutrition management—needs that are all the more significant due to the poor understanding of capsicum agronomy among Cambodian farmers.

4.3.3.1 Existing Value Chain

Price commences at the farmer with 2500 r/kg and sells to the end consumer for 4750/7000 for local and super markets, respectively. Profit margins are in the 8-11 % range or 45 % for the supermarkets. Notable exception is the wholesaler who, from the data collected, makes a 23% profit.

Table 12. Existing value chain - Capsicum

	Producer	Middleman	Wholesaler	Local Market Retailer	Supermarkets
Costs	See Below	2500	2800	4100	4100
Market Price- RL/KG	2500	2800	4100	4750	7000
Post Harvest Loss %	17%	4%	11%	10%	5%
Net Price Received (Less PH Losses)- RL/kg	**2080**	**2682**	**3641**	**4285**	**6650**
Value Added- RL/kg	2080	182	841	185	2550
TRADITIONAL CHANNEL					
% Total Value Added	63.3%	5.5%	25.6%	5.6%	
Profit Margin %	N/A	6.8%	23.1%	4.3%	
SUPERMARKET CHANNEL					
% Total Value Added (Supermarket)	36.8%	3.2%	14.9%		45.1%
Profit Margin %	N/A	6.8%	23.1%		38.3%

4.3.3.2 Monthly Wholesale Prices of Capsicum

No reliable annual seasonal price data is available for Capsicum.

4.3.3.3 Profit Potential Scenarios with Improved Production

Higher amount of labour is the major constraint on achieving further profit with capsicum. Attention to detail is critical is reacting to problems, but when this is possible the ROI payback may occur after the second crop, and can go as high as 130% in the first year.

Table 13. Profit scenarios - Capsicum

Capsicum	Units	**Baseline**	**Improved Production Systems**	
		Current Practice	Medium Management	High Management
Production Costs	rl/year/500m^2	250000	816000	1448750
Start-Up Capital Costs	rl	800000	1500000	2500000
Labor Input	days/year	40	60	120
Revenue	500m^2/year	600000	2104125	7933500
Gross Margin	rl/year	350000	1288125	6484750
Gross Margin	%	58	61	82
ROI (1)- 3 yr depreciation @ 36% p.a.	**%**	**57%**	**86%**	**251%**
ROI (2)- Startup Cost Paid in 1 Year)		**26%**	**45%**	**134%**

4.3.4 Cucumber

Cucumber is the most widely used vegetable in Cambodia, and is commonly planted as a dry season cash crop throughout vegetable growing regions. Most existing varieties have been imported from Thailand and Vietnam. Cucumber is relatively easy to grow, and with small extra inputs, yields can be improved greatly and harvest times extended, providing a more consistent source of income for cultivators. Key production problems include deterioration (Pre/Post-harvest) due to the 'pinching' of the fruit as well as water stress. Extension is necessary to promote year-round production.

4.3.4.1 Existing Value Chain

Price commences at the farmer with 1400 r/kg and sells to the end consumer for 2000/3800 for local and super markets, respectively. Profit margins are in the 5-10 % range or 58 % for the supermarkets.

Table 14. Existing value chain - Cucumber

	Producer	**Middleman**	**Wholesaler**	**Local Market Retailer**	**Supermarkets**
Costs	See Below	1400	1600	1800	1800
Market Price- RL/KG	1400	1600	1800	2100	4000
Post Harvest Loss %	9%	6%	7%	6%	5%
Net Price Received (Less PH Losses)- RL/kg	**1275**	**1504**	**1677**	**1969**	**3800**
Value Added- RL/kg	1275	104	77	169	2000
TRADITIONAL CHANNEL					
% Total Value Added	78.4%	6.4%	4.8%	10.4%	
Profit Margin %	N/A	6.9%	4.6%	8.6%	
SUPERMARKET CHANNEL					
% Total Value Added (Supermarket)	36.9%	3.0%	2.2%		57.9%
Profit Margin %	N/A	6.9%	4.6%		52.6%

4.3.4.2 Monthly Wholesale Prices of Cucumber

Cucumbers currently have widespread production, geographically and temporally, an this lessens the seasonality of their prices, with around 500r between maximum and minimum.

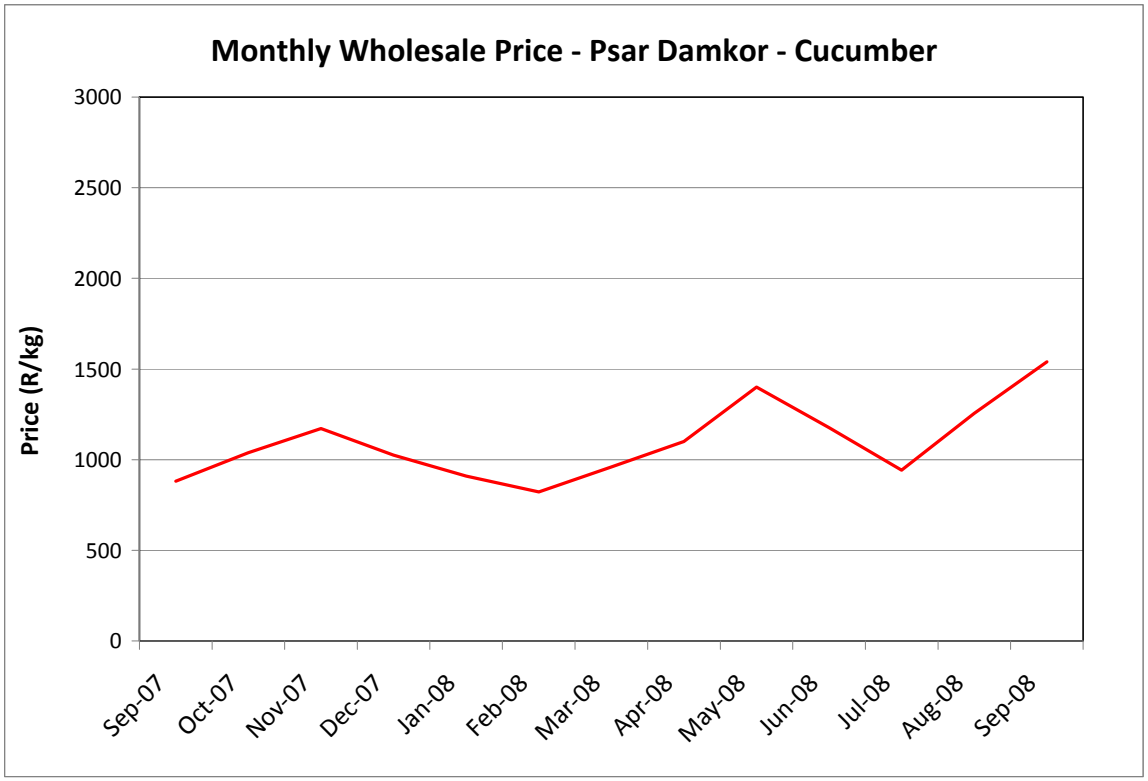

Figure 4. Wholesale market price - Cucumber - Sept 07 to Sept 08.

4.3.4.3 Profit Potential Scenarios with Improved Production

Cucumber is a moderate performer with payback on investment expected towards the end of the second year.

Table 15. Profit scenarios - Cucumber

Cucumber	Units	Baseline	Improved Production Systems	
		Current Practice	Medium Management	High Management
Production Costs	rl/year/500m^2	149020	247500	1421250
Start-Up Capital Costs	rl	800000	1500000	2500000
Labor Input	days/year	10	28	40
Revenue	500m^2/year	441176	873750	3900000
Gross Margin	rl/year	292157	626250	2478750
Gross Margin	%	66	72	64
ROI (1)- 3 yr depreciation @ 36% p.a.	**%**	**57%**	**68%**	**97%**
ROI (2)- Startup Cost Paid in 1 Year)		**24%**	**27%**	**51%**

4.3.5 Yard Long Bean

Long bean achieves high gross margins in Cambodian agriculture due to excellent demand across market segments and relative familiarity of farmers with the crop. Significant price fluctuations between wet and dry season offer opportunities for year-round production where careful management, appropriate fungicide, and raised-bed production methods that prevent "waterlogging" are employed, and these are key

necessities for extension. Farmers also tend to keep seeds from previous harvests. While this is a good pro-poor practice, kept seed is not exactly the same as the parent material and therefore cannot be guaranteed to produce similar quality produce. Also, seed storage at household level is rarely ideal and germination rates and overall seed quality suffers.

4.3.5.1 Existing Value Chain

Price commences at the farmer with 1650 r/kg and sells to the end consumer for 3100/3800 for local and super markets, respectively. Profit margins are in the 5-10 % range or 42 % for the supermarkets. Local market retailer is making an above average profit with 22%.

Table 16. Existing value chain – Yard long bean

	Producer	Middleman	Wholesaler	Local Market Retailer	Supermarkets
Costs	See Below	1867	2080	2300	2300
Market Price- RL/KG	1867	2080	2300	3100	3800
Post Harvest Loss %	11%	5%	7%	9%	5%
Net Price Received (Less PH Losses)- RL/kg	**1659**	**1982**	**2141**	**2813**	**3610**
Value Added- RL/kg	1659	115	61	513	1310
TRADITIONAL CHANNEL					
% Total Value Added	70.6%	4.9%	2.6%	21.9%	
Profit Margin %	N/A	5.8%	2.9%	18.2%	
SUPERMARKET CHANNEL					
% Total Value Added (Supermarket)	52.7%	3.7%	1.9%		41.6%
Profit Margin %	N/A	5.8%	2.9%		36.3%

4.3.5.2 Monthly Wholesale Prices of Yard Long Bean

No reliable annual seasonal price data is available for Yard Long Bean.

4.3.5.3 Profit Potential Scenarios with Improved Production

The strong demand and prices for Yard Long Bean translate into high profits. Being an agronomically 'indeterminate' crop (multiple harvest), good attention to health can keep the plants producing for a longer time. The 157% ROI (highest of all the analysed crops) shows the benefits of good management.

Table 17. Profit scenarios – Yard Long Bean

Long Bean		**Baseline**	**Improved Production Systems**	
	Units	Current Practice	Medium Management	High Management
Production Costs	rl/year/500m^2	172250	770000	1854000
Start-Up Capital Costs	rl	800000	1500000	2500000
Labor Input	days/year	10	28	40
Revenue	500m^2/year	475000	2700000	10125000
Gross Margin	rl/year	302750	1930000	8271000
Gross Margin	%	64	71	82
ROI (1)- 3 yr depreciation @ 36% p.a.	**%**	**57%**	**133%**	**277%**
ROI (2)- Startup Cost Paid in 1 Year)		**24%**	**69%**	**157%**

4.4 Fruit Products – Value Chain Summary

Similar calculations were performed for each of the three identified fruit products (Table 18 and Table 19). While there is room for improvement in fruit production, none of the products offers the kinds of very high potential returns suggested by vegetable production, and in fact, while gross margins for pineapple production could more than double with highly improved management, return on additional capital and labour investments would actually be lower than in the un-improved scenario. Overall, fruit products offer marginally lower profit potential and will require more significant investments (on a percentage basis). In addition, watermelon, which offers the best improvement in returns, carries high risks for off-season production. Since it is a single-harvest seasonal crop, a single incidence of disease or sucking insects can destroy the crop. The team recommends considering the risks and rewards of fruit production very carefully prior to selection fruit as a targeted intervention.

Table 18. Scenarios for Producer Gross Margins for one year, three scenarios, 500m^2 plot

	Low-Technology Traditional Techniques	Medium-Management Scenario	High Management Scenario
Papaya	238,462	500,000	1,063,636
Pineapple	581,125	946,000	1,375,000
Watermelon	693,550	2,025,000	5,980,000

Table 19. Scenarios for Producer Return on Investment for one year, three scenarios, 500m^2 plot

	Low-Technology Traditional Techniques	Medium-Management Scenario	High Management Scenario
Papaya	31%	29%	47%
Pineapple	54%	52%	52%
Watermelon	18%	51%	64%

4.4.1 Papaya

Papaya has potential for year-round production, though current plantings are small-scale and single-season. While Papaya is currently promoted in the Cambodian NGO community principally for household consumption and a key source of Vitamin A, focusing on yellow ripe papaya. Because of this focus on home consumption, producers are unfamiliar with commercially-oriented product standards. For example, Cambodian producers would have to develop a sensitivity to correct size, color, and shape in order to compete with well-organized Vietnamese and Thai papaya production. Producers would require more extensive technical support for moving into commercial production, and this might conflict with other NGO efforts focusing on home consumption. There are also high risks associated with post-harvest and transportation, and waterlogging, especially in lowlands areas.

4.4.1.1 Existing Value Chain

Price commences at the farmer with 1300 r/kg and sells to the end consumer for 4200/5000 for local and super markets, respectively. Profit margins are in the 10-50 % range. Interesting here are the increased profits for the middleman and wholesaler (at least from the data provided). This could be a function of the high weight per fruit and increased risk of transport damage.

Table 20. Existing value chain – Papaya

	Producer	Middleman	Wholesaler	Local Market Retailer	Supermarkets
Costs	See Below	1300	1700	3800	3800
Market Price- RL/KG	1300	1700	3800	4750	5000
Post Harvest Loss %	17%	6%	11%	11%	5%
Net Price Received (Less PH Losses)- RL/kg	**1085**	**1597**	**3370**	**4223**	**4750**
Value Added- RL/kg	1085	297	1670	423	950
TRADITIONAL CHANNEL					
% Total Value Added	31.2%	8.5%	48.1%	12.2%	
Profit Margin %	N/A	18.6%	49.6%	10.0%	
SUPERMARKET CHANNEL					
% Total Value Added (Supermarket)	27.1%	7.4%	41.7%		23.7%
Profit Margin %	N/A	18.6%	49.6%		20.0%

4.4.1.2 Monthly Wholesale Prices of Papaya

No reliable annual seasonal price data is available for Papaya.

4.4.1.3 Profit Potential Scenarios with Improved Production

Lifting the management level can result in a ROI improvement to 50% with startup costs paid back in one year.

Table 21. Profit scenarios – Papaya

Papaya	Units	**Baseline** Current Practice	**Improved Production Systems** Medium Management	High Management
Production Costs	rl/year/500m^2	500000	700000	900000
Start-Up Capital Costs	rl	200000	750000	1000000
Labor Input	days/year	15	20	30
Revenue	500m^2/year	738462	1200000	1963636
Gross Margin	rl/year	238462	500000	1063636
Gross Margin	%	32	42	54
ROI (1)- 3 yr depreciation @ 36% p.a.	**%**	**40%**	**48%**	**79%**
ROI (2)- Startup Cost Paid in 1 Year)		**31%**	**29%**	**47%**

4.4.2 Pineapple

Cambodian pineapple products are high quality, and are currently competitive with imports during the high-supply period of the year, albeit at an extremely low price. Because pineapple is a staple of restaurants—for juice and on all fruit plates—the opportunity to extend the pineapple production season is favorable, though potential margins and ROI are somewhat lower than for vegetable products, partially due to their low perishability, long shelf-life, and relatively low potential for post-harvest transport losses.

Existing Value Chain

The data collected indicated that Pineapple had the lowest return to farmer and other VC actors were making as-high profits.
Price commences at the farmer with 670 r/kg and sells to the end consumer for 2315/5100 for local and super markets, respectively. Profit margins are in the 20-37 % range with 67% for the Supermarket.

Table 22. Existing value chain – Pineapple

	Producer	Middleman	Wholesaler	Local Market Retailer	Supermarkets
Costs	See Below	752	1250	1850	1850
Market Price- RL/Piece	752	1250	1850	2500	5400
Post Harvest Loss %	11%	4%	8%	7%	5%
Net Price Received (Less PH Losses)- RL/kg	**669**	**1199**	**1710**	**2315**	**5130**
Value Added- RL/kg	669	447	460	465	3280
TRADITIONAL CHANNEL					
% Total Value Added	32.8%	21.9%	22.5%	22.8%	
Profit Margin %	N/A	37.3%	26.9%	20.1%	
SUPERMARKET CHANNEL					
% Total Value Added (Supermarket)	13.8%	9.2%	9.5%		67.5%
Profit Margin %	N/A	37.3%	26.9%		63.9%

4.4.2.1 Monthly Wholesale Prices of Pineapple

No reliable annual seasonal price data is available for Pineapple.

4.4.2.2 Profit Potential Scenarios with Improved Production

Profit potential is in line with Papaya, with a 50% ROI after start-up costs are repaid in first year.

Table 23. Profit scenarios – Pineapple

Pineapple		Baseline	Improved Production Systems	
	Units	Current Practice	Medium Management	High Management
Production Costs	rl/year/500m^2	395000	456000	580,000
Start-Up Capital Costs	rl	500000	1000000	1500000
Labor Input	days/year	15	20	30
Revenue	500m^2/year	976125	1402000	1955000
Gross Margin	rl/year	581125	946000	1375000
Gross Margin	%	60	67	70
ROI (1)- 3 yr depreciation @ 36% p.a.	**%**	**93%**	**104%**	**109%**
ROI (2)- (Startup Cost Paid in 1 Year)		**54%**	**52%**	**52%**

4.4.3 Watermelon

Watermelon is cultivated in Kompong Spoeu, Kompong Cham, Kompong Chhnang, and Takeo provinces, all of which are in reasonably close proximity to the Phnom Penh market. They are standard restaurant offerings in juices and on fruit plates. The peak season for watermelon production/harvest is following the rice harvest, when the are plentiful and very inexpensive. Domestic production cannot meet demand in wet season, particularly at the peak demand time of the Pchum Benh holiday in September when prices spike. CARDI is currently researching watermelon production, and new, more climatically adaptable watermelon varieties offer potential for extended production seasons. Particularly where production seasons are extended, early protection from aphid is required, and this would be a key extension need to improve smallholder outcomes in watermelon farming.

4.4.3.1 Existing Value Chain

Price commences at the farmer with 1360 r/kg and sells to the end consumer for 5900/6900 r/kg for local and super markets, respectively. For the data gathered, profit margins are in the 2-65% range, with the wholesalers (at least those interviewed) making a minimal profit.

Table 24. Existing value chain – Water melon

	Producer	Middleman	Wholesaler	Local Market Retailer	Supermarkets
Costs	See Below	1500	1900	5750	5750
Market Price- RL/KG	1500	1900	5750	6250	7300
Post Harvest Loss %	9%	3%	6%	6%	5%
Net Price Received (Less PH Losses)- RL/kg	**1362**	**1836**	**5388**	**5865**	**6935**
Value Added- RL/kg	1362	336	3488	115	1185
TRADITIONAL CHANNEL					
% Total Value Added	25.7%	6.3%	65.8%	2.2%	
Profit Margin %	N/A	18.3%	64.7%	2.0%	
SUPERMARKET CHANNEL					
% Total Value Added (Supermarket)	21.4%	5.3%	54.7%		18.6%
Profit Margin %	N/A	18.3%	64.7%		17.1%

4.4.3.2 Monthly Wholesale Prices of Watermelon

No reliable annual seasonal price data is available for watermelon.

4.4.3.3 Profit Potential Scenarios with Improved Production

Watermelon has a superior ROI to Papaya and Pineapple, giving 64% after startup costs are repaid in year 1.

