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A PORTFOLIO APPROACH TO VALUE CHAIN DEVELOPMENT PROGRAMS

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EXECUTIVE SUMMARY

For international development organizations tasked with facilitating pro-poor value chain growth, the importance of actively managing the risks associated with working in dynamic and occasionally volatile market environments has become increasingly evident. Drawing from the finance industry, a well-known strategy for managing risks is the portfolio approach. In finance, portfolio managers decide how to allocate capital across a variety of investment options in an effort to deliver the highest return to the institution and/or investors they represent. While making investment decisions, portfolio managers commonly diversify their investment holdings in order to mitigate their exposure to the risk of over-concentration in a specific company and/or sector. In addition, actively managed portfolios rely upon a consistent stream of performance data that guides the periodic rebalancing of portfolio holdings to optimize returns.[1]

The portfolio approach holds significant potential for application to value chain development programs. Adapted for such programs, the portfolio approach can be defined in three ways. First, the portfolio approach is a way of selecting value chains with diverse risk profiles so that the realization of a specific risk during program implementation does not undermine overall program progress. Second, the portfolio approach is a way of conducting value chain analysis and designing interventions that target functionally interconnected market systems to the extent that a set of program activities taken collectively may have a catalytic, transformative effect on value chain development. And third, the portfolio approach is a program management process that tracks both overall value chain performance and the collective performance of value chain interventions at a meta-level in order to inform implementing partners of whether targeted value chains are progressing, stagnating, or regressing during program assistance. Such information could be used to adjust program interventions according to their effectiveness, ultimately realizing results that deliver an optimal return on donor investment, as indicated by economic growth and poverty reduction that is both measureable and attributable to said interventions.[2] This paper is organized into three sections in alignment with the 3-part definition of the portfolio approach offered above, and focuses on agricultural value chains for contextual examples.

[1] Increasingly, so-called "impact investment" entities are taking into account not only financial returns on an investment but also environmental and social impact. Examples include Calvert Investments, Domini Social Investments, and the Acumen Fund.
[2] The challenge of establishing attribution to PSD interventions is explored in Creevy et. al. 2010.

I. CHOOSING VALUE CHAINS WITH DIFFERENTIATED RISK PROFILES

USAID's current guidance on value chain selection identifies four criteria to help guide the selection process: potential for increased competitiveness, development impact, industry leadership, and consideration of cross-cutting issues. These criteria offer robust guidance on how to begin a value chain development program with a selection process that is rigorous yet efficient. Moreover, it is now common practice for implementing partners to closely monitor trends in the end markets for both existing and emerging value chains throughout program implementation, as new investment opportunities are constantly arising.[3] This advice places a premium on flexibility as a guiding principle in private sector development (PSD) program management. Taken together, these developments comprise a welcome shift in thinking towards programs that are responsible for delivering a return on donor investment. However, in order to refine this concern for return on investment (ROI), implementing partners should add an important sub-criterion to their value chain selection approach: the risk profile of each value chain being considered for program assistance.

THE VALUE CHAIN PROJECT CYCLE

For a number of years, the value chain project cycle was regarded as a unidirectional process of value chain selection, value chain analysis, the prioritization of constraints to pro-poor value chain growth and corresponding intervention design, and steadfast implementation of those interventions until project conclusion. This approach to implementation failed to account for the fact that domestic, regional and international economic and political environments are highly dynamic. In reality, implementers of value chain projects are often confronted with a changing landscape of constraints and opportunities that can render a specific value chain more or less competitive, and as a result more or less valuable as an engine for economic growth and poverty reduction.

In the finance industry, portfolio managers commonly diversify their investment holdings in order to mitigate their exposure to the risk of over-concentration in a specific company and/or sector. This tactic bears particular relevance for implementing partners of PSD programs, especially during the value chain selection process when important decisions are made about which value chains to engage for program assistance. Because agricultural value chains are the ones most commonly targeted for donor assistance due to the high percentage of poor people engaged in agriculture in developing countries, this paper's consideration of the varying risk profiles held by different value chains highlights agricultural value chains for contextual analysis. Agricultural value chains may be exposed to or suffer the consequences of a variety of risks, with individuals and firms facing different risks depending on their location in the value chain. Table 1 presents a categorization of such risks.