Table 25. Profit scenarios – Pineapple

Water Melon		**Baseline**	**Improved Production Systems**	
	Units	Current Practice	Medium Management	High Management
Production Costs	rl/year/500m^2	90000	150000	220600
Start-Up Capital Costs	rl	800000	1500000	2500000
Labor Input	days/year	25	35	80
Revenue	500m^2/year	300000	1275000	2550000
Gross Margin	rl/year	210000	1125000	2329400
Gross Margin	%	70	88	91
ROI (1)- 3 yr depreciation @ 36% p.a.	**%**	**46%**	**136%**	**172%**
ROI (2)- Startup Cost Paid in 1 Year)		**18%**	**51%**	**64%**

5 Market-Based Solutions

The objective of this chapter is to analyze the key constraints of the Cambodian FFV value chain and to identify market based solutions to these constraints. The project has the relatively limited objective of identifying market-based solutions to improve smallholder participation in Phnom Penh's tourism-related FFV markets, and is specifically focused on improved linkages between producers and tourism-sector buyers who are interested in substituting locally-produced FFV products for currently imported products.

By focusing on (some of) the Cambodian market's most (potentially) demanding buyers, primary research conducted for this study has attempted to provide a basis for development of coherent, market-based interventions to serve the needs of these buyers. However, it should be understood that the ***principal requirements of working with identified tourism sector partners do not differ significantly from the basic requirements for market participation, which are currently beyond the reach of smallholders and market intermediaries alike***.

The general inability of smallholder FFV producers to participate in these markets is indicative of the overall limitations of Cambodia's FFV sector, and therefore not unique to the tourism sector's particular requirements. Smallholder participation in the national market as a whole is extremely poor, due to a number of inter-linked capacity limitations that must be addressed to permit *any* significant national participation in the FFV sector.

Similarly, the key constraints related to identified high-potential products are generalized and systemic, rather than product-specific. For this reason, Consultants presented in-depth quantitative data on the value chain in Chapter 3 rather than a repetitive inventory of generalized constraints that apply to the entire sector. Therefore, the constraints presented in this section focus on the overall limitations of the FFV sector discovered through the research process, while the prioritization of these constraints most relevant to the participation of smallholders in FFV value chains.

These key constraints were identified through a combination of primary demand-side and value chain research, through extensive review of studies on Cambodian agriculture, and through recent work of the consultants in the Cambodian agriculture sector in donor-funded and NGO-supported contexts.

5.1 Constraints and MBS Analysis Methodology

The TOR for this study focused on identifying potential partners for smallholder cash crop FFV that could benefit from SNV service packages. Consistent with the SNV value chain methodology, the study team focused on identifying key constraints in the value chain and market-based solutions to the obstacles to smallholder participation in more lucrative markets, particularly non-traditional and tourism-focused markets in Phnom Penh. The premise of this approach was/is that a limited number of binding constraints to smallholder participation in these markets could be identified, LCB's and other partners identified, and SNV service packages tailored to address these discrete constraints, resulting in the relaxation of key constraints and resulting in greater smallholder access to markets.

Pursuant to this approach, the consulting team undertook an analysis of the entire Cambodian FFV value chain using the SNV constraint-market-based solution matrix. However, the team recognized that this first round of analysis led to incomplete understanding of the complexity of constraints to a more competitive FFV chain with options for smallholder participation, and the importance of addressing limiting constraints in a sequence that could yield success where other efforts have failed.

As a result, in subsequent iterations of the Market-Based Solutions Matrix, the team divided the value chain into three distinct sub-systems: three domestic sub-systems of the chain: production, core supply chain activities, and marketing.[1] We then analyzed the constraints and market-based solutions related to each discrete sub-system in order to produce a properly sequenced intervention strategy for SNV that avoids the pitfalls of less successful past intervention efforts.

5.2 Key Constraints Analysis

The emphasis on tourism industry linkages resulted in initial focus of the study on the marketing system (subsystem 3)—particularly as it related to the available supply of FFV products to key buyers related to the tourism and high-value markets found in Phnom Penh. Several key needs, (outlined in Chapter 2 and explored in a later section of this chapter), emerged from this research, but the findings mainly served to highlight (1) the inability of Cambodian agricultural production to consistently meet domestic needs, and (2) the failure of wholesale FFV suppliers to build and maintain acceptable commercial relationships with key buyers. These wholesale FFV suppliers fail to meet the needs and expectations of tourism and high-value buyers in the current marketplace with respect to professionalism, quality and reliability, even while sourcing at least 70% of their FFV supply from *very consistently available* Vietnamese imports.

Even CEDAC, the largest agricultural NGO in Cambodia and a key partner in this study, indicated that their domestic organic vegetable supply system cannot reliably service hotel/restaurant FFV needs, and CEDAC is hesitant to begin marketing FFV to these buyers because of the risk to the CEDAC reputation related to being unable to deliver promised FFV goods.[2]

So, while value chain analysis presented in Chapter 3 suggests that strategies to connect smallholders to these markets could hold important financial benefits, SNV and partners cannot assist with marketing of products where domestic production capacity does not meet market requirements, or though a supply chain that buyers and wholesalers alike do not trust to meet delivery, quality, and consistency requirements. Thus, the project's focus must turn to related constraints of each sub-system of the market to assess where demand-driven interventions must begin.

5.2.1 Production (Sub-system A)

Years of donor and local NGO interventions have not produced results in the production arena. To date, the vast majority of donor-funded activities have addressed production issues, either through direct extension efforts or delivered through the local NGO sector. Despite this overarching emphasis, smallholder production continues to perform poorly. This conclusion, echoed in recent research

[1] A fourth sub-system, the FFV import system, was not addressed or diagnosed in the study due to the stated objective of import substitution. A better understanding of this system might be a useful strategy for joint research between SNV Cambodia and SNV Vietnam under the regional SHCC program.

[2] Project team discussion, October, 2008.

by ADI (2008) leads to an examination of the constraints of the market governance structures and systems of intermediation in the core supply chain of Cambodian agriculture (Figure 5).

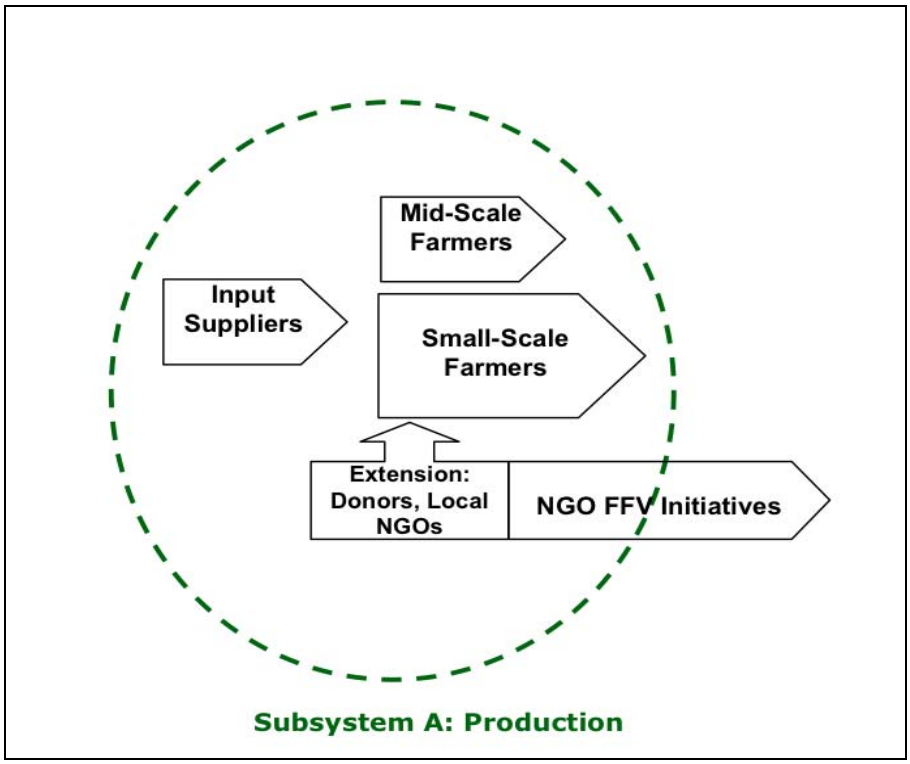

Figure 5. Production Sub-system

The average Cambodian farmer must contend with a group of constraints that limits their ability to develop their business and rise above the "subsistence plus opportunistic surplus" level. These constraints are :

1. Poor production and post-harvest technical skills leading to low quality and yield;
2. Lack of business orientation, poor connection with the value chain;
3. Uncertain access to credit and finance, particularly for long-term improvements in production systems;
4. Lack of trust between actors (relationships are basically exploitative);
5. Lack of market information, both related to price and product requirements;
6. Inability or unwillingness to implement production plans, even when advised by NGO or other more skilled actors.

The combination of these constraints means there is little opportunity for the farmers to gain knowledge to improve their production, and that production-focused solutions often fail to address off-farm constraints. However, if these constraints can be addressed, the profit potential analysis in Chapter 3 shows that there is good potential for economic benefit through improved incomes and high returns on investment.

Table 26. Market Based Solutions - Sub-System A.

Sub-System A: Production	**Possible Market-Based Solutions**	**Existing Providers of MBS**	
Primary Constraint		**For Profit**	**NGO/Donor**
Low production skill level of smallholders, who rely on generational practices or inadequate extension, resulting in low income from FFV and marginal participation in domestic FFV markets.	*(1) Improved product and production-related extension provided by NGO actors in FFV sector, focusing on highest-impact improvements in production using appropriate methods/technologies.* *(2) Expand wholesaler sector capacity to provide embedded extension services and production management (e.g. contract farming) to enhance/enable local smallholder FFV market participation* (5) Expansion of successful model, which has addressed organization and management of production issues.	Private Sector Agents- limited numbers and capacity	CAMIP through FMS- RCG Provincial Training Teams Agricultural Technical Services Assn' (ATSA)
Secondary Constraints			
Product Development & Technology			
NGO Extension networks do not have professional attitude towards FFV supply	Professionalize NGO extension efforts with a focus on awareness of market demand and commercial standards		PUAC AQIP
Governance 4 Empowerment			
Sector lacks effective commodity groups or sector representation	(3) Strengthen farmer associations and commodity groups	None	None
Variable contribution to family income from NGO-supported introduction of organic production.	*(2) Expand wholesaler sector capacity to provide embedded extension services and production management (e.g. contract farming) to enhance/enable local smallholder FFV market participation.*	PSAs (3-4)	PUAC Agricultural Technical Services Assn' (ATSA)

Infrastructure			
Lack of irrigation prevents year-round production by smallholders.	(8) Smallholders adopt appropriate irrigation technology: -to implement year-round production -to supply specific, high-margin FFV products -to maximize efficient use of available water	-Private Pumping Businesses -Ideas At Work (Rope Pump Irrigation)	NGO Sector
Input Supply			
Smallholders have low skill in optimizing input resource use.	*(1) Improved product and production-related extension provided by NGO actors in FFV sector, focusing on highest-impact improvements in production using appropriate methods/technologies.*	PSAs (3-4)	PUAC Agricultural Technical Services Assn' (ATSA)
Input supply is of variable/low quality.	Improve linkages between importers/brand owners and farmers/farmer groups Input quality assurance performed by knowledgeable agronomists	Input importers and brand owners PSAs (3-4)	ATSA AQIP

5.2.2 Core Supply Chain (Sub-System B)

Smallholder cash crops tend to be moderately- to highly-perishable horticultural products. Particularly where these products need to travel beyond the production area to reach markets that differ significantly from local markets (as in the case of the Phnom Penh tourism and other high-value markets), a relatively high degree of value chain coordination is required. The team describes the system that comprehends production, transport, and wholesaling as the "core FFV supply chain" (Figure 6).

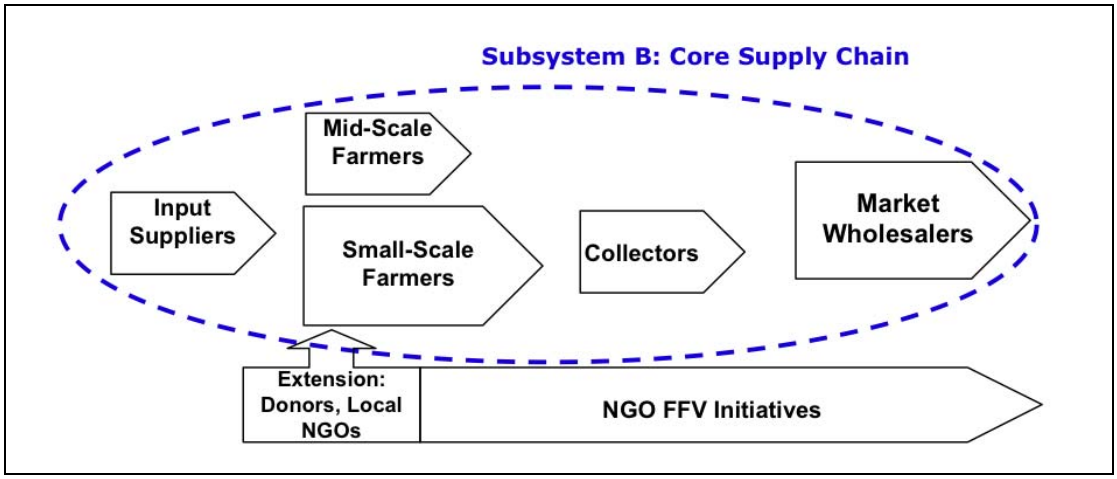

Figure 6. Core FFV Supply Chain

The most important constraint in Cambodian FFV core supply chain is the near complete absence of mutually-beneficial and rationally-managed coordination between production, transportation, wholesaling, and final markets/buyers, a function typically played by a leading wholesaler**.** Currently, no private sector actors possess the combination of skills required to support the technical, managerial, and logistical aspects of coordinated agricultural production among smallholders required to effectively serve the Cambodian FFV market.

While farmers need technical help to improve their techniques for addressing the quantity/quality/continuity combination, their connection with the market must be solidified to create a steady improvement in their understanding of the benefits of producing higher quality outputs (and the disadvantages and penalties associated with producing low quality).

A related constraint is the lack of focal points in the value chain, that provide interventions with access to large volumes of actors further down the value chain. In contrast, in the rice sector an intervention with a small commercial miller provides access to, on average, 500 farmers. Given the highly distributed, disconnected and small nature of Fruit and Vegetable actors, it is difficult to find these focal points. Thus, market-based solution development must rely on a relatively fragmented network of well-connected wholesalers and NGOs with established producer networks in order to identify appropriate candidates for interventions. The integration of these efforts into a more commercial, value chain-driven context should be a high priority of any intervention.

Table 27. Market Based Solutions - Sub-System B

Sub-System B: Core Supply Chain	**Possible Market-Based Solutions**	**Existing Providers of MBS**	
Primary Constraint		**For Profit**	**NGO/Donor**
Lack of domestic value chain coordination, organization and management undermines FFV sector competitiveness and creates import vulnerability.	*(2) Expand wholesaler sector capacity to provide embedded extension services and production management (e.g. contract farming) to enhance/enable local smallholder FFV market participation*	Private Sector Agents (PSA) Foreign FFV supply consultants	PUAC*
Secondary Constraints			
Organization and Management			
Most FFV wholesalers only fulfill a collection or purchasing role, and are not empowered to play needed coordinating roles in the FFV production system. They therefore rely on imported products.	**Expand wholesaler sector capacity to provide embedded extension services and production management (e.g. contract farming) to enhance/enable local smallholder FFV market participation.*	PSAs Foreign FFV supply consultants	PUAC* Agricultural Technical Services Assn' (ATSA)
Lack of commercial orientation and skills in NGO FFV efforts	*Improved product and production-related extension provided by NGO actors in FFV sector, focusing on highest-impact improvements in production using appropriate methods/technologies.* NGO Professionalization: Expansion of successful PUAC model, which has addressed organization and management of production issues.	PSAs Foreign FFV supply consultants	PUAC
Market structure does not communicate standards, high-demand product needs and potential economic rewards to small producers.	**Expand wholesaler sector capacity to provide embedded extension services and production management (e.g. contract farming) to enhance/enable local smallholder FFV market participation*	PSAs Foreign FFV supply consultants	PUAC*
Lack of post-harvest storage and transportation infrastructure (related to practices) causes significant quality degradation and loss of FFV product(s).	*Promote improved trader/wholesaler post-harvest FFV handling* Support development of cold-chain through investment in lead buyer.	Supermarket/retailer	FMS Delivery (CAMIP, etc.)

Access to Finance			
Major tourism-related FFV buyers require 1 month credit, while smallholders require regular (daily/weekly) payment.	Enhance capacity for (embedded) value chain credit, focusing on the organizing entity (farmer group, NGO, private entrepreneur etc).	Wholesalers Banks MFIs	PUAC

5.2.3 FFV Marketing System (Sub-System C)

Key findings regarding the weaknesses of the FFV marketing system as it relates to the needs of tourism sector buyers are outlined in Chapter 2 of this report. Yet, it is important to re-iterate the core finding of this analysis here: The tourism-facing FFV marketing system is characterized by poor quality wholesale relationships due to unprofessional and untrustworthy supplier behaviours among FFV wholesalers. This is the primary constraint in the marketing sub-system.

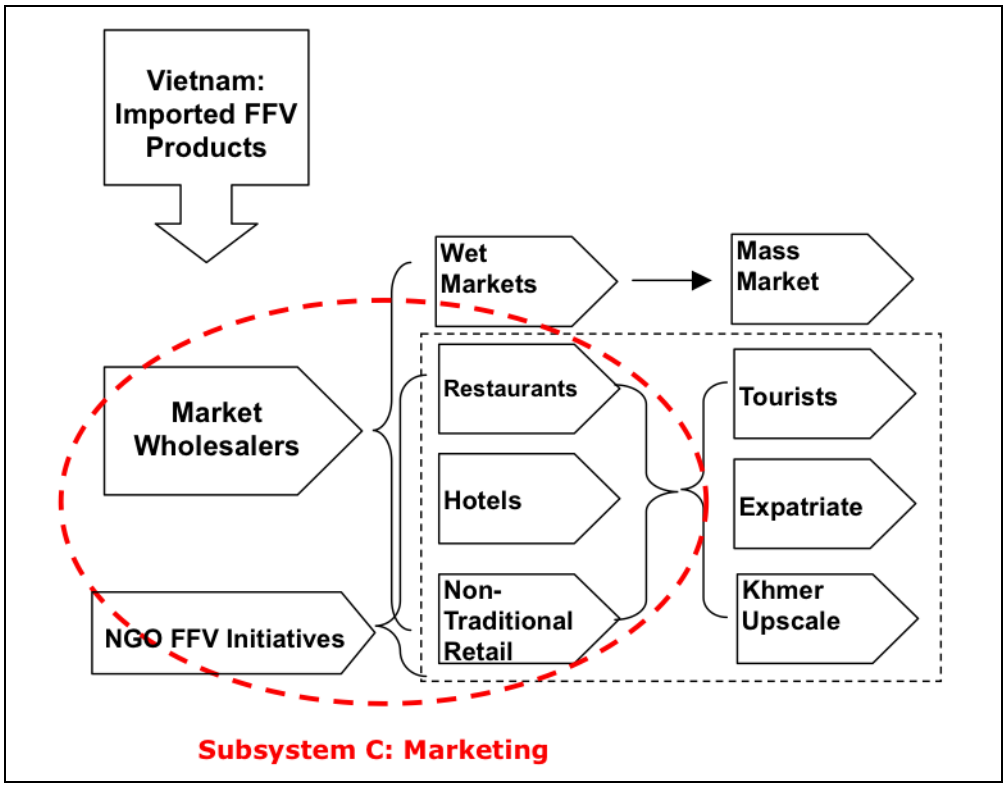

Figure 7. Marketing Sub-system

Nearly 100% of respondents indicated strong dissatisfaction with current wholesale arrangements, wholesaler business practices, which have led them to develop a range of coping strategies to ensure quality supplies in light of dishonest, corrupt, and unprofessional wholesaler behaviors. These include:

i. Tendering out FFV orders monthly to deter price shifts
ii. Purchasing large volumes in retail markets on a daily basis
iii. Hiring buyers to purchase daily FFV needs in markets
iv. Hiring and supervising price-checking teams to regularly monitor current market prices and conditions.

All of these coping strategies result in significant overheads, or 'transaction costs' for tourism buyers in FFV markets.

It deserves mention that the major exception to wholesale complaints is PUAC, a Belgian-Supported NGO contract farming operation offering approximately 20 "non-certified organic" products serving the expatriate and tourism market very effectively.

The accompanying table outlines the primary constraint as well as secondary constraints and potential market-based solutions to each. Secondary constraints principally relate to the absence of agreed-upon product standards and enforcement mechanisms for these standards. While these are potentially appropriate targets for interventions, it is unlikely that solutions to the secondary constraints could be effective without first addressing the primary constraint.

Table 28. Market Based Solutions - Sub-System C

Sub-System C: Marketing	Possible Market-Based Solutions	Existing Providers of MBS	
Primary Constraint		**For Profit**	**NGO/Donor**
Wholesalers of FFV products have poor understanding of (and sensitivity to) customer requirements, undermining trust and preventing long-term supply relationships.	*Provide wholesalers with business and relationship management skills to improve market-serving strategies towards key buyers.*	Private Extension Agents (3-4)	CAMIP through FMS- RCG Provincial Training Teams Agricultural Technical Services Assn' (ATSA)
Secondary Constraints			
Market Access			
Lack of ***organized*** focus on FFV quality by high-value buyers and buyers groups.	Encourage adoption of voluntary standards (e.g. ASEAN GAP) and product grades by buyers' groups, tourism industry stakeholders.	None	Friends Hospitality Training Services
Regulatory (Policy)			
Lack of official product standards for quality and safety.	Encourage adoption of voluntary standards (e.g. ASEAN GAP) by buyers' groups, tourism industry stakeholders.		
Lack of government enforcement capacity for quality and safety standards	NO SOLUTION IDENTIFIED	N/A	N/A
Lack of capacity for testing of FFV safety. Government testing facilities underutilized and dormant; Private capacity not utilized	(10) Encourage development of private FFV testing capacity in local stakeholder (commercial or NGO)	Private medical laboratories	Food Service Stakeholder NGOs (i.e. Friends Hospitality Training Service)

5.3 Inter-relationship of Constraints and Market-Based Solutions

Because of the inter-related constraints to the three sub-systems of the value chain, the project team has examined both the probability of individual solutions ability to address the related constraints faced by the sector. Table 29 outlines our findings related to the potential of each market-based solution pathway to directly or indirectly address the primary constraints of the other sub-systems that must be in operation to support sustained improvement.

Table 29. Constraints and MBS

Sub-System Constraint	MBS Pathway	Likely Impact on Related Sector Constraints		
		A. Production	**B. Core Supply Chain**	**C. Marketing System**
A. Production	Improve farm-level production	Direct	None. Does not resolve market intermediation issues	None. Does not resolve marketing or wholesaler issues
B. Core Supply Chain	Wholesale sector as contract farmers	Basis for wholesalers to become involved in local production	Direct	Basis for predictability in relationships with buyers
C. Marketing	Wholesale business skills improvement	None: Favors imports if Core Supply Chain issues not addressed	Low: Favors imports, does not resolve production issues	Direct

As the matrix shows, the highest potential solution pathway relates to addressing the primary constraint of the Core Supply Chain (sub-system B), since it holds the potential to address other constraints in an integrated manner. Addressing the primary constraint in the Core Supply Chain (sub-system B) *may* result in improvements to the Production System (sub-system A) and the Marketing System (sub-system C), since a more integrated coordination role by domestic wholesalers implies a market-based interest in both producer performance and successful marketing. However, companion activities focused on the Marketing System would enhance this initial focus, particularly if they are focused on organizing the demand side to deliver clearer signals regarding quality and service expectations that are communicated effectively through the core supply chain.

Addressing the primary constraint in the Production System (sub-system A) would not address the deficiencies of the Core Supply Chain (sub-system B), or in the Marketing System (sub-system C), since the key impediment to agricultural success is the lack of constructive linkages of producers to markets, and the absence of required information flows through the value chain.

Addressing the primary constraint in the Marketing System (sub-system C) on its own would not address the deficiencies of the Production System (sub-system A), and has a low probability of motivating value chain actors to address Core Supply Chain (sub-system B) issues, since imported products remain available and dominant. In fact, a narrow focus on the Marketing sub-system might produce good results for the tourism

industry, but would likely result in fortification of commercial import relationships, reducing the prospects for Cambodian smallholders.

Most donor interventions to date have focused on developing interventions that directly impact the largest number of beneficiaries, and therefore have been drawn to production-focused interventions (Figure 8). However, the lack of progress in Cambodian agricultural development over the past decade clearly indicates that production-focused interventions that are not focused on the development of a better-coordinated core supply chain have *very low development impact*.

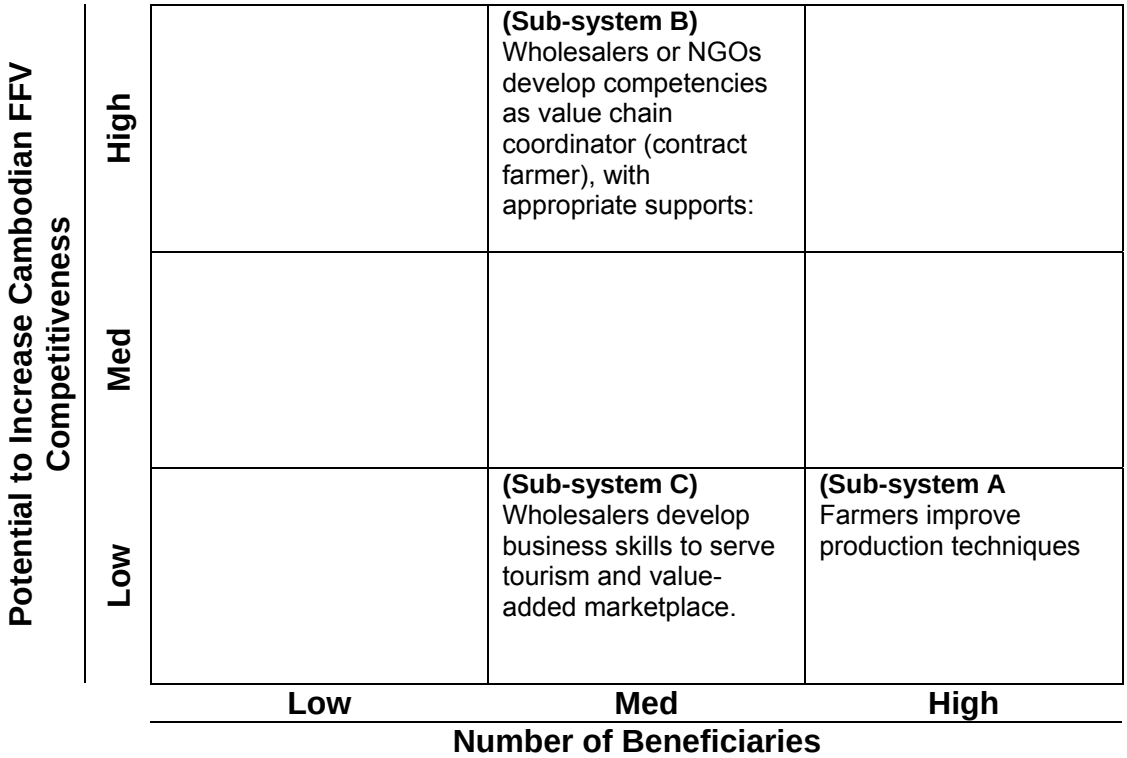

Figure 8. Impact Matrix for Intervention Pathways for Three Sub-Systems

The analysis in this chapter points to a set of intervention options for SNV that focus on rationalization and management of the core supply chain through empowering the wholesale sector to work with farmers and with buyers more effectively. These intervention options are outlined in Chapter 5.

6 Assessment of Market-Based Solutions, Intervention Pathway, and Action Plans

This chapter outlines a two component intervention pathways for SNV to consider to better link smallholders to Cambodian FFV markets. These focus on the development of value chain coordination systems, either through support for small commercial or NGO-sector upgrading, and on organization of key buyers to influence supply quality. In this chapter, the feasibility of proposed market-based solutions, intervention strategy, and step-by-step action plan, basic criteria for monitoring and evaluation, and an assessment of pro-poor market impact are presented.

6.1 Market-Based Intervention Approaches in Cambodia

The study process has led consultants to conclude that while many of the features of a productive SNV intervention may be consistent with the Action for Enterprise (A4E) methodology, the sector suffers from capacity limitations that are not possible to address through exclusive use of existing market-based solution providers.

The consultants believe that a combination of targeted market-based based interventions and market-based capacity building interventions in the Cambodian agricultural services sector hold the potential for SNV interventions that ultimately result in better, more inclusive functioning of the market. However, SNV must acknowledge the sector's fundamental capacity limitations and accept two deviations from its standard intervention parameters:

(3) Improvement of the core supply chain must serve as the basis for all other smallholder-based interventions in FFV marketing or production.

(4) SNV will necessarily be involved in creating (or incubating), rather than enhancing, a workable commercial FFV supply chain.

Development impacts should be thought of in terms of development of a market-based model of value chain improvement that serves to demonstrate to other donors and the private sector that improvement is possible, with benefits to the whole FFV value chain and a quantum leap forward for unskilled, poor farmers.

This is consistent with the findings, in 2008, of two major development investors (donors) who have attempted to deal with the entire variety of constraints in the FFV sector and have abandoned, postponed, or reconsidered these efforts due to the complexity and size of the issue: thousands of small family businesses with the total absence of effective focal points for engagement, and the dearth of capable private-sector providers of embedded and commercially viable services. This includes USAID MSME-2 project and IFC SME Value Chain Development Initiative. In addition, AusAid CAVAC has been in diagnosis mode for over three years and has yet to reach a consensus among stakeholders regarding plausible directions for intervention.

If, on the other hand, SNV is limited to a strict or dogmatic adherence the A4E approach to private sector development, the consultants do not recommend a SHCC-focused intervention. The dearth of competent market-based solution providers in Cambodia, the lack of a tradition of employing the necessary professional services required to transform the sector, particularly where smallholders are involved, as well

as the ongoing failure of NGO efforts to create change in the sector, makes narrowly market-based interventions impractical.

6.2 Market-Based Solutions Recommendations and Evaluation

The consultants have designed and evaluated two components of a market-based solutions package, which constitute our recommended intervention strategy. These are (1) Wholesaler-led contract farming systems; and (2) buyer-participation in codification of product standards. These MBS components are evaluated in this section, while an integrated action plan is presented in section 5.3.

6.2.1 MBS Component 1: Focusing Development of Core Supply Chain through Wholesaler-Led Contract Farming Systems

MBS Component 1 outlined and assessed in this section relates to developing and incubating a more widespread contract farming system through a program focused on the development of existing private sector wholesalers in the Phnom Penh area as contract farmers (Table 30).

Contract farming systems can take many forms. In their most basic mode, an agreement is made between a contractor and a producer (farmer) for the supply of produce at a particular time, price, and quality. Taken to the most advanced form, the contractor employs a package approach to achieve the production objectives. The package may include :

i. Technical services to ensure implementation of best practices. The services could be provided by the contractor, full time extensionist, or intermittent consultant.
ii. Prescribed inputs, seed etc
iii. Credit
iv. Price insured against weather disaster or external market fluctuations
v. Bonus system
vi. Social investments – health, education etc.

For the contractor, the CFS addresses the following additional constraints :

1. Supply continuity
2. Supply chain logistics and post harvest handling
3. Small land size - scale volumes
4. Poor post harvest handling
5. Control over standards

What is common to most or all contract farming systems is the key role of a single firm as the coordinating entity, or lead firm. We anticipate that if properly implemented, this solution can introduce the required management and coordination of the value chain on a limited, pilot basis, and provide a demonstrable example of the power of this solution.

The CFS package needs to be attractive enough to guard against another constraint in Cambodia – the lack of legal contract protection. This is where the contract/package replaces trust in the initial stages of the business relationship. As the benefits of the relationship become apparent to the farmers and farmer commitment is demonstrated

to the contractor, the balance between trust and formal contract should shift towards the former.

The best example of contract farming in Cambodia is British American Tobacco (BAT). BAT employs all of the package components outlined in this section. They also employ penalties such that if a farmer defaults on a contract in one year, then they will not be welcomed back in the future.

The Peri-Urban Agricultural Centre in Kampong Speu is one of the very few groups in Cambodia to sustainably produce vegetables year round. Once again, they employ a grower selection process, strict contracts, backed-up by intense extension visits to ensure the resulting production is the market required quality. Over time they have developed a tight management structure that supports a rapid and effective feedback loop, from buyer to marketing unit to production unit to farmer and back (Figure 9). This organisation allows them to synchronise planting, harvesting, and buyer ordering, year round. The proof is 68, long term, satisfied customers. Another lesson is water availability for irrigation. PUAC makes water availability a condition of membership.

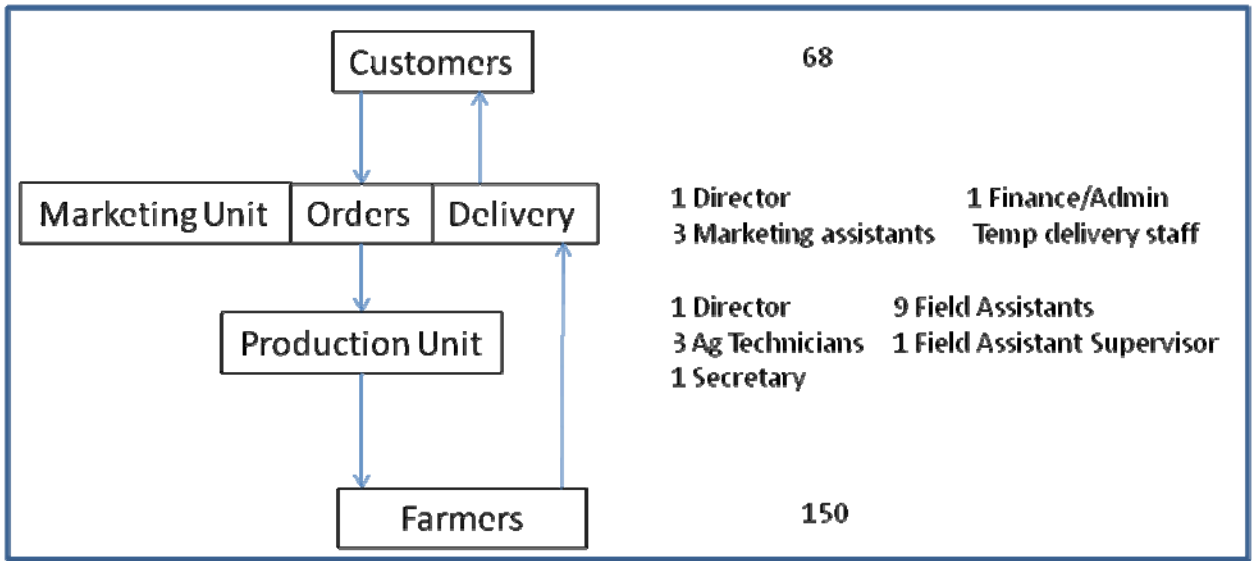

Figure 9. PUAC management structure

A few wholesalers in Cambodia have taken on the responsibilities of contract farmer. Mrs. Channy, a vegetable wholesaler in *Psar Takmao* market contracts 30 farmers in the Sa'ang area. She has had a relationship with the farmers for the past 10 years, and so trust levels are good. She provides extension information and moves constantly among the farmers to ensure quality of outputs. To further seal the trust of the contract, she buys the crop prior to harvest, greatly reducing the risk to the farmer. A recent example demonstrated the power of this relationship was demonstrated by early rains in 2008 which destroyed the cauliflower crops of her contract farmers. However, she still paid for the produce as this was the contract condition. Because the farmers are aware that any loss in the system can also affect them, they will sell the 2 subsequent crops to Mrs. Channy at a discount. This demonstrates an excellent relationship that has developed past the short term, *financial* relationship into a more mature *trust* relationship. It is recognition that their joint success relies on the relationship working well. Developing more of this kind of wholesaler-coordinated supply systems is the main focus of the recommended intervention strategy for SNV, and a difficult but attainable aspiration for the Cambodian agricultural industry.

Table 30. Evaluation of MBS Component 1: Core Supply Chain Intervention

Empowering Wholesale Sector to Coordinate the Core Supply Chain through Contract Farming
Value Chain Constraint (that the market based solution addresses)
Primary: **1**. Lack of domestic value chain coordination, organization and management undermines FFV sector competitiveness and creates import vulnerability **2.** Low production skill level of smallholders, who rely on generational practices or inadequate extension, resulting in low income from FFV and marginal participation in domestic FFV markets. **Secondary** : 1. Most FFV wholesalers only fulfil a collection role, and are not empowered to play coordinating roles in the FFV production system. They therefore rely on imported products.
Existing or Potential Solution Provider(s):
No existing solution provider fits the criteria for all required training and technical assistance to the wholesaler sector. • **Semi-commercial vertically integrated FFV suppliers** • **Private sector specialist extension providers** • **Donor-Funded Projects with market-based emphasis** • **Private sector input sellers/extension providers** • **Business skills and customer service training organizations** • **Appropriate technology Irrigation equipment providers** • **National Biodigester Program Slurry Extension Staff**
Constraints to Providing the Market based Solution (by type of Provider):
Semi-commercial vertically integrated FFV suppliers The number and level of development of the existing providers is low (1 identified) **Specialist Ag Extension Providers** Scarcity of qualified personnel, over-booking of qualified providers. Lack of understanding of market requirements. **International Providers**: Same time and motivation constraints exist as for any service provider. **Donor-Funded Projects with market-based emphasis** No constraints **Input Providers** Highly variable skill and knowledge, uncertain supply, and uncertain commitment to indirectly remunerated activities. **Business skills and customer service training organizations** Limited capacity **Professional Marketing Staff** No constraints identified. Marketing staff highly sensitive to commercial needs. **Appropriate Irrigation Equipment Providers** Limited to NGO and semi-NGO sector. No currently viable fully commercial sector. **NBP Program Slurry Extension Staff** Biodigester users are not, in general, very poor farmers. **Appropriate technology Irrigation equipment providers** Limited technical ability of service providers **National Biodigester Program Slurry Extension Staff** No constraints identified.
Commercial Feasibility of Market based Solution (by type of Provider):
The MBS solution will benefit the wholesalers by giving them access to (and more control) over higher quality produce. Farmers will benefit from improved production and post-harvest skill sets. The initial partner interviews demonstrated high overhead costs borne by the buyers in dealing with the under-performing wholesale sector. Producing robust relationships between wholesalers and buyers will have direct commercial benefit in reducing these costs. **Semi-commercial vertically integrated FFV suppliers** Commercially viable if solution provider serves as principal marketing channel. **Professional marketing staff** Commercial feasibility (ability to support) depends on alignment of production management with market needs. **Specialist agricultural extension providers**

Commercial feasibility (ability to support) depends on alignment of production management with market needs. In appropriately priced model, can be self-supporting within 3 years.
International Providers: Seen as short term input of high level expertise
Donor-Funded Projects with market-based emphasis
Not bound by commercial viability.
Input providers
Supply of high-quality inputs is variable. As a result, market failures in input markets may limit provision of appropriate inputs. Only a few appropriate providers.
Business skills and customer service training organizations
Probably not commercially viable given target client base. Requires direct support. May be co-funded.
Appropriate technology Irrigation equipment providers
High: ready market for product development and testing
National Biodigester Program Slurry Extension Staff
Not bound by commercial viability

Constraints to Accessing/Using the Market based Solution:

The low number of wholesaler entities in this sector leads to a risk of non-availability or distracting them from their current core-business.