Table 1: Categories of Major Risks Facing Agricultural Value Chains

Type of Risk	Examples
Weather Related Risks	Periodic deficit and/or excess rainfall or temperatures, hail storms, strong winds
Natural Disasters (including extreme weather events)	Major floods and droughts, hurricanes, cyclones, typhoons, earthquakes, volcanic activity
Biology and Environmental Risks	Crop and livestock pests and diseases; contamination related to poor sanitation, human contamination and illnesses; contamination affecting food safety; contamination and degradation of natural resources and environment; contamination and degradation of production and processing processes

[3] ACDI/VOCA for USAID. 2009.

Market-Related Risks	Changes in supply and/or demand that impact domestic and/or international prices of inputs and/or outputs, changes in market demands for quantity and/or quality attributes, changes in food safety requirements, changes in market demands for timing of product delivery, changes in enterprise/supply chain reputation and dependability
Logistical and Infrastructural Risks	Changes in transport, communication, energy costs, degraded and/or undependable transport, communication, energy infrastructure, physical destruction, conflicts, labor disputes affecting transport, communications, energy infrastructure and services
Management and Operational Risks	Poor management decisions in asset allocation and livelihood/enterprise selection; poor decision making in use of inputs; poor quality control; forecast and planning errors; breakdowns in farm or firm equipment; use of outdated seeds; lack of preparation to change product, process, markets; inability to adapt to changes in cash and labor flows
Public Policy and Institutional Risks	Changing and/or uncertain monetary, fiscal and tax policies; changing and/or uncertain financial (credit, savings, insurance) policies; changing and/or uncertain regulatory and legal policies and enforcement; changing and/or uncertain trade and market policies; changing and/or uncertain land policies and tenure system; governance-related uncertainty (e.g., corruption); weak institutional capacity to implement regulatory mandates
Political Risks	Security-related risks and uncertainty (e.g., threats to property and/or life) associated with politico-social stability within a country or in neighboring countries; interruption of trade due to disputes with other countries, nationalization/confiscation of assets, especially for foreign investors

Source: Jaffee, Seigel and Andrews. 2008.

Given the range of topics presented in Table 1, it is obvious that no value chain is free from exposure to risk, yet the risk profile of each value chain is different, and since new generation PSD programs are mandated to deliver measurable results, it makes sense to select value chains that have diverse risk profiles. For example, the risk of working in a single-season, low-value staple crop such as maize—which is typically sold through open markets—can be offset by also working in a multi-season, high-value horticulture crop whereby the majority of the crop is bought on contract by processors, wholesalers, or retailers. By being explicit about working with multiple value chains that have different risk profiles, the likelihood that the selected value chains will face the same risk in the same way is limited. Consequently, the cumulative risk exposure of a program's portfolio of value chain investments is also limited. Table 2 offers a stylized risk rating matrix highlighting commodity value chains whose performance in developing countries is highly impacted by international trade and the global business environment. This matrix could be combined with existing value chain rating matrices that measure a range of sub-criteria during the value chain selection process.[4]

The 1, 2, or 3 rating options for each risk category are intentionally crude as the value chain selection process should not become weighed down by overly sophisticated analytical tools. The important thing is that risk profiles are considered during the selection process so that a program's portfolio of value chains is not over-concentrated in value chains with extreme sensitivity to adverse weather patterns and/or price volatility, for example.

RISK REDUCTION AT MULTIPLE LEVELS

Beyond reducing programmatic risk exposure by selecting a portfolio of value chains with diverse risk profiles, implementing partners should also focus on building the capacity of individuals, businesses and institutions to reduce their own exposure to the particular risks inherent in their value chain. For example, farmers of horticulture crops typically face a series of weather-related risks that can be reduced through the introduction of inexpensive production equipment such as basic irrigation systems, plant nurseries, and grow tunnels.

[4] See http://apps.develebridge.net/amap/index.php/Ranking_Matrix for examples of value chain ranking matrices applied during the value chain selection process.

Table 2: Prominent Risks Affecting Developing Country Commodity Value Chains Involved in Trade with Major International Markets[5]

Value Chain	Types of Risk				
	Price Volatility of Commodity	Loss of Product (Quality) Due to Logistical Breakdown	Market Access Constrained by SPS Concerns	Adverse Weather Disrupting Production	Market Concern with Environmental or Social Dimensions of Production
Cotton	3	1	1	1	1
Rice	3	1	1	2	1
Spices	2	2	2	2	1
Fruit	1	3	2	3	1
Coffee	3	2	1	2	1
Groundnuts	2	2	2	2	1
Tea	1	2	1	3	2
Cut Flowers	1	3	2	2	2
Cocoa	3	2	1	2	2
Oil Palm	3	2	1	2	2
Fish	1	3	3	1	2
Vegetables	1	3	2	3	2
Maize	3	2	2	3	1
Beef	1	3	3	2	2
Scoring Key: 1= low risk; 2 = medium risk; 3 = high risk					

Source: Adapted from Jaffee, Seigel and Andrews. 2008.

As noted above, donor-funded value chain development programs tend to target agricultural value chains because the vast majority of the poor make their livelihood in this sector. However, in donor-assisted countries where the manufacturing and/or services sectors show strong potential for growth and development impact, it is highly sensible to diversify a program's target value chains across agriculture, manufacturing, and/or services. Such a decision would effectively reduce a program's exposure to sector-specific risks such as an adverse weather shock that disrupts agricultural production or initiation of a labor strike that undercuts the manufacturing sector.

[5] In the original version of this table, the authors note that "some of these risk ratings would be substantially different for certain categories if the focal [value chain] were exporting to neighboring or other developing countries. For example, concerns about sanitary/phytosanitary risks and about environmental/social dimensions of production could be decidedly lower.

II. DESIGNING INTERVENTIONS THAT LEVERAGE SYNERGIES

Each country's national economy is made up of a vast network of market systems and value chains that requires deep levels of interconnectedness to function optimally. For example, extensive research shows that increasing poor people's access to affordable basic services such as clean water, healthcare, and primary education has a direct bearing on their productivity and employment prospects.[6] In other words, successfully addressing the non-income dimensions of poverty provides the necessary foundation to target the income dimensions. No single failing market system can be isolated as the main determinant of poverty. Rather, a confluence of market failures across a range of market systems and value chains combines to reinforce the cycle of poverty that so many households are stuck in worldwide. The notion of basic services as a critical foundation market can also be applied to products and services whose utility cuts across established value chains. For example, a functional market for mechanized agricultural equipment can dramatically increase the productivity of farming operations that produce a wide array of crops. In terms of service markets, increased access to financial services, ICT, and vocational training also offers substantial value-added benefits economy-wide.

Strongly interconnected market systems are just as important for value chain performance as they are for national and global economic performance. Indeed, a main objective of value chain analysis is to identify market failures at specific points in the value chain that constrain the ability of value chain actors to collectively respond to end market-based growth opportunities. Often times, major constraints are identified in the market systems that supply critical products and services to support value chain performance, such as financial services, information and communication technologies, transportation, or irrigation equipment, for example. These "foundation markets" can be organized into four categories: consumer services, feeder services, feeder value chains, and investment climate services.[7]

Table 3: Examples of Foundation Markets

Consumer Services	Feeder Services	Feeder Value Chains	Investment Climate Services
• Health care • Education • Vocational training • Energy • Water • Sanitation • Telecommunications	• Agricultural extension services • Product certification • Vet services • Trade show management • Product design	• Agricultural inputs • Agro-tools • Irrigation • Manufacturing equipment and spare parts (light engineering)	• ICT • Financial Services • Media • Marketing • Accounting

Source: McVay and Miehlbradt. 2006.

Problematically, PSD programs do not always work to overcome the full range of value chain constraints in a thoughtfully sequenced manner that integrates foundation market development into value chain programs, thus limiting program impact. By taking a more strategic approach to reversing the most binding constraints identified across the landscape of interconnected market systems that make up a value chain, a PSD program can have a catalytic impact on value chain growth and the broader economy. To provide two contextual examples, cases from Ghana and Mozambique are highlighted below.