Proposed Providers of Market based Solution to Target for Interventions (including their incentives to provide the solution):

Semi-commercial vertically integrated FFV suppliers
Peri-Urban Agricultural Centre (PUAC) – PUAC has developed an integrated value chain in PUAC. Their major constraint is a limited network of farmers to source produce. The PUAC business plan to achieve longer term sustainability includes partnering to increase their sales volumes. PUAC has the most comprehensive model of extension, production/harvesting planning and marketing in Cambodia.
Private sector specialist extension providers
Agricultural Technical Services Association (ATSA) – a fledgling extension organization with a collection of well-respected ex IPM (DANIDA) staff who are also transitioning into a private entity. ATSA is actively seeking more market based clients.
International Providers: Fresh Studio and Swift Co.
Private Sector Agents- The income of a PSA is strongly linked to that of their client farmers. Any opportunity to improve productivity and profit benefits their relationship, reputation and profit.
Donor-Funded Projects with market-based emphasis
Cambodia-Canada Agricultural Market Information Project (CAMIP) developed and owns "Farmer Marketing School" curriculum and is developing complementary "Trader Business School" that should form part of the wholesaler training curriculum.
Private sector agricultural input providers
Garden Shop (Phnom Penh)- High quality seed and input provider and private extension "shop."
May explore expansion of operations to peri-urban Phnom Penh locations in combination with other distribution channels.
Business skills and customer service training organizations
Business Skills Providers: CIEDC—as an SNV partner, CIEDC is prepared to develop appropriate service offerings in collaboration with National Advisor on Rural Enterprise Development.
-Additional private providers possible.
Appropriate technology Irrigation equipment providers
Ideas at Work- incentive to convert existing rope pump technology to agricultural production uses
IDE-
The Garden Shop- High quality seed and input provider and private extension "shop" (location)
National Biodigester Program Slurry Extension Staff: Core program mission

Key Development Risks:

1. Identifying a subset of wholesalers who see benefit in increasing their involvement with the value chain.
2. Overcoming the current distrust that exists between buyer and wholesaler
3. Successfully demonstrating to farmers, the benefits of a closer relationship with wholesaler
4. Ensuring that benefits flow to the farmers

6.2.2 MBS Component 2: Organization of Key Buyers to Influence Supply Quality

Interventions on the demand (buyer) side of the FFV market do not, on their own, hold great promise for improving smallholder conditions. Implemented in conjunction with a core supply chain development strategy, however, organization of key buyers from non-traditional segments of the FFV market is a low-cost way for SNV to enhance the overall intervention package (**Table 31**).

A well organized supply chain provides supply (down the supply chain) and communicates information about market requirements to producers and input suppliers (up the supply chain). Through MBS component 2, SNV can facilitate the transmission of better information about tourism-focused and non-traditional retail FFV demand and needs, and build better habits among participating wholesalers of more structured/organized communication with buyers.

Table 31. Evaluation of MBS Component 2: Organizing Key Buyers

Organizing Key Buyers to Influence Supply Quality
Educate key buyers on quality grading standards and definitions; organize key buyers to participate in setting and validate quality grading standards for FFV Products.
Value Chain Constraint (that the market based solution addresses)
Primary: Wholesalers of FFV products have poor understanding of (and sensitivity to) customer requirements, undermining trust and preventing long-term supply relationships. Secondary: (1) Lack of organized focus on FFV quality by high-value buyers and buyers' groups (2) Lack of official product standards for quality and safety.
Existing or Potential Solution Provider (s):
SNV Cambodia can provide facilitation for buyers' groups as a market organization activity. CAMIP Project can assist with local/regional grading and product standards information. PUAC or another FFV provider should participate as a marketing/market development activity. Market wholesalers involved in SNV training activities.
Constraints to Providing the Market based Solution (by type of Provider):
None
Commercial Feasibility of Market based Solution (by type of Provider):
Feasible and closely related to core mission of each provider.
Constraints to Accessing/Using the Market based Solution:
Buyers must be convinced of seriousness of effort in order to participate.Scheduling issues must be considered in working with FFV wholesalers.
Proposed Providers of Market based Solution to Target for Interventions(including their incentives to provide the solution):
Closely related to core mission of each provider.
Key Development Risks:
Commercial sector may resist development of higher product quality standards. Loss of credibility for SNV efforts if standards development is not followed-through with action through MBS1 or other mechanism.

6.3 Intervention Strategy

As suggested by the evaluation of two MBS components the consultants recommend a two-pronged intervention strategy for SNV aimed at (1) transformation of a limited number of Phnom Penh-area FFV wholesalers into strong coordinators of the FFV value chain through contract farming; and, (2) organization of key buyers to provide input into and feedback on development of product standards.

The diagram describing the intervention strategy linking with the value chain is presented in Figure 10.

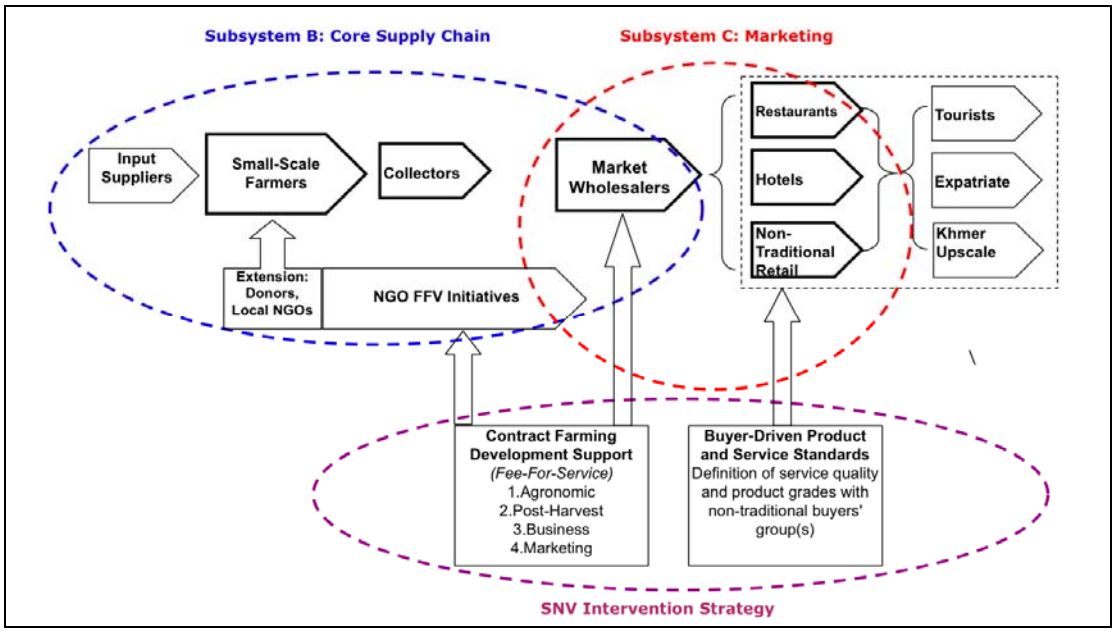

Figure 10. Proposed SNV Intervention Strategy

The benefits to poor farmers are a sustained improvement in their technical skills, perceptions and ability to engage with the market. Benefits for the poor are achieved through each of the value chain actors as described in Table 32.

Table 32. Intervention Targets, Purpose, and Benefits to Poor Farmers

Intervention Targets	Intervention Purpose	Benefit to Poor Farmers
Wholesalers	Build capacity to coordinate domestic FFV value chain through contact farming	Production management and connection to markets through contract farming system, resulting in improved productivity, competency, and incomes.
Tourism-focused and non-traditional buyers (Partners)	Build consensus on product quality requirements, standards. and grades	Through contract farming relationships, farmers receive actionable information to guide market-based production choices, resulting in higher and more stable incomes.
Service Providers	Facilitate wholesaler skill and capacity building and support farmer upgrading	Market-driven, production-related services improve farmer capacity and productivity.
NGOs	Build rural NGO capacity to support *market-driven* agricultural production among supported farmers within contract farming systems	Inclusion of additional farmers who do not have existing relationships with wholesalers; build local expertise to support farmers' in making better commercial farming decisions and executing plans.
Farmers	Link farmers to more demanding Phnom Penh markets through contract farming systems that provide appropriate extension, skill development, planning, and production systems	Improved participation in domestic supply chain, technical and commercial skill development, improved productivity, higher, more stable incomes, capacity for investment in upgrading production systems.

6.4 Intervention Strategy Component 1: Support Contract Farming System Development

The objective of this intervention is to develop the capacity for value chain coordination and active management of smallholder farming systems by wholesalers who are motivated by their own profit and business growth to work with Cambodian smallholders. The consultants strongly believe that without drastically improved *supply-chain based* linkages, Cambodian smallholders cannot effectively participate in the market.

SNV should support a selected group of approximately ten Phnom Penh-based wholesalers in developing capacities and skills necessary to manage contract farming systems that produce agricultural products to meet domestic market demand. Training, development, and mentoring/coaching on technical, commercial, financial, and operational aspects of the business will be required with limited capacity for cost-sharing in the initial phases.

Wholesalers should be chosen based on their ability to assemble a network of approximately 25 poor or non-wealthy farmers with whom they will work throughout the intervention period. This, along with a willingness to assume part of the cost of training and development, should constitute a significant portion of the wholesaler selection process.

Wholesalers should be provided with appropriate services from Cambodian for- and non-profit service providers to support initial development and ongoing improvement of the contract farming systems. Because of the limited domestic capacity to support market-oriented production in Cambodia, both national and international resources must be deployed to train service providers in the set-up phase, with considerable expense to SNV.

The intervention strategy must reach farmers ***through the core supply chain*** in order to achieve success and sustainability. SNV and its partners must resist the migration of this strategy towards direct, farmer-focused interventions, lest they contribute to the continued polarization of the value chain and existing anti-commercial sentiment among farmer-facing NGOs and community-based organizations. The identification of wholesalers and development of their "proprietary" farmers' networks must be the primary focus on operations until such time that SNV is satisfied with the outcome. It would be more productive for SNV to spend two years on this process than to rush into relationships with national or international NGOs that are not firmly grounded in the commercial reality of the Cambodian supply chain.

To ensure that the model reaches the maximum number of appropriate farmers, SNV should also engage the ***farmer-facing NGO community*** that has an interest in moving towards market-based agriculture. This can create a second focal-point for intervention (in addition to wholesalers). However, the strategy must view NGOs and other farmers' groups as potential participants in wholesaler-led contract farming systems, not as intervention targets in their own right. The objective of engaging NGOs is to reach more farmers to include in wholesaler-led contract farming systems, support their participation and improved capacity through technical and commercial skill development, and to develop support systems for long-term, market-driven partnerships between farmers and other commercial actors.

6.4.1 Core Intervention Strategy Component 2: Organizing Key Buyers

SNV should regularly convene key buyers in the Cambodian tourism-facing and non-traditional retail sectors, beginning with those businesses identified as partners in Chapter 2 of this study, to build stronger participation of buyers in standards-setting for Cambodian agriculture. While the contract farming-oriented intervention of Component 1 might function without this activity, it is unlikely that FFV products would reach these markets without explicit efforts to inform supply chain actors of the needs of these key buyers. Component 2 also provides a platform for relationship development between wholesalers and buyers, which is necessary to overcome the deep mistrust that buyers hold for wholesalers.

Key activities of this component include education of buyers on the standards-setting process, reaching agreement on product standards, and providing feedback to wholesalers, extension agents, and ultimately to farmers, through a structured, regular process.

This intervention should be facilitated by SNV national and international FFV advisors, supported by regional SNV staff with experience in developing product quality and grading standards, and performed, where possible, in conjunction with the CAMIP project. CAMIP is in process of collecting and integrating the existing wholesale product standards in provincial markets of Cambodia, and there is a clear opportunity for mutual benefit between the two projects in integrating buyers' opinions and needs into national grading standards.

6.5 Intervention Action Plan

The intervention plan is built around three stages and five groups of actors or intervention targets, as outlined in the table above, and is conducted in three phases, the third of which is ongoing throughout the duration of SNV intervention. Figure 11, Figure 12, and Figure 13 on the following pages outline the intervention strategy by intervention target, phase, and sequence.

6.5.1 Stages of Intervention

The first stage of intervention is the Liaison/ Selection phase. The main task in this phase is to revisit the main actors identified during the analysis, check any changed situations in the intervening period, and clarify project terms of reference. This is also the time to start the process of selecting those actors identified during the analysis such as service providers, wholesalers, farmers, and collaborating NGOs. Several service providers are required for both the capacity building and operational components of the project.

The second phase is Capacity Building. The capacity of each of the intervention targets requires building in certain areas to ensure all are at a certain basic standard to then take on their responsibilities under the project. The connection of agronomic with business/marketing skills is a key output of this project. However, few local service entities are able to provide these without additional training, which SNV must be prepared to facilitate. Capacity building will remain a constant part of the project from inception to completion, and will also set up systems to ensure the actor's knowledge remains connected with current best practice. However, the initial capacity building period should be planned for the period of time prior to initial plantings under contract farming arrangements.

The third phase is On-going Operations. In the initial part of this phase, the first crops will be grown and produce will start to flow through the newly enhanced value chains. The feedback loops will be tested and adjustments will be made. After the initial period, the relationships should settle into a standard mode of operation, and the focus will shift to robust service and monitoring of clients, producers, costs, and new information. All the information channels will be organized to contribute to continuous improvement.

OVERVIEW/MAP OF ACTION PLAN: TARGETS, PHASES, AND STEPS

Intervention Target	Intervention Phase: Liaison / Selection	Capacity Building	Operations
Buyers	**1** Key buyers identified in scoping study Convene meeting to build support for core product and service standards Clarify long-term participation arrangements	**6** Education on FFV Quality/Grading Standards Development of agreed-upon product standards with wholesalers	**10** Buyer feedback on initial crops
Service Providers	**2** Outreach to identified service providers Indications of interest in LT collaboration Capacity and Interest Assessment Performance-based contracting	**3** Capacity development for service providers on (1) agronomics and production (2) business (marketing) approaches to commercial agricultural development	**9** Supervise initial planting Feedback mechanisms Continuous improvement development
Wholesalers	**4** Develop selection criteria for collaborators List of potential wholesalers through network Open canvasing at key wholesale FFV markets Convene promotional event to inform wholesalers of program, costs, and benefits **Indications of interest and application process** **Final selection of Wholesale Collaborators**	**7** Analysis of wholesalers' business systems Contract farming management training GAP Training Farmer Marketing School Training Marketing/ Customer Skills and Feeback Training Systems Development	**9** Production scheduling Supervise initial planting Supervise growing Supervise harvesting Mentoring/continuous improvement Development of finance relationships
Farmers	**5** Farmers identified by wholesalers Input from NGO communities to identify clustered farmers Collaboration Agreements with Wholesalers and SNV	**8** Farmer Marketing School Training Agronomic & technical skills training (Farmer Field School) Finance and contracting training (Farmer Finance School)	**9** Planting & Inputs Growing/crop management Harvesting & Post-Harvest Management
NGO	**5a** Direct canvassing of potential NGO partners with organized farmers' groups based on interest in Market-Based Solutions Discussion of collaboration expectations including interaction of service providers with current NGO arrangements Final selection of NGO Collaborators	**7a** Rapid analysis of NGO extensions/business/marketing systems Intensive training of NGO extension workers on market-based production strategies, in conjunction with wholesaler marketing/CS and Feedback Training Relationship development with Wholesaler contract farming clients & buyers' group(s)	**8a** Learning and Innovation Network: Monthly convening of NGO extension managers to communicate technical innovations and new market information. Ongoing farmer group management and capacity building

Figure 11. Overview/Map of Action Plan: Targets, Phases, and Steps

SEQUENTIAL OVERVIEW OF PROPOSED INTERVENTION- 12-18 MONTHS

Step	Intervention Target	Phase	Description
1	Buyers	Liaison/Selection	Key buyers identified in scoping study Convene meeting to build support for core product and service standards Clarify long-term participation arrangements
2	Service Providers	Liaison/Selection	Outreach to identified service providers Indications of interest in LT collaboration Capacity and Interest Assessment Performance-based contracting
3	Service Providers	Capacity Building	Capacity development for service providers w appropriate resources on agronomics and business (marketing) approaches to commercial agricultural development
4	Wholesalers	Liaison/Selection	Develop selection criteria for collaborators List of potential wholesalers through network Open canvasing at key wholesale FFV markets Convene promotional event to inform wholesalers of program, costs, and benefits **Indications of interest and application process** **Final selection of Wholesale Collaborators**
5	Farmers	Liaison/Selection	Farmers identified by wholesalers Input from NGO communities to identify clustered farmers Collaboration Agreements with Wholesalers and SNV
5a	NGO	Liaison/Selection	Direct canvassing of potential NGO partners with organized farmers' groups based on interest in Market-Based Solutions Discussion of collaboration expectations including interaction of service providers with current NGO arrangements Final selection of NGO Collaborators
6	Buyers	Capacity Building	Education on FFV Quality/Grading Standards Development of agreed-upon product standards with wholesalers

Figure 12. Sequential Overview of Proposed Intervention- 12-18 Months

SEQUENTIAL OVERVIEW OF INTERVENTION PLAN (CONTINUED)

Step	Intervention Target	Phase	Description
7	Wholesalers	Capacity Building	Analysis of wholesalers' business systems Contract farming management training GAP Training Farmer Marketing School Training Marketing/ Customer Skills and Feeback Training Systems Development
7a	NGO	Capacity Building	Rapid analysis of NGO extensions/business/marketing systems Intensive training of NGO extension workers on market-based production strategies, in conjunction with wholesaler marketing/CS and Feedback Training Relationship development with Wholesaler contract farming clients & buyers' group(s)
8	Farmers	Capacity Building	Farmer Marketing School Training Agronomic & technical skills training (Farmer Field School) Finance and contracting training (Farmer Finance School)
8a	NGO	Capacity Building/ Ongoing Operations	Learning and Innovation Network: Monthly convening of NGO extension managers to communicate technical innovations and new market information. Ongoing farmer group management and capacity building
9a	Service Providers	Ongoing Operations	Supervise initial planting Feedback mechanisms Continuous improvement development
9b	Wholesalers	Ongoing Operations	Production scheduling Supervise initial planting Supervise growing Supervise harvesting Mentoring/continuous improvement Facilitate finance relationships
9c	Farmers	Ongoing Operations	Planting & Inputs Growing/crop management Harvesting & Post-Harvest Management
10	Buyers	Ongoing Operations	Buyer feedback on initial crops (B)

Figure 13. Sequential Overview of Proposed Intervention- 12-18 Months (Continued).

6.5.2 Narrative of Intervention Sequence

Step 1: Buyers - Liaison/ Selection
SNV should convene buyers (identified partners) to indicate that the project is commencing and to seek their feedback on specific implementation details. Buyers have been surveyed in the scoping survey and those that were motivated to be part of the implementation have been identified.

The first task of the implementation plan is to reconnect with the buyers The outputs of this/these meeting(s) are two-fold. Firstly, to gauge the level to which the buyers see benefit in working together on a subset of activities that has a common effect on their sector. An example activity is defining product quality and service standards.

Secondly, broad guidelines will be discussed on how the buyers will participate with the project in the future.

The main risk for this activity is that the buyers have no history in collaboration and are competitors, both for customers and for the scarce, high quality produce in Phnom Penh. The meeting will show to what extent collaboration can be developed. The main point of benefit for the buyers is that any improvements in connections in the local wholesale system will help them source better quality produce from a wider range of suppliers who have a more client-focussed business model.