[6] Barro. 1991. And also: Mankiw, Roemer and Weil. 1992.
[7] McVay, Mary and Alexandra Miehlbradt. 2006.

Following a value chain analysis of maize in Ghana, the implementing partner consulted with value chain stakeholders to determine that critically binding constraints needed to be addressed in the market systems for maize inputs, agricultural equipment, financial services, and soya (or another legume) for crop rotation benefits. By targeting each of these market systems within a single program, the implementing partner is able to maximize returns to the broader economy while also more deeply understanding the nuanced ways in which specific elements of one market system (i.e. finance) directly constrain opportunities for growth in another market system (i.e. agriculture input products). To provide a different yet related perspective, maize and soya have solid market potential in Ghana, but that potential is tied to increased mechanization. This scenario presents a classic sequencing dilemma as viable commercial markets for Ghana-made maize, soya, and agriculture equipment are interdependent. Does one market need to emerge first to pull the others along in demand-driven fashion, or must they advance towards commercial viability simultaneously? Of course, it depends on the circumstances and contextual details of the country. In the case of Ghana, agriculture equipment as a market system taken in combination with other market systems or value chains makes sense, but independently it does not. Orchestrating the process of properly sequenced value chain development requires the talent of a skilled program facilitation team and some trial-and-error. As one implementing partner has pointed out, "while it is easy to pinpoint the 'best investments' after the fact, one cannot predict at the beginning of a program which [value chains] or activities will produce large benefits."[8]

In Mozambique, targeting tightly interconnected market systems in the poultry value chain proved successful due to strategic sequencing. During the initial value chain analysis, the implementing partner identified a major growth constraint in the market for production of chicks. As this constraint was addressed through financial and technical assistance to budding hatcheries, a related constraint was uncovered in the market for chicken feed. Digging deeper, the implementing partner found that the low availability of affordable soybeans—which is a key ingredient in chicken feed—was the key binding constraint to emergence of a commercially viable chicken feed market. The implementing partner worked with commercial seed purveyors, soybean farmers, and chicken feed suppliers to facilitate development of the market for chicken feed, which demonstrated commercial viability once connected to the emerging market for chick hatcheries and chicken farms. Once again, by targeting a series of interconnected market failures in a strategic fashion, the implementing partner catalyzed value chain growth.

[8] Bolnick. 2004.

III. MANAGING THE PROGRESS OF VALUE CHAIN INTERVENTIONS

More recently, leading implementing partners have begun administering monitoring and evaluation (M&E) systems that studiously measure baseline data for each intervention in their programs' target value chains, set outcome- and impact-level performance targets for the interventions, and frequently measure progress towards those targets to determine which interventions are working and which are not. Moreover, by requiring all technical staff to perform M&E as part of their scopes of work, these implementing partners are also using their M&E systems to create a healthy culture of learning, adaptability, and entrepreneurial thinking on their programs. In a paper by the renowned Development Economist Dani Rodrik, Professor Rodrik lists ten design principles pertaining to "industrial policy for the 21st century," one of which includes the following insights:

> Optimally, mistakes that result in "picking losers" will occur. An optimal [industrial growth] strategy of discovering the productive potential of a country will necessarily entail some mistakes of this type. Some promoted activities will fail. The objective should not be to minimize the chances that mistakes will occur, which would result in no self-discovery at all, but to minimize the costs of the mistakes when they do occur.[9]

The same principle that Rodrik cites for industrial policy is highly relevant for PSD programs, which face similar perils in terms of launching a set of interventions to facilitate value chain growth, some that will succeed and some that will fail. The assumptions that underpin intervention designs and the results expected for each intervention must be re-examined frequently and closely monitored over the life of the program. Certain value chain interventions will be more effective than others; what is important is that effective interventions are understood and replicated and ineffective interventions are identified early and modified. Because programs are often confronted with a changing landscape of constraints and opportunities that can render a specific value chain more or less competitive—and as a result more or less valuable as an engine for growth/poverty reduction—the M&E system can be helpful in guiding decisions involving this allocation and periodic re-balancing of program resources.

The trend towards repurposing M&E as a program management tool comes at a time when major donors are calling for greater accountability in programs' results reporting and a dramatic increase in the number of independent impact evaluations. In a January 19, 2011 speech, USAID Administrator Raj Shah announced the Agency's new Evaluation Policy, which sets a path for "aggressively measuring and learning from programs."[10] The document detailing the new Evaluation Policy emphasizes USAID's commitment "to measuring and documenting project achievements and shortcomings so that the Agency's multiple stakeholders gain an understanding of the return on investment in development activities."[11] Two recent PSD programs, one in Zambia and the other in Bangladesh, provide good examples of advanced M&E systems that were used to improve program performance.

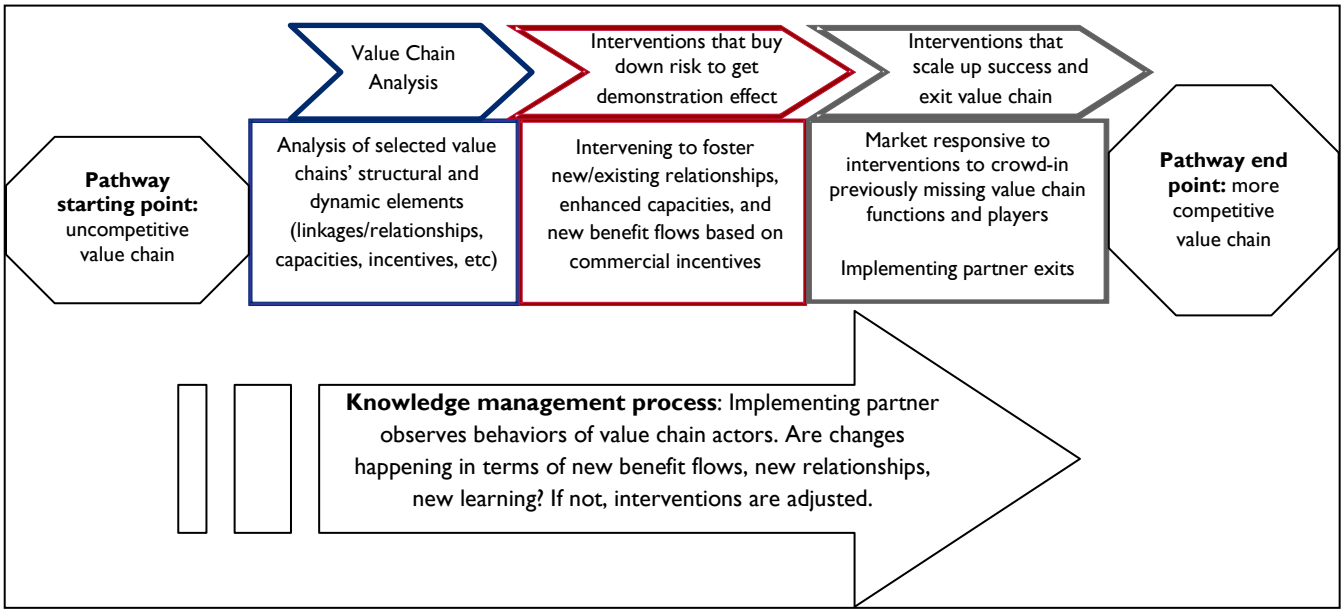
On the Zambia PROFIT Program, the implementing partner introduced the interdependent concepts of an industry pathway and a corresponding knowledge management process (See figure 1).

> The industry pathway shows the interactions between a sequenced set of interventions and the anticipated systemic changes—in shared benefits, in win/win relationships, and in continuous learning/innovation—required to drive and sustain an industry upgrading strategy. The knowledge management process is the systematic collection of quantitative

[9] Rodrik. 2004.
[10] Speech at Center for Global Development.
[11] USAID Evaluation Policy. 2011. The USAID Bureau for Policy, Planning, and Learning.

and qualitative information used to track performance and guide facilitators' interventions in advancing along this pathway towards industry competitiveness.[12]

Figure 1: Illustrative Industry Pathway and Knowledge Management Process



Source: Field and Bear. 2008.