Step 2: Service Providers - Liaison/ Selection
Following initial contact, the major task will be to complete an in-depth capacity analysis and training needs assessment (TNA) of service providers. A clear indication of the personnel/skill base and existing client numbers will help in ascertaining current workload and also in designing the training program.

Several service providers spent their first years as donor projects and are now making their first fledgling efforts in the commercial world, however, funding support may remain from the donor through this transition. The service provider needs to understand that SNV's goal is to achieve a system of support that is market based and relies solely on performance and profit generation.

Following the TNA, a training plan can be formulated and the relevant local and international TOT specialists identified in this report (Section 6.5.6) engaged.

Step 3: Service Providers – Capacity Building
The credibility and ability of the service providers to contribute to other actors, is one of the most critical parts of the recommended model. This is also one of the major risks.

Therefore, their training must commence in parallel with the engagement of the wholesalers, so that when the time comes for these two actors to meet, the wholesalers have good confidence in the service providers' abilities.

The agronomic service provider is already skilled in production techniques but a gap exists in producing for the market.

The initial training will concentrate on various basics using a 'recipe' approach. Greater sophistication (i.e. ability for higher level situational analysis and formation of custom solutions) will develop as the providers develop more experience, confidence, and reputation. The external trainers would be expected to have a high density of effort in the initial period, a supervisory function during the Providers first

solo endeavours, and then a lower intensity refresher role as the systems become more bedded-in.

The training should include field visits to Thailand (Swift) and/or Vietnam (Fresh Studio), to see good systems in practice.

Step 4: Wholesalers - Liaison/Selection
Target number of wholesalers to engage for the project is ten.

Prior to engagement, wholesaler selection criteria will be defined by the project. Initial suggestions are :

i. Knowledgeable about current constraints and has wish to improve through long term partnership

ii. Maintains existing network of farmer suppliers (25), or able to assemble this network for the project;

iii. Has good record-keeping history;

iv. Reputation among other wholesalers and generating good profits;

v. Sells above average quality produce and has well maintained, clean infrastructure;

Following this will be a selection process that can use a variety of methods such as:

i. Recommendations from known network of NGOs and other projects, buyers etc.

ii. Cold canvassing and advertising, culminating in meetings that explain the goals of the project and invite interested candidates for further engagement

iii. Trader interviews

When engaging with the wholesalers, care should be taken to involve women as many are family businesses, with women often being the primary business contact. The project should be sensitive to meeting timings, provision of childcare etc.

Main risks in Wholesaler Liaison/Selection revolve around attracting enough entities that meet the criteria, particularly the requirement for pre-existing farmer's relationships.

Step 5: Farmers - Liaison/Selection
The main vehicle for selection of the farmers is the wholesaler, in fact, this is a selection criterion for the latter. The risk of not all wholesalers having access to 25 motivated farmers has also been highlighted. Project support may be required to promote the benefits of involvement in the main farming areas (peri-urban Phnom Penh) of interest to help enlist close to the 250 farmer target.

The project will also engage interested NGOs to nominate clustered farmers to be involved.

There is a need for verification of each selected farmer, and a separate contract should be awarded for this task. Objective here is to check that the farmer has the capacity (land, labour, motivation) to be involved and there has been no coercion in their selection. Farmer's access to water is an important selection issue. While access to year round supplies is important, only small amounts are required on a daily basis for small plots. If SNV wishes to invest further in small scale irrigation, both the custom nature of specific installation for specific areas and crops need to be taken into

account, as does the market requirements. Partnerships with other projects such as the future CAVAC could be fruitful.

Following verification, collaboration agreements between the farmers, wholesales and SNV should be prepared. These are a precursor to the production contracts that will be awarded when the first crop planning occurs.

Step 5a: NGO - Liaison/Selection
NGOs are an important intervention stream as there are many who support farmer networks and who are understanding the need for more market orientation to produce sustainable poverty improvement.

A series of promotional/engagement meetings should be the first contact between the project and NGOs. A good place to start in finding the NGOs will be CAMIP's Farmer Marketing School training list. This will give both the NGOs receiving TOT training and also those organizations who have contracted the Provincial Training Teams to provide FMS training to their farmer groups. Currently these include CARE (Prey Veng, Svay Rieng) and CAVAC (Takeo, Kampot, Kampong Thom)

As many NGOs employ their own extension staff, the collaboration method needs to be discussed here. For example, will the NGO employ the service provider to train the farmers groups or their extension team? These issues must be resolved through partnership negotiations, while performance should be measured in terms of farmer output. Cost-sharing issues should also be explored.

Step 6: Buyers – Capacity Building
Before the buyers start developing a uniform set of product/service standards, they should be shown existing standards from Cambodia and outside. A decision is also needed about the detail that is required. A matrix defining each quality parameter for each crop may be very helpful but will also require much time to prepare. Mandatory and aspirational targets should be considered.

The CAMIP product quality database that is being accumulated at each FMS will help to inform this process.

There will need to be sensitive facilitation at this stage to avoid the risk of conflict with the wholesalers. The principle should be adopted that initial standards be flexible and allow for further development, with a view to tightening at later stages.

Step 7: Wholesalers – Capacity Building
Each of the wholesale businesses will be analyzed for the systems they employ. These will include financial management, employees, assets, trader/farmer arrangements, credit, (re)investment plans etc.

The analysis will be used to balance the following training modules :

Contract farming management
To give the wholesaler added skills in directing the contracted farmers to produce the right products, to the right quality standard at the right time of year.

Good Agricultural Practices (GAP)
ASEAN GAP is a program across Asia to which Cambodia is a signatory. GAP is a standard set of procedures to help value chain actors minimize losses and contamination through best practice handling and sanitary – phyto sanitary techniques.

Farmer Marketing School (FMS)
Using GAP principles, the FMS shows farmers how to finish off the production of a crop, then harvest and post-harvest it to maximize profit. Also covered are improving the farmers' negotiation skills and the benefits of trader/farmer relationships, Established by the CIDA CAMIP and AusAID CAVAC programs.

Marketing and Customer skills and Feedback Training
How to sustainably maintain and increase a customer base through good relations, pre-empting issues and anticipating the customers needs. Also, how to gather and incorporate feedback into the management system for continuous improvement.

Management Systems
Explores the interaction between the production, transportation, marketing, and information collection systems in the business. Works with the wholesaler to develop a simple, easily managed system.

Step 7a - NGO - Capacity Building
The first step when designing the specific NGOs training program is an organization-specific analysis of their current production/marketing systems, philosophy (commercial/subsistence /poverty balance), extension skill base, farmer group organization, current training programs etc. The analysis will identify how far from a market based approach the NGO has been operating, and hence the magnitude of change that is required.

The NGO's extension workers will then receive in-depth training on the market based production strategies. The training will be performed in conjunction with the wholesalers and be based around the Farmer Marketing School model.

Next, will be to link the NGO's with both the wholesalers and buyers groups to commence the relationship building process and ensure good communication of product and service quality requirements from the earliest possible stage.

Step 8: - Farmers - Capacity Building
Farmers will undertake agronomic training of improved techniques and Farmer Marketing School training as a contiguous unit, performed in the field, using the actual crops grown as subjects of the training. That is the agronomic development of the crop will be followed through from preparation to harvesting. Just prior to harvesting the FMS training will commence and train the farmers in correct pre-harvest, harvest, grading, storage, transport and negotiation skills.

The initial farmer capacity building will be rounded out with two trainings on:

i. finance - how to use finance to their advantage, and

ii. contracting – protection provided by-, and responsibilities related to contracts.

Step 8a: NGO – Capacity Building/Ongoing Operations
As the NGOs make the transition from food security/ production focus to a more market driven model, many lessons will be learnt. All organizations will benefit from the sharing of these lessons. A Learning and Innovation Network (LIN) is recommended, that brings the NGO FFV extension managers together under the supervision of an SNV national advisor to discuss and share their experiences with implementing more market-based solutions. Ultimately, the group will decide the meeting appropriate frequency, but initially, a monthly meeting is suggested. At

establishment, the LIN will benefit from being facilitated by a service provider. Wholesale participants, either directly or through prior discussions with SNV staff members, should participate regularly in this group.

Also during this period the NGO should be adjusting farmer and extension worker training and learning how to best manage the farmer groups in collaboration with the wholesalers embedded services/extension efforts.

Step 9 a-c: Ongoing Operations
Ongoing operation commences with the first time each of the designed systems is utilized. From planning and planting of the first crops, to selling of first produce, first feedback and LIN meetings. This is a period of rapid, well considered, observation-adjustment-observation. At the same time the continuous improvement system is developing its most appropriate form.

This is an important period for good support from the service provider team to help keep a balance between operational and strategic planning.

While during this time individual actors will be considering a slightly different set of functions, they will all be working towards achieving an integrated system. All actors are responsible for managing information flows (feedback, harvest sizes, timing).

Farmers
Farmers will be paying particular attention to growing, harvesting and post-harvest handling their first crops using updated techniques, working with the extension service provider and wholesaler.

Service Providers
Service Providers will be supervising planting and developing crops, ensuring their extension plans are adhered to.

Wholesalers
The wholesalers will be working closely with the Service Providers to schedule plantings and regularly checking quality of crops in the ground.

Step 10: Buyers Ongoing Operations
The main task for the buyers will be giving constructive feedback on the quality of produce and service, to whole system. At some stage towards the end of the first year, the buyers group should revisit their quality standards and adjust if required.

6.5.3 Key Risks By Step

The main risks for the intervention strategy revolved around introducing a system where none has developed naturally. We are assuming that most of the direct and indirect consequences of this combination of actions have been identified either in previous attempts or by the current project team.

Grouping the major risks, we find they follow the major constraints identified:

1. Bringing together actors who may currently have adversarial relationships
2. Changing perceptions (eg from short term to long term perspectives; exploitative to supportive practices, competitive to collaborative);
3. Technology changes from subsistence to higher technology where attention to detail is critical;

4. Capacity (innate and developing) of all actors to make these changes.

Careful selection of partners and communication throughout the project is required to overcome many of the risks.

A line-by-line matrix of these risks, associated with specifics of each intervention step, appears in Appendix 6. A summary is given below in Figure 14

Intervention Target	Intervention Phase: Liaison / Selection	Capacity Building	Operations
Buyers	**1** No history of collaboration May be competitive for scarce supplies	**6** May Introduce conflict with wholesalers, as in Siem Reap	**10** May require multiple iterations to reach agreed-upon standards
Service Providers	**2** Capacity may be low Many competing demands on time Estimates of locally-available SPs maybe optimistic Many NGOs are supply-driven: if NGOs engaged, must be profit-driven	**3** Must start wholesaler engagment prior to completion of capacity development.	**9** Succession planning: I.e. master farmer as contractor Ongoing capacity development required Need to plan for localized management post-intervention
Wholesalers	**4** Short-term profit mentality Need for demonstrated profit potential Not finding minimum farmer participation Wholesaler may not commit to long-term Must be gender-aware selection process	**7** Must be structured to accommodate wholesaler time constraints Must be gender-aware in scheduling Must be flexible in accounting for family business responsibilities	**9** Competitors may respond with improved pricing, quality strategies. Success depends on wholesaler ability to source adequate inputs May be conflict with local collectors Requires intensive supervision May require credit tools to permit working with buyers
Farmers	**5** Cream-skimming is a signfiicant risk: must set criteria to ensure poor farmers participate	**8** Level of education and literacy may be limit Time (opportunity) cost of training attendance for poor must be considerd.	**9** Require secondary strategy in case of wholesaler failure Should encourage Master Farmers to consider own CF operations Contract default and side-selling risk: requires community sanction
NGO	**5a** Transition to market-based operation may be challenging to some NGOs aid/development philosophies Compatibility with market based techniques. Many NGOs have their own production and training techniques that match their individual philosphy.	**7a** Resistance by more traditional NGO extension staff to new techniques and modes of interacting with farmers Perception that new techniques and modes of operation, exclude poorer farmers Expectation of more benevolent (traditional NGO) relationship with wholesaler	**8a** LIN can only function as well as the level of input by partners Commitment to higher intensity management and supervision

Figure 14. Key Development Risks of Outlined Interventions by Phase and Target

6.5.4 Required Resource Commitments for Intervention and Key Milestones

Table 33 and Table 34 outline the expected resource requirements and the progress indicators or milestones linked to each phase of work. Performance measurement indicators appear in section 5.5.

Total direct costs of intervention "launch" in the first 6-8 months are estimated at $91,300, excluding SNV staff costs and overheads. Miscellaneous and meeting costs have not been closely accounted for in this budget, and transportation of SNV staff to provincial locations should also be considered an off-budget item.

Table 33. Program establishment costs - Initial period

Program Establishment Cost- Initial 6-8 Months						
Step	**Intervention Target/Phase**	**SNV Staff Resources**	**MBS or Other Providers**	**Cost**	**Cost Comments**	**Progress Indicators and Milestones**
1	**Buyers** **Liaison/Selection**	National Advisor(s) International Advisor	None	$ -	Staff and Meeting Costs Only	Milestone in Step 6
2	**Service Providers** **Liaison/Selection**	National Advisor(s) International Advisor	None Consultancy to assess capacity	$ 4,000	Staff costs only	Performance Contracts Established
3	**Service Providers** **Capacity Building**	Intensive oversight by NA and IA	International and Cambodia-based trainers/resources, PUAC Fresh Studio (VN) Swift Co. Ltd. (TH) **Katalyst (Bangladesh)/ Jobs Group** Local training specialists	$ 22,800	Conservative estimate: assumes maximum training needs.	Measured by pre/post test/assessment
4	**Wholesalers** **Liaison/Selection**	National Advisor(s)- Minimum 2 International Advisor	PUAC ATSA Additional Identified Private Extension and Business Services Providers	$ 3,500	Total no. of working days = 10 including meeting, field visites, and advitising, and selection process	Milestone: Identification and selection of wholesalers: client agreements
5	**Farmers** **Liaison/Selection**	National Advisor(s)- Minimum 2 International Advisor	Possible verification by PUAC, ATSA	$ 4,000	Depending on location of identified farmers	Collaboration agreements.
5a	**NGO** **Liaison/Selection**	National Advisor(s)- Minimum 2 International Advisor	Possible verification by PUAC, ATSA	$ 4,000	Depending on location of identified NGO Farmer Networks	Collaboration agreements.
6	**Buyers** **Capacity Building**	National Advisor International Advisor and SNV Regional Staff (Baan/Janssen)	Minimal MBSP input CAMIP Collaboration	$ 1,500	SNV staff-related costs Cost-Sharing- Possible to cover CAMIP costs of $150/day x 10 days	Milestone: Mutually acceptable product standards agreed by buyers and wholesaler
7	**Wholesalers** **Capacity Building**	National Advisor(s)- Minimum 2 International Advisor	PUAC ATSA Additional Identified Private Extension and Business Services Providers (CIEDC) CAMIP Fresh Studio (VN) Swift Co. Ltd. (TH)	$ 19,500		5-10 Wholesalers' Businesses Assessed 5-10 Wholesalers Complete Training Program
7a	**NGO** **Capacity Building**	National Advisor(s)- Minimum 2 International Advisor	PUAC CAMIP Swift Company (TH)	$ 7,000		Completion of FMS training by partner NGO staff.
8	**Farmers** **Capacity Building**	National Advisor(s)- Minimum 2	CAMIP ATSA/Independent Extension Providers	$ 25,000	3 days/farmer, 10 groups of farmers 10 days training/farmer, 250 total farmers	Completion of FMS process and additional training on Finance and Contracts
				$ 91,300		

Table 34. Program Ongoing costs.

Repetitive Resource Requirements- Per 3 Month Cycle						
Step	**Intervention Target/Phase**	**SNV Staff Resources**	**MBS or Other Providers**	**Cost**	**Cost Comments**	**Progress Indicators and Milestones**
8a	**NGO Ongoing Capacity Building**	National Advisor(s)	PUAC ATSA/Independent Extension Providers	$ 900	1 day/month, 3 months 2 providers	Attendance and growth of Learning and Innovation Network
9a	**Service Providers Ongoing Operations**	National Advisor(s) International Advisor	PUAC ATSA/Independent Extension Providers	$ 1,230		None identified
9b	**Wholesalers** **Ongoing Operations**	National Advisor(s)	PUAC ATSA/Independent Extension Providers	$ 1,230	Should be cost-shared with wholesalers Should be cost-shared with wholesalers	Ongoing evidence of direct wholesaler involvement in farm-level operations
9c	**Farmers** **Ongoing Operations**	National Advisor(s)	PUAC ATSA/Independent Extension Providers	$ 6,540 $ -	Should be cost-shared with wholesalers Should be cost-shared with wholesalers	Production planning and harvesting executed according to wholesaler production plans
10	**Buyers Ongoing Operations**	National Advisor(s) International Advisor	PUAC ATSA/Independent Extension Providers		Minimal costs included in engagement with PUAC/ ATSA	Buyer feedback obtained and ongoing consensus on conditions of supplies and supplier relationships
				$ 9,900		

Ongoing costs of the operation and maintenance of the program, steps 8a-10 are presented above. The consultants expect that development and smooth operation of the system will require at least 3 years of supervision, each year with 4 cycles. Costs should decline over this time due to greater cost sharing with participating wholesalers, and planned levels of cost-sharing should be determined within SNV prior to recruitment of wholesalers. None-the-less, the total maximum cost for maintenance of the system once initial training has been established should be approximately $118,800. This assumes that the initial network of approximately 10 wholesalers, 250 wholesaler-identified farmers, and an undetermined number of NGO-identified farmers continue to participate. Further scaling up should be expected to hold incremental costs proportionate to numbers of wholesalers and farmers, and NGO farmer networks participating.

A detailed budget for each phase appears in Appendix 7.

6.5.5 Elements of a Performance Measurement and Monitoring System.

The intervention plan (Figure 11, Figure 12) outlines specific milestones for the implementation of first year (6-8 month) activities by step. Measuring development impact will require adopting and refining a set of indicators that track the performance of the intervention as a whole, which means adopting indicators first related to participating wholesalers, secondly, measuring impacts on farmers, and finally, measuring buyer satisfaction with the overall results. Proposed performance targets for each of the core intervention targets appear in **Table 35**, Table 36, and Table 37.

Table 35. Performance Measurement for Participating Wholesalers

Success Criteria	Proposed Indicators
Wholesaler incomes increase due to improved business practices	20% improvement in wholesaler business income, as documented in wholesalers' business records
	>80% of participating wholesalers report improved sales and profits
Wholesalers retain farmers in their production networks through good business	>80% of farmers retained for more than one year
Wholesalers grow their farmer networks	>75% of wholesalers add at least five farmers per year following initial farmer selection (production network development)
Wholesalers develop long-term commercial relationships with non-traditional buyers	>50% of wholesalers report contracted sales to buyers for more than 4 sequential months
Wholesalers complete training	85% of selected wholesalers complete training
Wholesalers implement production control systems to create more predictability in supply	
Wholesalers gain capacity for bookkeeping and interpretation of their financial records.	>85% of wholesalers produce monthly summaries of accounts
Wholesalers provide embedded services to their production network	(1) Number of wholesalers employing private extension providers for farmers
	(2) Number of wholesalers providing direct extension
	(1) + (2) above = >90% of participating wholesalers 1 year after completion of training
	More than six (6) wholesaler extension visits to producers/month during production seasons
Payments to farmers for output	85% of purchases paid to famers in accordance with contracted terms.

Table 36. Performance Measurement for Participating Farmers

Success Criteria	Proposed Indicators
Assisted farmers move from 1 to 3 FFV crops/year	Farmers harvest >2 FFV Crops/year after 1 year of participation
Assisted farmers enter long-term relationships with buyers, resulting in greater income stability	Number of payments to farmers for agricultural outputs increases by 100% after 1 year
Assisted farmers gain access to production services, (seed, extension, credit) resulting in increased yields	> 50% improvement in harvest yields/m2 after 1 year of participation
Assisted farmers participating in CF relationships expereince sustained growth in income from cash crops	200% increase in gross income from FFV sales
Assisted farmers reduce product losses through better post-harvest management	Wholesalers accept at least 90% of total harvested output (any grade).
Producers consistently adhere to production planning to meet market requirements	>85% of participating farmers adhering to production plan(s)
	Producers meet 90% of production targets based on production plan
Producers have access to embedded credit through value chain relationships	80% of participating farmers receive credit from other value chain actors at >3% month (market interest rate)
Producers receive predictable prices for production	Percentage of purchases with contracted price negotiated prior to planting
70% of participating producers' products achieve 'First Quality'	Percentage of farmer output rated as "First Quality"
Producers know their cost of production	100% of producers keep basic records of production costs and income

Table 37. Performance Measurement for Participating Buyers

Success Criteria	Proposed Indicators
Buyer satisfaction with participating wholesale FFV providers	% of buyers indicating satisfaction with wholesaler relationships > 60% one year after initial wholesaler training complete
	% of buyers indicating satisfaction with wholesaler relationships > 80% two years after initial wholesaler training complete
Buyers report consistent availability of locally-produced FFV from participating wholesalers	% of buyers reporting consistent availaibilty of locally-produced FFV from participating wholesalers>75%
% of buyers indicating satisfaction with quality of locally-produced FFV products	% of buyers indicating satisfaction with quality of locally-produced FFV products > 50%

Service Providers and NGO Partners
Performance of service providers and NGO facilitators should be based on farmer and wholesaler performance, as their results-based outcomes must be linked to the overall health of the core supply chain. Input targets should be defined in specific contracts for services, but should be secondary to overall system performance measurements.

Implementing Performance Measurement
Achievement of these performance targets should be supported by (1) baseline data collection, beginning at with the selection of wholesalers and farmers; (2) a second baseline of data collected after training activities are complete and prior to initial supervised planting (about 6-8 months after project inception); (3) periodically on a yearly basis.

6.6 Pro-Poor Impact Assessment

Consultants have demonstrated significant potential for pro-poor impact through the value chain analysis of seven products, with cash income improvements and ROI most pronounced in vegetable products.

For the purpose of assessing pro-poor impact, assumptions must be made about the intervention's success and scale of impact. Using conservative assumptions in a success scenario, the direct impact of these interventions is significant improvement of incomes for a modest base of approximately 250 farming families in Southern Cambodia. Assuming that each farming family focuses on vegetable production, achieves only 50% of the income improvement that represents the potential of this project over a three year period, the net impact of the project on anti-poverty efforts would be approximately $1,436,045, a ratio of benefit to cost of 6.8 (Table 38).

Table 38. Potential Pro-Poor Impacts of Proposed Intervention

	@ 50% of potential improvement	@ 100% of potential improvement
Baseline Annual Income from FFV- 3 years	$222	$222
Improvement in Income/farmer- 3 years	$5,744	$11,488
Net Anti-Poverty Impact @ 250 Farmer Participation Level*	$1,436,045	$2,872,090
Estimated maximum total 3 year SNV direct costs**	$210,100	$210,100
Benefit/Cost Ratio	6.8	13.7

*Assumes 3 crops/year at current prices. Cyclicality of prices could reduce seasonal benefits by 20-40% for 1 production cycle/year.
**exclusive of SNV staff and overhead costs

It should be noted that we have no basis to estimate the potential impact on wholesaler profitability and anti-poverty among the families of other value chain actors, as their incomes depend on volumes of product traded that are difficult to estimate based on averages.

On the basis of this benefit-cost ratio alone, the intervention has large direct impacts on participating farmers and should be considered economically effective. However, if the successful development of contract farming systems becomes a self-propagating process as a result of the project's success, the potential direct and impact could be much larger still, as SNV would germinate a system that has great promise for Cambodian farmers and wholesalers alike (Table 39).

Table 39. Direct and Indirect Anti-Poverty Impacts: National, Meso- and Micro-Levels

Level	Direct Anti-Poverty Impact(s)	Indirect Anti-Poverty Impact(s)
National	Limited: project success does not significantly reduce poverty at the national level	Moderate: Demonstration of potential for poor to participate in mainstream FFV markets, possibility of import substitution
Meso (value chain and market area)	Moderate: Mainstreaming of poor farmers into regional markets and value chains	High: Overcoming exploitative relationships between farmers and traders/wholesalers. High: Improving agriculture-supporting NGO culture and skills related to commercial farming requirements and skills.
Micro	High: Direct FFV income enhancement with moderate success	Implantation of commercial skills in rural communities and empowerment of farmers to understand and work with commercial system(s)

In addition, the potential indirect benefit of cultural change among agriculture-supporting local and international NGOs would have dramatic benefits in improving the culture and operating environment of all market participants. While the impact of a 3-4 year intervention in this area is likely to be modest, the intervention is designed to maximize learning and knowledge transfer among NGOs through a learning and innovation network focused on both technical and commercial aspects of agriculture, an approach which we believe holds good potential in Cambodia.

7 References

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Appendix 1: Interview Guide for Partner Selection

Respondent Business _____ Control No._____

Address_____

Interviewee & Position_____Date_____/_____2008

Basic respondent data (PLEASE ADD FREELY)

Buyer type (Segment)

_____Hotel	(Le Royale, Cambodiana, etc.)
_____Fine Dining	(Residence, Topaz)
_____Tourist Focused	(Khmer Surin, XXX)
_____Boutique & Specialty	(Living Room, CEDAC, Friends/Romdeng)
_____Specialty Retail	(Supermarkets, etc.)
_____Korean Focused	

If restaurant, type of cuisine_____

Which months are your High and low sales months? (H, L)

1	2	3	4	5	6	7	8	9	10	11	12

Average daily number of customers served:

	High Months	Low Months
Breakfast		
Lunch		
Dinner		

If Non-Restaurant Businesses:
Average daily customers (number of sales) _____

Main Customers:

Demographic Group	**Detail**	**Percentage**
Khmer Customers		
Western Tourists		
Non-Western Tourists (specify)	i.e. Korean	
Western Expat		
Asian Expat (specify)	i.e. Korean	
Other specific group	i.e. Swedes	
		100%

Main current suppliers and terms of relationship and purchase

	Supplier Type	% Fruit	% Veg	Cash, Credit, Both	Terms of Credit Payment (# Days)
1	Farm or farmer group				
2	Importer				
3	Wholesaler in market				
4	Retailer in market				
5	Collector				
6	Supermarket				
7	Other (Specify)_____				
		100%	100%		

Relationship with suppliers

___Only purchase product from one or a few long-term suppliers
___Both long-term suppliers and short-term suppliers
___Short-term suppliers only

Choose short term suppliers based on _____price _____quality _____other

How long have you dealt with your key suppliers? How happy are you with these suppliers (1=very unhappy, 2 = unhappy 3 = neutral, 4= happy 5=very happy)

Supplier Type	**Years**	**Level of Satisfaction**
Farm or farmer group		
Importer		
Wholesaler		
Retailer in Market		
Collector		
Supermarket		
Other (Specify)_____ _____		

What are the main <u>reasons</u> you buy from your current suppliers?

	Response Notes
Certification Quality Reliable Credit/Payment Terms Personal Relationship Price Services they offer Location of suppliers Other (Specify) _____	

If more than three responses volunteered, ask for top three

What specific <u>services</u> do your main (most important) suppliers provide?

	Response notes
Delivery at specific times Grading and sorting Cleaning Packaging to minimize damage and preserve freshness Returns of damaged or spoiled products Certification (Organic or other) Pay promotion fees Pay penalties for volume shortfalls Delayed payments or credit sales (time) Emergency stock replacement service when product out of stock Other (Specify) ____ _____	

If more than three responses volunteered, ask for top three

What are the major problems in your business <u>relationship</u> with your main FFV suppliers?

	Response Notes
Don't meet delivery **schedule** **Inconsistent** or unreliable supplies Products don't meet **quality** expectations or standards **Volume/Capacity** to provide as much as I need of products **Price** issues (ask for higher price) **Payment** terms Other **poor service** or unresponsiveness to needs Don't trust: supplier ***cheats***	

If more than three responses volunteered, ask for top three

Do you have significant or recurring <u>quality</u> problems with your FFV supply related to any of the following characteristics of the products?

	Response Notes
Freshness Color Size Cleaning Packing Damage in transport Shape Grading Safety (Freedom from pathogens) Chemical residues (pesticide/fertilizer)	

If more than three responses volunteered, ask for top three

Which are the <u>three</u> product quality characteristics that are most important to your business? (WE WILL NEED A SHOW CARD FOR THIS)

Rank 1_____ Rank 2 _____ Rank 3_____

Freshness	Grading
Color	Safety (Hygiene)
Size	Freedom from chemical residues
Packaging or packing	(pesticide/fertilizer)
Shape	Organic certification

What is your volume of FFV purchases per MONTH?

	Dry Season	**Wet Season**
Fruit	**_____KG**	**_____KG**
Vegetable	**_____KG**	**_____KG**

What are the products you currently buy the most of (LIST 3-5 products)

Dry Season

No	Product Name	Daily Volume (KG)	Ave Price Paid ($/KG)	Quality Problems	Main Supplier	% From Main Supplier	Sec. Supplier	% Sec Supplier	% Imported
		Range OK	Range OK	Yes/No and Describe	Codes Below		Codes Below		
1									
2									
3									
4									
5									

Sources:(1) Farm or farmer group (2) Importer (3) Wholesaler in market (4) Retailer in market (5) Collector (6) Supermarket (7) Other source

Additional Notes: _____

Wet Season

No	Product Name	Daily Volume (KG)	Ave Price Paid ($/KG)	Quality Problems	Main Supplier	% From Main Supplier	Second Supplier	% Sec Supplier	% Imported
		Range OK	Range OK	Yes/No and Describe	Codes Below		Codes Below		
1									
2									
3									
4									
5									

Sources:(1) Farm or farmer group (2) Importer (3) Wholesaler in market (4) Retailer in market (5) Collector (6) Supermarket (7) Other source

Additional Notes: _____

What are the key FRESH FRUIT AND VEGETABLE products that you would like to be able to acquire locally (at your required price and quality) (that you currently cannot?)

No	Product Name	Daily Volume (KG)	Ave Price Paid ($/KG)	Quality Problems	Main Supplier	% From Main Supplier	Second Supplier	% Sec Supplier	% Imported
		Range OK	Range OK	Yes/No and Describe	Codes Below		Codes Below		
1									
2									
3									
4									
5									

Sources:(1) Farm or farmer group (2) Importer (3) Wholesaler in market (4) Retailer in market (5) Collector (6) Supermarket (7) Other source

Additional Notes: _____

Additional Products

We are aware of the following products that are available locally through Farmers' Organizations. Are any of these products other than those you mentioned attractive for local (organic) sourcing?

Vegetable Crops	**Khmer**	**Strong Interest**	**Moderate Interest**	**How much of this product do you Currently Puchase? In KG/_____**
Salad/Leaf lettuce	សាលាដ			
Cucumber	ត្រសក់			
Green/Sweet pepper	ម្ទេសហាវៃ			
Tomato	ប៉ែងប៉ោះ			
Long Bean	សណ្តែកគួរ			
Cabbage	ពពួកស្ពៃ			
Gourd (wax and sponge)	ត្រឡាច និងនរោង			
Lemongrass	ស្លឹកគ្រៃ			
Fruits				
Papaya	ល្មូង			
Banana	ចេកណាំវ៉ា			
Lemon	ក្រូចឆ្មារ			
Pineapple	ម្នាស់			
Jack fruit	ឃ្នុរ			
Water melon	ឪឡឹក			
Pumpkin	ល្ពៅ			
Custard Apple	ទាប			
Sour Sop	ទាបបារាំង			
Longan	មាន			
Durian	ធូរ៉ែន			
Rambutan	សាវម៉ាវ			
Other crops				
Palm Sugar	ស្ករត្នោត			
Pig (pork meat)	ជ្រូក			
Free range chicken	មាន់ស្រែ			

Jasmine organic rice	អង្ករផ្កាម្លិះ សរីរាង្គ			
Honey	ទឹកឃ្មុំ			
Black Pepper	ម្រេច			

Buyer interest in relationship with local suppliers (farmers associations/CEDAC)

Under what Circumstances/Conditions would you be interested in this kind of relationship?

What, if any, are your past experience with NGO/Donor-supported efforts?

SHOW CARDS

Freshness Color Size Packaging or packing Shape	Grading Safety (Hygiene) Freedom from chemical residues (pesticide/fertilizer) Organic certification

Vegetable Crops	**Khmer**
Salad/Leaf lettuce	សាលាដ
Cucumber	ត្រសក់
Green/Sweet pepper	ម្ទេសហាវៃ
Tomato	ប៉ែងចាប៉ោះ
Long Bean	សណ្តែកគួរ
Cabbage	ពពួកស្ពៃ
Gourd (wax and sponge)	ត្រឡាច និងនរោង
Lemongrass	ស្លឹកគ្រៃ
Fruits	
Papaya	ល្មូង
Banana	ចេកណាំវ៉ា
Lemon	ក្រូចឆ្មារ
Pineapple	ម្នាស់
Jack fruit	ឃ្នុរ
Water melon	ឪឡឹក
Pumpkin	ល្អៅ
Custard Apple	ទាប
Sour Sop	ទាបបារាំង
Longan	មាន
Durian	ធូរ៉ែន
Rambutan	សាវម៉ាវ
Other crops	
Palm Sugar	ស្ករត្នោត
Pig (pork meat)	ជ្រូក
Free range chicken	មាន់ស្រែ
Jasmine organic rice	អង្ករផ្កាម្ទិះ សរីរាង្គ

Appendix 2: Initial List of Interview Targets

Status	Code	Segment	*Date of Interview*
		Large High-End Hotels & Fine Dining	
X	H1	Cambodiana	25-Sep
X	H2	Phnom Penh Hotel	25-Sep
D	H3	Himawari	N/A
X	H4	Sunway Hotel	25-Sep
X	H5	Intercontinental Hotel	13-Oct
D	H6	Le Royale	N/A
		Tourism Focused Restaurants & Groups	
X	T1	FCC Group	13-Oct
X	T2	Khmer Surin Group	25-Sep
X	T3	Bodhi Tree	Sept
P	T4	Elsewhere, Pavillion, VL	3-Oct
X	T5	Friends Group	Sept
X	T6	7 Lucky Group	Sept
X	T7	ŅPunloÓ	Sept
X	T8	Knyay	Sept
X	T9	La Korea Caf˘	3-Oct
X	T10	Lyon D'Or	8-Sep
		Boutique & Specialty	
X	B1	CEDAC Restaurant	15-Sep
X	B2	HAGAR	**10-Oct**
X	B3	Living Room	18-Sep
		Non-Traditional Retail:	
X	R1	Lucky Market Group	3-Oct
X	R2	Pencil Market Group	3-Oct
D	R3	Thai Huot	N/A
X	R6	CEDAC Shop	19-Sep
X	R7	Korean Market	3-Oct

X indicates completed interview
P indicates partial interview
D indicates declined to be interviewed

Appendix 3: Profiles of Identified Potential Buyer Partners

Tier 1 Potential Partners

Friends

	Business Name	Friends
	Description	Restaurant and training place for orphan or street children to gain skills and expertise . It is a type of social enterprise for development.
	Cuisine type	Western type
	Key Customer Segments	
	Largest, %	60% are western tourists
	Second, %	40 are western expatriate and Asian expatriate
A.	**Partner Screeing Criteria**	
1	**Interest in Local FFV Supply Partnership**	
	Current NGO Partnerships	Mith Samlagn is a supporting NGO for this resaurant. In addition, PUAC is a partner (
	Strength of Interest in Partnership	Friends is a strong support for social enterprise which is similar to its background.
	Comments on Interest in Partnership	Friends is opening door for new partners, espcially from a small-scale producers.
2	**Size of Opportunity**	
	Meals Per Day (Low-High)	150-300 custormers
	Comments & Seasonality	Seasonal fluctuations depended on tourist networks abroad.
	KG Fruit Purchase (Low-High)	10-20 Kg /day
	Kg Veg Purchase (Low-High)	40-60 Kg/day
	Ave Spend on FFV/month (Low-High)	Estimated to be at least 3500-4000US$/month
3	**Buyer Price Sensitivity**	
	Overall Assessment	Quality oriented and reasoable sensitive to prices, and prefer to have chemical-free products.
	First Criteria for FFV Purchase	Quality
	Second Criteria for FFV Purchase	Reliable
	Third Criteria for FFV Purchase	Service offering (direct transport to the restaurant)
	Other information (revealed)	
	Evidence of willingness to pay price premium for quality/organic/other feature	Friends intent to pay premium prices against quality and chemical-free products
4	**Compatibility of FFV Purchase Strategies with SNV Objectives**	
	Satisfaction with Current Suppliers (5=best)	3 to 4
	Comments on overall satisfaction	Do not meet the daily need (PUAC), and sometimes the wholesaler in Psa Thmei market have supplied vegetable products with poor quality.
	Description of Vegetable Supply Relationships	Strategically, Friends make relationship with suppliers based on both long-term and short term, especially it will change if those who do not committ quality agreement and offering services (transport).
	First, %	80-90% from wholesale market
	Second, %	5-10% from PUAC
	Description of Fruit Supply Relationships	
	First, %	50% from wholasers
	Second, %	50% from super markets (Bayon and Thai Huot)
	Willingness to adapt to local production availability in partnership	Confirmed, because they often want to change supply if quality does not meet the requirement.