Articulating an industry or value chain development pathway is quite similar to laying out a causal model in that both exercises require establishment of a baseline starting point, performance targets that collectively define the vision of a more competitive and pro-poor value chain, and the interventions intended to realize that vision. The PROFIT team was particularly innovative with their emphasis on engaging all programmatic technical staff in the M&E knowledge management process. All staff were trained to internalize the pathways envisioned for the program's selected value chains and work towards the end point of those pathways. When progress was not being made in line with the program's timeline and budget, the team worked to troubleshoot their approach and refine the interventions to advance along the stated industrial pathways. Consultants from PROFIT are now piloting a formal workshop that will train implementing partners on the use industry pathways and knowledge management-focused M&E to achieve value chain development objectives.[13]

On the Bangladesh KATALYST program, the implementing partner took a similar approach by requiring the technical staff to create a "results chain" for every program intervention and closely monitor progress in advancing target beneficiaries along the chain. The results chain is very similar to an industry pathway or a causal model. Technical staff on KATALYST have adopted the "standards for results measurement" developed by the Donor Committee for Enterprise Development (DCED). Beyond the results chain principle, these standards also require implementers to define the indicators of change (i.e. income growth); measure these indicators while considering attribution issues; capture wider changes in the value chain; track program costs; and manage the program according to results chain progress. As with the PROFIT team, the KATALYST team utilizes a quick feedback loop between

[12] Field and Bear. 2008.
[13] ACDI/VOCA staff member Michael Field and independent consultant Marshall Bear designed this workshop.

their interventions and results monitoring and has often changed strategy or tactics with certain interventions to achieve better results.

Taken in combination, the PROFIT and KATALYST M&E systems offer a promising starting point for development of a portfolio management tool to aide implementing partners of PSD programs. The main gap that remains between these existing systems and a portfolio management tool is the absence of a formal, guided process for consolidating all components of each industrial pathway, results chain, or causal model into a comparable, program-level decision making tool. For example, a program might be operating five interventions each in four value chains. Utilizing the PROFIT or KATALYST methods, each of these twenty interventions would have a pathway or results chain that states the outcome- or impact-level performance target of the intervention, along with the intermediate steps that are expected to be taken along the pathway or results chain.

To operationalize the portfolio approach, the performance of each of the twenty interventions—using both qualitative and quantitative metrics—would be rolled up at the value chain level and also at the program level for the program director to monitor. The program director, the rest of the implementing team, the donor partner, and even the value chain stakeholders would benefit from such high-level, consolidated performance information for each value chain and for the program as a whole. Ideally, each intervention could have a quantitative measure that permits a calculation of return on donor investment, thus highlighting the "value for money" proposition of selected programs. Of course, there are serious challenges in attempting to compare the ROI for interventions as disparate as establishment of a cold chain, elimination of an import tax on fertilizer, and utilization of high-yield rice seed, to name a few examples. Such challenges would have to be addressed by a skilled M&E expert, with all measurement and attribution shortcomings readily acknowledged. However, donors' ROI should not be restricted to purely quantitative measures.

It is critical to recognize the importance of certain qualitative elements of value chain development, such as the capacity of a program's target beneficiaries (i.e. farmers and small- to medium-sized agribusinesses) to demonstrate adaptability, resilience, and risk management practices in the face of a constantly changing competitive landscape, both domestically and internationally. This is the essence of sustainable impact in the context of value chain development programs. For this reason, incorporating a combination of carefully selected quantitative and qualitative indicators into a program's M&E and knowledge management system will inform a portfolio approach that more holistically captures program progress and donor ROI.

CONCLUSION

This paper begins to explore the concept of a portfolio approach to designing and implementing value chain development programs. In closing, it may be worth considering the utility of a portfolio approach at different levels of management. For example, at a more micro-level within PSD programs, implementing partners might opt to select a portfolio of commercial input suppliers when selecting partners for a fertilizer voucher scheme. By selecting multiple suppliers in different locations, the risk of dependence on only one or just a few suppliers is lessened. To provide another example from the donor perspective, a donor official responsible for managing a portfolio of PSD programs in a single country or in a region might find it useful to employ the portfolio approach to ensure risk diversification, program coordination, and frequent M&E of the sectors/value chains that they have targeted for assistance. Donor officials operating from headquarters in Washington D.C. or London might find the portfolio approach useful for the same reasons but at a higher macro level.

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