Friends, Continued

		Friends, Continued
B.	**Requirements/Conditions of Partnership Interest**	
1	Current problems with supplier relationship to address in partnership development	
	Problem 1	The volume is not met the daily requirement (PUAC)
	Problem 2	Quality problem for sometimes (Wholesalers)
	Problem 3	N/A
	Comments	Quality and volume is a problem
2	**Service Requirements**	
	Supplier Service 1	Delivery at specific of times
	Supplier Service 2	Return of damaged or spoiled
	Supplier Service 3	Emergency stock replacement
3	Other Partnership Conditions	
	Condition 1	Direct transport to the restaurant
	Condition 2	To wait at 9:00 pm in order to receive a list of ordering vegetable and fruits.
	Condition 3	
C	**Specific Product Interest**	None stated.
	INTEREST IN ADDITIONAL CEDAC PRODUCTS	Interested in majority of vegetable and fruits from CEDAC list

Hagar Enterprises

	Business Name	**HAGAR**
	Description	Diversified institutional food services and catering, restaurant: subsidiary of social enterprise
	Cuisine type	Principally Khmer
	Key Customer Segments	Food service operator- large institutional focus
	Largest, %	Khmer
	Second, %	Expatriate Institutional Clients
A.	**Partner Screeing Criteria**	
1	**Interest in Local FFV Supply Partnership**	Strong
	Current NGO Partnerships	None
	Strength of Interest in Partnership	Strong
	Comments on Interest in Partnership	Indicated that previous efforts at partnerships had failed due to NGO inaction
2	**Size of Opportunity**	
	Meals Per Day (Low-High)	85,000-95,000
	Comments & Seasonality	Small seasonal fluctuations
	KG Fruit Purchase (Low-High)	Average 2000+ KG/Month
	Kg Veg Purchase (Low-High)	Impending
	Ave Spend on FFV/month (Low-High)	Pending: Large volume
3	**Buyer Price Sensitivity**	
	Overall Assessment	Moderate: Price sensitivity balanced against desire to support local enterprise and ensure quality supply.
	First Criteria for FFV Purchase	Quality
	Second Criteria for FFV Purchase	Reliability
	Third Criteria for FFV Purchase	Price vis. Market
	Other information (revealed)	
	Evidence of willingness to pay price premium for quality/organic/other feature	Confirmed williness to pay price premium. Will disclose % tolerances
4	**Compatibility of FFV Purchase Strategies with SNV Objectives**	
	Satisfaction with Current Suppliers (5=best)	Low
	Comments on overall satisfaction	Constantly changes suppliers to manage poor supplier quality
	Description of Vegetable Supply Relationships	Monthly bidding with rotating bidders. Longest supply relationship 6 months
	First, %	Wholesalers in markets- 80%
	Second, %	Large retailers in markets- 20%
	Description of Fruit Supply Relationships	
	First, %	Wholesalers in markets- 80%
	Second, %	Large retailers in markets- 20%
	Willingness to adapt to local production availability in partnership	Confirmed. High tolerance for changing suppilers regularly
		7-30 day credit from suppliers

Hagar, Continued

		HAGAR, Continued
B.	**Requirements/Conditions of Partnership Interest**	
1	Current problems with supplier relationship to address in partnership development	Confirmed that all listed problems are significant
	Problem 1	Inconsistent/unreliable supplies
	Problem 2	Supplier cheats on weight
	Problem 3	Quality
	Comments	ALL SUPPLIER ISSUES ARE MAJOR PROBLEMS
2	**Service Requirements**	
	Supplier Service 1	Compliance with strict receiving procedures
	Supplier Service 2	Delviery at specific times
	Supplier Service 3	Returns of damaged or spoiled products
3	Other Partnership Conditions	
	Condition 1	Pesticide and food safety: regularly tested by outside contractor firm.
	Condition 2	
	Condition 3	
C	**Specific Product Interest**	
	(Excluding products that are not feasible for Cambodian production)	See attached complete fruit and vegetable order inventories
	INTEREST IN ADDITIONAL CEDAC PRODUCTS	Interested in ALL CEDAC Products

Hagar, Continued (2)

HAGAR Fresh Vegatable Usage Hagar Vegetable UsageMonthly Estimate: Sorted by Volume			
No	**Item Name**	**Measurement**	**Total**
145	Winter Melon	Pcs	1,442.00
92	Onion	Kg	879.40
105	Raddish	Kg	791.50
88	Morning Glory	Bunch	787.00
37	Cucumber	Kg	780.90
136	Tomatoes	Kg	739.50
22	Carrot	Kg	582.00
63	Kaillan	Kg	552.00
128	Sour Cabbage	Kg	543.00
19	Cabbage	Kg	481.00
99	Potatoes	Kg	473.00
34	Choy Sume	Kg	398.50
51	Green Cabbage	Kg	397.00
2	Baby Pork Choy	Kg	373.70
38	Curly Cabbage	Kg	373.50
17	Boko Cabbage	Kg	359.00
8	Bean Sprout	Kg	347.00
5	Banana Blooson	Pcs	336.00
103	Pumpkin	Kg	318.90
57	Green Papaya Kg	Kg	310.60
79	Long Bean	Kg	301.00
29	Chinese Morning Glory	Kg	294.00
23	Cauliflower	Kg	268.20
140	Vegetable for coco	Kg	251.00
142	Water Lily	Bunch	246.00
40	Egg Plant	Pcs	244.00

HAGAR Fresh Fruit Usage Monthly Estimate: Sorted by Volume			
No	**Item Name**	**Measurement**	**Total**
1	Pineapple Pieces	Pcs	538.00
2	Water Melon	PCS	288.00
3	Dragon Fruit	KG	244.50
4	Rambutans	KG	172.00
5	Bananas	Bunch	158.00
6	Longans	KG	101.50
7	Apple	KG	78.50
8	Small Orange	KG	63.00
9	Green Coconut	Pcs	57.00
10	Orange (Pursat)	Doz	51.50
11	Papaya	Pcs	49.00
12	Pomello	Pcs	43.00
13	Sapodillas	KG	33.00
14	Oranges	Doz	20.00
15	Pears	KG	18.50
16	Green Mango	KG	16.50
17	Jackfruit	KG	14.30
18	Ripe Mango	Pcs	10.00
19	Egg Banana	Bunch	7.00
20	Durian	KG	3.20
21	Avocado Fruit	Kg	1.60
22	Guava	KG	1.50
23	Red Apple	Kg	1.10
24	Chapu	KG	1.00
25	Grape	KG	1.00

Khmer Surin (Group)

Note: Volumes only for primary/flagship location. Group-wide purchases approximately 150% of stated totals.

	Business Name	Khmer Surin
	Description	Thai-Khmer Restaurant and entertainement
	Cuisine type	Thai-Khmer
	Key Customer Segments	
	Largest, %	Western Tourist- 35-40%
	Second, %	Non-Western Tourists, 10-20%; Western Expat 10-20%
A.	**Partner Screeing Criteria**	
1	**Interest in Local FFV Supply Partnership**	Strong Interest
	Current NGO Partnerships	None.
	Strength of Interest in Partnership	Strong
	Comments on Interest in Partnership	Partnership interest based on desire for chemical-safe agriculture; poor experience with holesalers
2	**Size of Opportunity**	
	Meals Per Day (Low-High)	160-310
	Comments & Seasonality	Accommodates several tour busses per week during high tourist seasons
	KG Fruit Purchase (Low-High)	20-30 Kg/day
	Kg Veg Purchase (Low-High)	30-50 Kg/day
	Ave Spend on FFV/month (Low-High)	50-80 Kg/day
3	**Buyer Price Sensitivity**	
	Overall Assessment	Moderate price sensitivity. Greater sensitivity to quality and honesty
	First Criteria for FFV Purchase	Quality
	Second Criteria for FFV Purchase	Reliability
	Third Criteria for FFV Purchase	Price
	Other information (revealed)	
	Evidence of willingness to pay price premium for quality/organic/other feature	Indicates willingness. Lack of other supply partnerships makes this willingness un-tested
4	**Compatibility of FFV Purchase Strategies with SNV Objectives**	
	Satisfaction with Current Suppliers (5=best)	3.5
	Comments on overall satisfaction	
	Description of Vegetable Supply Relationships	Uses short-term suppliers only to compensate for supplier dishonesty
	First, %	Retailers in Market- 100%
	Second, %	
	Description of Fruit Supply Relationships	
	First, %	Retailers in Market - 100%
	Second, %	
	Willingness to adapt to local production availability in partnership	Due to current market purchases, owner considers this highly flexible.

Khmer Surin- Continued

		Khmer Surin, Continued
B.	**Requirements/Conditions of Partnership Interest**	
1	Current problems with supplier relationship to address in partnership development	Numerous: In particular, quality fell and price increased after longer-term supplier relationships were established
	Problem 1	Quality
	Problem 2	Inconsistent or unreliable
	Problem 3	Volume/Capacity
	Comments	These describe current short-term relationships only.
2	**Service Requirements**	Desired in FFV suppliers: Currently purchases at Lucky Market in emergencies
	Supplier Service 1	Meat suppliers provide emergency stock replacement during business surges
	Supplier Service 2	
	Supplier Service 3	
3	Other Partnership Conditions	
	Condition 1	
	Condition 2	
	Condition 3	
C	**Specific Product Interest**	
	(Excluding products that are not feasible for Cambodian production)	
1	**Product 1 Name**	Tomatoes
	Monthly purchase Volume (Range)	180-240 Kg
	Current purchase price (Range)	3100 R/kg
	Current main source (%)	Retail market (O Reussey)
	Current quality issues	
	Est % imported	N/A
	Seasonal Imports? (Y/N)	Yes
2	**Product 2 Name**	Cucumber
	Monthly purchase Volume (Range)	240-240 Kg
	Current purchase price (Range)	2000-2500 R
	Current main source (%)	Retil market (Oreussey)
	Current quality issues	Ok, acceptable
	Est % imported	Don't know
	Seasonal Imports? (Y/N)	Yes, may be from VN
3	**Product 3 Name**	Yard long bean
	Monthly purchase Volume (Range)	90-120 Kg
	Current purchase price (Range)	2500-2800 R/Kg
	Current main source (%)	Retail market (O reussey)
	Current quality issues	Ok, be acceptable
	Est % imported	Don't know
	Seasonal Imports? (Y/N)	Don't know
	INTEREST IN ADDITIONAL CEDAC PRODUCTS	Yes, strong interest for supporting a health of consumers, as a part of its social mission. And KSR interest the majority of CEDAC list of products

Lucky Market Group

	Business Name	Lucky Market Group
	Description	Diversified selling fruit and vegetable and other products, and having a social mission to support small-scale farmers (there are currently 4 branches : 3 in PP and 1 in Siem Reap)
	Cuisine type	Super market
	Key Customer Segments	Deliver goods and services to Khmer and non-khmer customers. For those who are khmer custormers, usually majority of them are better off economic segment
	Largest, %	Khmer
	Second, %	Expatriate for both western and asian
A.	**Partner Screeing Criteria**	
1	**Interest in Local FFV Supply Partnership**	
	Current NGO Partnerships	PUAC (Vegetable farming in Kompong Spoeu)
	Strength of Interest in Partnership	Strong interest
	Comments on Interest in Partnership	Has been identifed local partners to supply fruit and vegetable, especially to send purchasing staff to assess CEDAC Nature Agri-Shop related to fruit and vegetable supply.
2	**Size of Opportunity**	
	Meals Per Day (Low-High)	N/A
	Comments & Seasonality	High seasonallity as always, particularly every weekends is a peak period of selling agriculture products
	KG Fruit Purchase (Low-High)	80-100 Kg/day
	Kg Veg Purchase (Low-High)	500-600 Kg/day
	Ave Spend on FFV/day (Low-High)	
3	**Buyer Price Sensitivity**	
	Overall Assessment	Moderate price sensitive by ensuring good quality of products and willingness to support small-scale producers
	First Criteria for FFV Purchase	Quality
	Second Criteria for FFV Purchase	Services offering
	Third Criteria for FFV Purchase	credit/payment term for 2 months
	Other information (revealed)	
	Evidence of willingness to pay price premium for quality/organic/other feature	Tendency of preferences to pay primium prices for quality, especially for organic/non-chemicals use

Lucky Market Group- Continued

4	**Compatibility of FFV Purchase Strategies with SNV Objectives**	**Lucky Market Group, Continued**
	Satisfaction with Current Suppliers (5=best)	3 to 4
	Comments on overall satisfaction	Deliver products on time and good quality, especially PUAC and Triple F, and Lor Muy Seng Co.LTD (Importer). But problem with wholeslers at local market (Psaderm Kor)
	Description of Vegetable Supply Relationships	Short and long-term relationship with wholesalers in local markets, based on quality of vegetable products and price, but eager to cooperate with a new supply at local enterprise for long-term commitment
	First, %	Wholesalers in market-70-80%
	Second, %	20-30% (Puac and Triple F)
	Description of Fruit Supply Relationships	Long supply relationship with importer to meet the need of demand
	First, %	Lor Muy Seng Co. LTD.- almost 100%
	Second, %	0
	Willingness to adapt to local production availability in partnership	Yes, with a strong sense of local products support for small-scale farmers and will be flexible seasonally based on availability of production
B.	**Requirements/Conditions of Partnership Interest**	
1	Current problems with supplier relationship to address in partnership development	
	Problem 1	Wholesaler often asked for higher price
	Problem 2	the volume does not meet the needs, especially PUAC
	Comments	
2	**Service Requirements**	
	Supplier Service 1	Delivery at specific times
	Supplier Service 2	Cleaning
	Supplier Service 3	Purchasing on credit (2 months of payment term)
3	Other Partnership Conditions	
	Condition 1	Direct transport to the super market
	Condition 2	Good packaging
	Condition 3	Payment on credit term (2 months)
C	**Specific Product Interest**	
1	**Product 1 Name**	Cucumber
	Monthly purchase Volume (Range)	3,000 kg
	Current purchase price (Range)	1500 R
	Current main source (%)	Wholesaler in local market, almost 100%
	Current quality issues	OK
	Est % imported	N/A
	Seasonal Imports? (Y/N)	
2	**Product 2 Name**	Tomatoes
	Monthly purchase Volume (Range)	3,000 kg
	Current purchase price (Range)	2,300 R
	Current main source (%)	Imported products (it may be Lacky purchase from wholesalers, but those products are imported from VN)
	Current quality issues	
	Est % imported	
	Seasonal Imports? (Y/N)	
	INTEREST IN ADDITIONAL CEDAC PRODUCTS	Yes, strong interest for supporting a small-scale producers, as a part of its social mission.

Tier 2 Potential Partners

Cambodiana Hotel

	Business Name	Cambodiana
	Description	Hotel and Restaurant target Asian and Westerntourism, and Khmer
	Cuisine type	Principally western
	Key Customer Segments	It is mainly served for high-so people and high ranking business and government officials
	Largest, %	Khmer custorm (100%) for wedding
	Second, %	More than 50% for western tourists and Asian expatriates
A.	**Partner Screeing Criteria**	
1	**Interest in Local FFV Supply Partnership**	
	Current NGO Partnerships	PUAC. Visit frrom CEDAC in 2007
	Strength of Interest in Partnership	Strong
	Comments on Interest in Partnership	Flexible in continuity of supply ordering as long as good notice
2	**Size of Opportunity**	
	Meals Per Day (Low-High)	500-600 (High season), and 100/day (low season)
	Comments & Seasonality	The highest season is from Jan. to March
	KG Fruit Purchase (Low-High)	N/A
	Kg Veg Purchase (Low-High)	70-130 Kg per day
	Ave Spend on FFV/month (Low-High)	N/A
3	**Buyer Price Sensitivity**	
	Overall Assessment	
	First Criteria for FFV Purchase	Quality
	Second Criteria for FFV Purchase	Prices
	Third Criteria for FFV Purchase	Services offer and credit term (1 months)
	Other information (revealed)	
	Evidence of willingness to pay price premium for quality/organic/other feature	No
4	**Compatibility of FFV Purchase Strategies with SNV Objectives**	
	Satisfaction with Current Suppliers (5=best)	4-Mar
	Comments on overall satisfaction	
	First, %	Wholesalers in markets-100%
	Second, %	
	Description of Fruit Supply Relationships	N/A
	First, %	100% from wholesalers in the market
	Second, %	
	Willingness to adapt to local production availability in partnership	High. Significant market power.

Cambodiana Hotel – Continued

		Cambodiana Hotel- Continued
B.	**Requirements/Conditions of Partnership Interest**	
1	Current problems with supplier relationship to address in partnership development	Confirmed that all listed problems are significant
	Problem 1	Asking for higher prices
	Problem 2	
	Problem 3	
	Comments	
2	**Service Requirements**	
	Supplier Service 1	
	Supplier Service 2	
	Supplier Service 3	
3	Other Partnership Conditions	
	Condition 1	Consistent supply
	Condition 2	Every day supply
	Condition 3	Safe and free chemical pesticde
C	**Specific Product Interest**	
	(Excluding products that are not feasible for Cambodian production)	See attached complete fruit and vegetable order inventories
	INTEREST IN ADDITIONAL CEDAC PRODUCTS	Want to see the product first!!!!

Cambodana Hotel- Daily Vegetable Purchases

No	Product Name	Daily Volume (KG)	Ave Price Paid ($/KG)	Quality Problems	Main Supplier	% From Main Supplier	% Imported
1	Potato	40	Market	No	Importer/ Wholesaler	100%	100
2	Tomato	20	Market	No	Importer/	100%	100
3	Onion	20	Market	No	Importer/	100%	100
4	Carrots	20	Market	No	Importer/	100%	100
5	Cabbage	15	Market	No	Importer/	100%	100
6	Salad	2	Market	No	Importer/	100%	100

FCC Group of Restaurants

Note: Response for primary location "FCC" only. Additional restaurants in group consume ≈ 100% additional FFV.

	Business Name	FCC Group of Restaurants
	Description	Tourist-focused major restaurant group
	Cuisine type	Asian/Western, Spanish, Khmer, Deli
	Key Customer Segments	
	Largest, %	Western Tourists
	Second, %	Western Expats
A.	**Partner Screeing Criteria**	
1	**Interest in Local FFV Supply Partnership**	
	Current NGO Partnerships	PUAC
	Strength of Interest in Partnership	Moderate-Strong
	Comments on Interest in Partnership	Some trust problems in existing NGO partnerships: lcoal FFV must meet qualit
2	**Size of Opportunity**	
	Meals Per Day (Low-High)	Å1100
	Comments & Seasonality	Aug/Sep Low; Nov-Dec High
	KG Fruit Purchase (Low-High)	ND
	Kg Veg Purchase (Low-High)	ND
	Ave Spend on FFV/month (Low-High)	$5,000-$10,000/month combined
3	**Buyer Price Sensitivity**	
	Overall Assessment	Low-Moderate
	First Criteria for FFV Purchase	Services
	Second Criteria for FFV Purchase	Variety
	Third Criteria for FFV Purchase	Emergency supplies/flexibility
	Other information (revealed)	Admit that may pay above market prices, but does not like to be "ripped off"
	Evidence of willingness to pay price premium for quality/organic/other feature	Evidence in PUAC relationship and sourcing strategy
4	**Compatibility of FFV Purchase Strategies with SNV Objectives**	
	Satisfaction with Current Suppliers (5=best)	4
	Comments on overall satisfaction	Current supplier is purchasing intermediary who works exclusivey for FCC Group
	Description of Vegetable Supply Relationships	Distrust of wholesalers led to use in-market purchaser at Orussay Market
	First, %	100%
	Second, %	Puac: 100% exotic vegetables
	Description of Fruit Supply Relationships	Same as above
	First, %	100%
	Second, %	
	Willingness to adapt to local production availability in partnership	Moderate: Menus change seasonally

FCC Group of Restaurants- Continued

B.	Requirements/Conditions of Partnership Interest	FCC Group Continued
1	Current problems with supplier relationship to address in partnership development	None. FCC reports "huge market power" and high service levels
	Comments	
2	**Service Requirements**	
	Supplier Service 1	Delivery at specific times
	Supplier Service 2	Emergency Stock Replacment
	Supplier Service 3	Flexible and Tailored Service
3	Other Partnership Conditions	Local supply may help with carbon emissions
	Condition 1	Past NGO experiences mixed- reliability is
	Condition 2	Need to meet FCC uality criteria
	Condition 3	Long trust-building process required
C	**Specific Product Interest**	
	(Excluding products that are not feasible for Cambodian production)	
1	**Product 1 Name**	Tomato
	Monthly purchase Volume (Range)	N/D
	Current purchase price (Range)	Market
	Current main source (%)	Orussay Market
	Current quality issues	Sometimes soft
	Est % imported	Unknown
	Seasonal Imports? (Y/N)	Unknown
2	**Product 2 Name**	Lettuce
	Monthly purchase Volume (Range)	N/D
	Current purchase price (Range)	Fixed PUAC Pricing
	Current main source (%)	PUAC
	Current quality issues	Volume issues
	Est % imported	0%
	Seasonal Imports? (Y/N)	No
3	**Product 3 Name**	Pineapple
	Monthly purchase Volume (Range)	N/D
	Current purchase price (Range)	Market
	Current main source (%)	Orussay Market
	Current quality issues	None
	Est % imported	Unknown
	Seasonal Imports? (Y/N)	Unknown
	INTEREST IN ADDITIONAL CEDAC PRODUCTS	Moderate: must see product and reliability first.

Intercontinental Hotel

	Business Name	Inter-Continental Hotel
	Description	Hotel and Restaurant target Asian and Westerntourism, and Khmer for bank quit event
	Cuisine type	Principally western
	Key Customer Segments	It is a five star hotel which mainly served for high-so people and high ranking business and government officials
	Largest, %	Asian and westerm
	Second, %	Khmer custorm for bank quit event
A.	**Partner Screeing Criteria**	
1	**Interest in Local FFV Supply Partnership**	Moderate strong
	Current NGO Partnerships	PUAC
	Strength of Interest in Partnership	Moderate strong
	Comments on Interest in Partnership	Indicated the part of social mission, especially intent to promote local farmers but ensure regula supply of products and having moderate price sensitive and primium prices
2	**Size of Opportunity**	
	Meals Per Day (Low-High)	220-320
	Comments & Seasonality	N/A
	KG Fruit Purchase (Low-High)	900-1300 kg per day
	Kg Veg Purchase (Low-High)	70-130 Kg per day
	Ave Spend on FFV/month (Low-High)	N/A
3	**Buyer Price Sensitivity**	
	Overall Assessment	Moderate: Price sensitivity balanced against desire to support local enterprise and ensure quality supply.
	First Criteria for FFV Purchase	Quality
	Second Criteria for FFV Purchase	Prices
	Third Criteria for FFV Purchase	Services offer and credit term (3 months)
	Other information (revealed)	
	Evidence of willingness to pay price premium for quality/organic/other feature	Confirmed williness to pay price for non-pesticide products.
4	**Compatibility of FFV Purchase Strategies with SNV Objectives**	
	Satisfaction with Current Suppliers (5=best)	2-3 for retails and importer, but 3-4 for PUAC
	Comments on overall satisfaction	Premium price and contract agreement make constraint for retailers and importers to supply during scarcity of products.
	Description of Vegetable Supply Relationships	Purchasing at retail but change in case not or lack of providing enough products
	First, %	Wholesalers in markets- 80-90%
	Second, %	Importer- 10-20%
	Description of Fruit Supply Relationships	Purchained mainly from local import fruit
	First, %	Wholesalers in markets- 90-95%
	Second, %	Fruit paradise- 5%
	Willingness to adapt to local production availability in partnership	Confirmed. High tolerance for changing seasonal supply based on production availability.

Intercontinental Hotel – Continued

B.	Requirements/Conditions of Partnership Interest	Intercontinental Hotel- Continued
1	Current problems with supplier relationship to address in partnership development	Confirmed that all listed problems are significant
	Problem 1	Quality
	Problem 2	Asking for higher prices
	Problem 3	Volume did not meet demand
	Comments	ALL SUPPLIER ISSUES ARE MAJOR
2	**Service Requirements**	
	Supplier Service 1	Grading and sorting for retail market and importer
	Supplier Service 2	
	Supplier Service 3	
3	Other Partnership Conditions	
	Condition 1	Safety
	Condition 2	Freshness
	Condition 3	Transport directly to restaurant and buying on credit term (3 months payback)
C	**Specific Product Interest**	
	(Excluding products that are not feasible for Cambodian production)	See attached complete fruit and vegetable order inventories
1	**Product 1 Name**	Tomato
	Monthly purchase Volume (Range)	750
2	**Product 2 Name**	Carrot
	Monthly purchase Volume (Range)	750
3	**Product 3 Name**	Onion
	Monthly purchase Volume (Range)	750
	INTEREST IN ADDITIONAL CEDAC PRODUCTS	Interested most of CEDAC Products

Intercontinental Hotel- Continued (2)

Intercontinental Hotel Daily Fruit Purchases

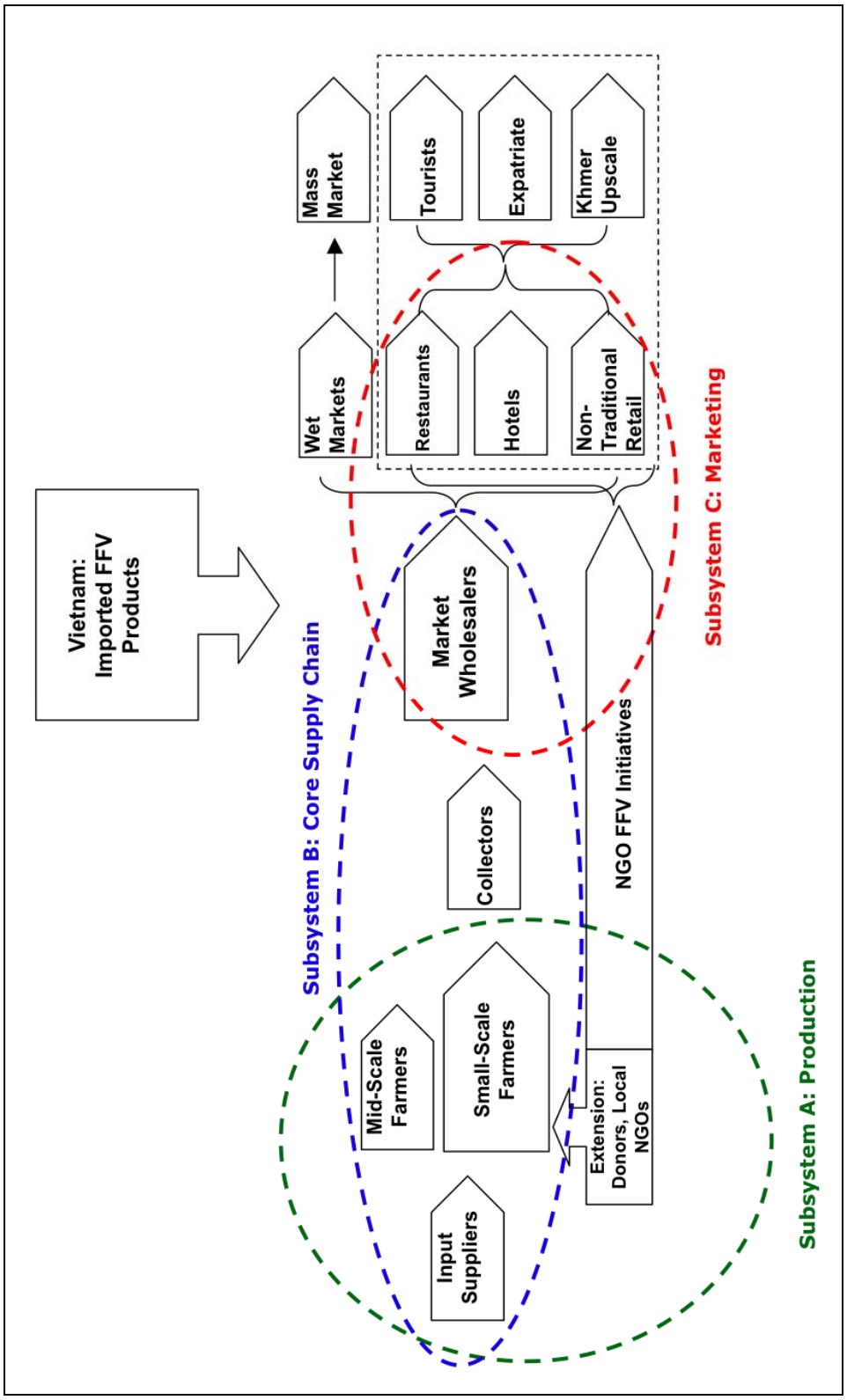
No	Product Name	Daily Volume (KG)	Ave Price ($/KG)	Quality Problems	Main Supplier	% From Main Supplier	% Imported
1	Orange	200		No	Importer	100%	
2	Pineapple	200-300		No	Importer	100%	
3	Water	200-300		No	Importer	100%	
4	Pomelo	200-300		No	Importer	100%	
5	Papaya	100-200		No	Wholesaler in market	70%	30%

Intercontinental Hotel Daily Vegetable Purchases

No	Product Name	Daily Volume (KG)	Ave Price Paid ($/KG)	Quality Problems	Main Supplier	% From Main Supplier
		Range OK	Range OK	Yes/No and Describe	Codes Below	
1	Carrot	20-30Kg	N/D	No	Wholesaler	Å 100%
2	Tomato	10-20Kg	N/D	N0	Wholesaler	Å 100%
3	Onion	10-20Kg	N/D	N0	Wholesaler	Å 100%
4	Chinese cabbage	10-20Kg	N/D	No	Wholesaler	Å 100%
5	Cucumber	5-10Kg	N/D	No	Wholesaler	Å 100%
6	Lettuce	5-10Kg	N/D	No	PUAC	Å 100%

N/D indicates not willing to disclose

Appendix 4: FFV Value Chain Diagram



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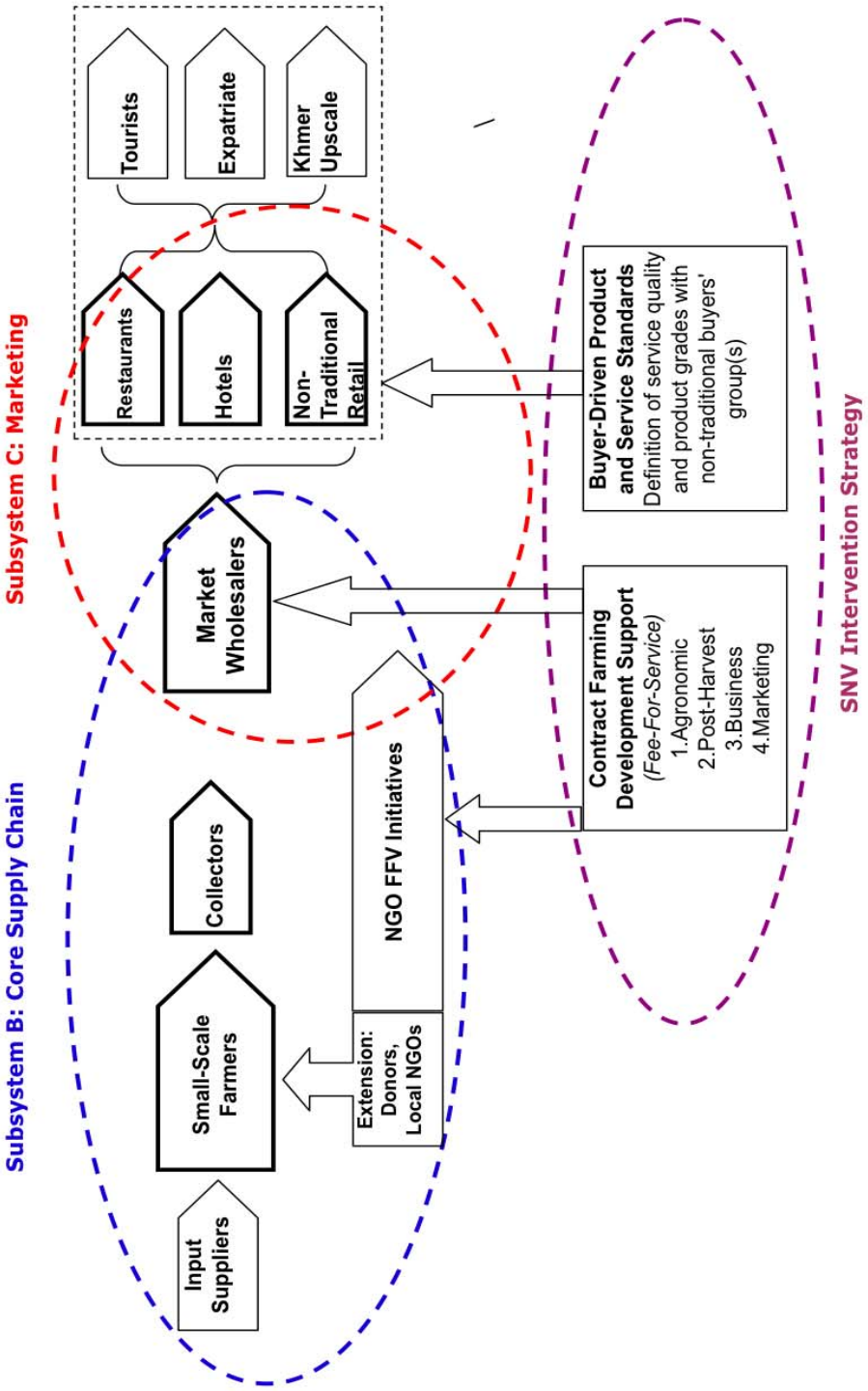
Appendix 5: Proposed Intervention Strategy Map



Appendix 6: Intervention Risks by Step and Activity

Step	Intervention Target/ Intervention Phase	Description	Key Development Risks
1	**Buyers** **Liaison/Selection**	Key buyers identified in scoping study Convene meeting to build support for core product and service standards Clarify long-term participation arrangements	No history of collaboration May be competitive for scarce supplies
2	**Service Providers** **Liaison/Selection**	Outreach to identified service providers Indications of interest in LT collaboration Capacity and Interest Assessment Performance-based contracting	Capacity may be low Many competing demands on time Estimates of locally-available SPs maybe optimistic Many NGOs are supply-driven: if NGOs engaged, must be profit-driven
3	**Service Providers** **Capacity Building**	Capacity development for service providers w appropriate resources on agronomics and business (marketing) approaches to commercial agricultural development	Must start wholesaler engagment prior to completion of capacity development.
4	**Wholesalers** **Liaison/Selection**	Develop selection criteria for collaborators List of potential wholesalers through network Open canvasing at key wholesale FFV markets Convene promotional event to inform wholesalers of program, costs, and benefits **Indications of interest and application process** **Final selection of Wholesale Collaborators**	Short-term profit mentality Need for demonstrated profit potential Not finding minimum farmer participation Wholesaler may not commit to long-term Must be gender-aware selection process
5	**Farmers** **Liaison/Selection**	Farmers identified by wholesalers Input from NGO communities to identify clustered farmers Collaboration Agreements with Wholesalers and SNV	Cream-skimming is a signfiicant risk: must set criteria to ensure poor farmers participate
5a	**NGO** **Liaison/Selection**	Direct canvassing of potential NGO partners with organized farmers' groups based on interest in Market-Based Solutions Discussion of collaboration expectations including interaction of service providers with current NGO arrangements Final selection of NGO Collaborators	Transition to market-based operation may be challenging to some NGOs aid/development philosophies Compatibility with market based techniques. Many NGOs have their own production and training techniques that match their individual philosphy.

Step	Intervention Target/ Intervention Phase	Description	Key Development Risks
6	**Buyers** **Capacity Building**	Education on FFV Quality/Grading Standards Development of agreed-upon product standards with wholesalers	May Introduce conflict with wholesalers, as in Siem Reap
7	**Wholesalers** **Capacity Building**	Analysis of wholesalers' business systems Contract farming management training GAP Training Farmer Marketing School Training Marketing/ Customer Skills and Feeback Training Systems Development	Must be structured to accommodate wholesaler time constraints Must be gender-aware in scheduling Must be flexible in accounting for family business responsibilities
7a	**NGO** **Capacity Building**	Rapid analysis of NGO extensions/business/marketing systems Intensive training of NGO extension workers on market-based production strategies, in conjunction with wholesaler marketing/CS and Feedback Training Relationship development with Wholesaler contract farming clients & buyers' group(s)	Resistance by more traditional NGO extension staff to new techniques and modes of interacting with farmers Perception that new techniques and modes of operation, exclude poorer farmers Expectation of more benevolent (traditional NGO) relationship with wholesaler
8	**Farmers** **Capacity Building**	Farmer Marketing School Training Agronomic & technical skills training (Farmer Field School) Finance and contracting training (Farmer Finance School)	Level of education and literacy may be limit Time (opportunity) cost of training attendance for poor must be considerd.
8a	**NGO** **Capacity Building/ Ongoing Operations**	Learning and Innovation Network: Monthly convening of NGO extension managers to communicate innovations and performance improvements. Ongoing farmer group management and capacity building	LIN can only function as well as the level of input by partners Commitment to higher intensity management and supervision
9a	**Service Providers** **Ongoing Operations**	Supervise initial planting Feedback mechanisms Continuous improvement development	Succession planning: I.e. master farmer as contractor Ongoing capacity development required Need to plan for localized management post-intervention
9b	**Wholesalers** **Ongoing Operations**	Production scheduling Supervise initial planting Supervise growing Supervise harvesting Mentoring/continuous improvement Facilitate finance relationships	 Competitors may respond with improved pricing, quality strategies. Success depends on wholesaler ability to source adequate inputs May be conflict with local collectors Requires intensive supervision May require credit tools to permit working with buyers
9c	**Farmers** **Ongoing Operations**	Planting & Inputs Growing/crop management Harvesting & Post-Harvest Management	Require secondary strategy in case of wholesaler failure Should encourage Master Farmers to consider own CF operations Contract default and side-selling risk: requires community sanction
10	**Buyers** **Ongoing Operations**	Buyer feedback on initial crops (B)	May require multiple iterations to reach agreed-upon standards

Appendix 7: Budget by Intervention Step

Program Establishment Cost- Initial 6-8 Months						
Step	**Intervention Target/Phase**	**MBS or Other Providers**	**Days**	**Rate**	**Cost**	**Total Step Cost**
1	**Buyers Liaison/Selection**	None				$ -
2	**Service Providers Liaison/Selection**	None				
		Consultancy to assess capacity	20	$ 200	$ 4,000	$ 4,000
3	**Service Providers**	International and Cambodia-based trainers/resources, PUAC	50	$ 200	$ 10,000	$ 22,800
	Capacity Building	Fresh Studio (VN)	14	$ 700	$ 9,800	
		Swift Co. Ltd. (TH)				
		Katalyst (Bangladesh)/ Jobs Group				
		Local training specialists	20	$ 150	$ 3,000	
4	**Wholesalers Liaison/Selection**	PUAC	10	$ 350	$ 3,500	$ 3,500
		ATSA				
		Additional Identified Private Extension and Business Services Providers				
5	**Farmers**	Possible verification by PUAC, ATSA	20	$ 200	$ 4,000	$ 4,000
	Liaison/Selection					
5a	**NGO**	Verification of farmer capacity by PUAC, ATSA	20	$ 200	$ 4,000	$ 4,000
	Liaison/Selection					
6	**Buyers Capacity Building**	Minimal MBSP input	10	$ 150	$ 1,500	$ 1,500
		CAMIP Collaboration				
7	**Wholesalers Capacity Building**	PUAC	10	$ 200	$ 2,000	$ 19,500
		ATSA	5	$ 200	$ 1,000	
		Additional Identified Private Extension and Business Services Providers (CIEDC)	5	$ 200	$ 1,000	
		CAMIP	10	$ 150	$ 1,500	
		Fresh Studio (VN)	10	$ 700	$ 7,000	
		Swift Co. Ltd. (TH)	10	$ 700	$ 7,000	
7a	**NGO Capacity Building**	PUAC	10	$ 200	$ 2,000	$ 7,000
		CAMIP	10	$ 150	$ 1,500	
		Swift Company (TH)	5	$ 700	$ 3,500	
8	**Farmers Capacity Building**	CAMIP	10	$ 500	$ 5,000	$ 25,000
		ATSA/Independent Extension Providers	100	$ 200	$ 20,000	
						$ 91,300

Repetitive Costs- Per 3 Month Cycle						
8a	**NGO** **Capacity Building/** **Ongoing Operations**	PUAC ATSA/Independent Extension Providers	3 3	$ 150 $ 150	$ 450 $ 450	$ 900
9a	**Service Providers** **Ongoing Operations**	PUAC ATSA/Independent Extension Providers	3	$ 410	$ 1,230	$ 1,230
9b	**Wholesalers** **Ongoing Operations**	PUAC ATSA/Independent Extension Providers	3	$ 410	$ 1,230	$ 1,230
9c	**Farmers** **Ongoing Operations**	PUAC ATSA/Independent Extension Providers	3	$ 2,180	$ 6,540	$ 6,540 $ -
10	**Buyers** **Ongoing Operations**	PUAC ATSA/Independent Extension Providers	0	$ -	$ -	$ -
						$ 9,900