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THE SUSTAINABILITY OF THE LANTERN INDUSTRY IN PAMPANGA: A FINANCIAL PERSPECTIVE

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The objectives of this study are to (1) assess the financial viability of the lantern industry in Pampanga; (2) identify ways to improve profitability; and (3) recommend policy interventions by the government to enhance the sustainability of the local industry. Interviews were conducted among the major lantern manufacturers in Pampanga through the use of questionnaires designed to capture all financial data required to assess their financial viability. The results showed that although the industry is profitable, it is faced with several issues that affect sustainability both in the short and long-term. Furthermore, given the right support, guidance and exposure, the lantern industry in Pampanga has the potential to develop into a more viable and sustainable industry and, in so doing, provide basic jobs to more people in the community.

Keywords: accounting system, assistance linkage framework, capiz lantern, contribution margin, cost-volume-profit analysis, financial perspective, flexilights, holiday décor, lantern makers association, local government, Pampanga lantern industry, Pampanga lantern industry association, Parol, Philippine Christmas lantern, plastic lantern, sustainability, SWOT analysis, TOWS strategies

I. INTRODUCTION

Long recognized as the Christmas Lantern capital of the Philippines, San Fernando City in Pampanga is home to several generations of lantern manufacturers who produce a wide variety of creative "parols" (Philippine Christmas lanterns): from the simplest five (5)-pointed star to the famous giant "parol" featured during the annual Christmas lantern festival. The "parol" from Pampanga traces its history to the late 1800s when it was first made of bamboo and "papel de japon" (Japanese rice paper) and illuminated with the use of candles or carbide lamps. Symbolic of the Star of Bethlehem that led the magi from the east to the new-born baby Jesus, the "parol" began as a means to guide the catholic faithful to their churches during the yearly Christmas celebration of the dawn novena masses or "simbang gabi". As the years went by, the "parol" or Christmas lantern was used to decorate the exterior of homes, offices, government buildings, and streets in preparation for the Christmas season. Today, the "parol" has evolved into a lantern made of a metal frame, covered with *capiz* or

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plastic, and illuminated by synchronized electric bulbs that are connected to "winkers". Although the simple five (5)-pointed star-shaped "parol" has not changed much, it may now come in many different sizes and designs. Moreover, the "parol" is now considered merchandise displayed in traditional locations and sold mostly from September to December each year.

Not surprisingly, "parol" making in Pampanga has evolved into a local industry. Although it consists mostly of small enterprises that employ workers on a seasonal basis, uses very basic and non-traditional accounting systems, and operates with unsophisticated production methods, the industry has potential. The "parols" manufactured in Pampanga (specifically in San Fernando City) are considered to be of good quality and are known for their very creative designs. Moreover, these make use of locally available raw materials as manufacturing inputs. On the demand side, a large export market for holiday décor remains largely untapped by the local lantern industry. Despite this potential for growth, however, there exist several obstacles that face the local manufacturers.

The primary objective of this research study is to chart a path that will help the Pampanga lantern industry grow and secure its long-term sustainability. This research study reviews and analyzes the obstacles from a financial standpoint and then proposes ways to ensure the sustainability of the trade. It assesses the financial viability of the "parol" or lantern industry in Pampanga and identifies ways to improve profitability. Furthermore, it makes recommendations for interventions by government that will help the industry prosper.

Recent research on the topic of leadership and sustainable growth (Lowney, 2003) states that in order for an organization to achieve sustainable growth, it requires the basic elements of "available capital, talent, and management capacity to oversee the growth." This research study is significant because of several factors, namely:

1) The existence of a largely untapped export market for Philippine Christmas lanterns;
2) The livelihood provision for people who lack formal skills and education;
3) The talent and creativity of the local manufacturers that can be harnessed to generate more income for households;
4) The simple manufacturing process that can be easily adopted by new entrepreneurs;
5) The preservation of a historic and cultural tradition and trade.

II. REVIEW OF RELATED LITERATURE

Although there is limited research available related to the lantern industry, the following provide various insights into the origins, profile, challenges, and prospects of the industry.

Mallari, et al. (2008), in their profile of the Pampanga lantern industry, indicate that the sustainability of this industry is at risk due to low profits, high costs of production inputs, migration of the industry's skilled workers to other provinces, and strong competition among the manufacturers from these provinces. Mallari, et al. (2008), also reveal that, from a finance standpoint, the lantern manufacturers lack a formal financial planning process. A simple "listahan system" or listing system is used to record all sales and expenses.

Despite efforts by the Department of Trade and Industry (DTI), through its One Town One Product-Philippines program (OTOP)[1] as well as marketing assistance from the local government, the Pampanga lantern industry has yet to make a significant

dent in the export market. However, Mallari, et al. (2008), conclude that, notwithstanding the current state of the industry, there are areas of intervention to help sustain the industry, namely: 1) support from both the national and local government; 2) product development in terms of quality and design; 3) export market development; and 4) expansion of product line-up.

In the "State of the Sector Report on Philippine Holiday Décor" (2006 and 2007), the Pearl2 project team (funded by the Canadian International Development Agency or CIDA) provides updates on the status of the holiday décor sector as a whole. Although not specifically mentioned in this report, the Philippine lantern industry would logically fall under this umbrella industry. The CIDA report states that the strengths of the holiday décor industry come from the availability and use of indigenous raw materials in the various products as well as the talent and ingenuity of the local producers. The report also points out that despite a modest 6% average annual growth rate in world demand for holiday décor (from 2002 – 2005), exports from the Philippines actually declined by an average of 9% per year since 2000. This trend is a result of a decline in competitiveness of the Philippine holiday décor industry due to several factors, namely: 1) problems with maintaining quality raw materials; 2) lack of proper handling and storage of raw materials; 3) low productivity of workers; 4) lack of proper tools and equipment; 5) non-adherence to global standards of manufacturing; 6) lack of quality control systems; 7) lack of designers in non-urban areas; and 8) unreliability and high cost of local shipping. The report concludes with some insights into the strategic direction that the holiday décor industry needs to take during the next five years. In the short to medium term, this industry needs a "clear competitive strategy" that stems from up-to-date market information. Existing competitive advantages need to be backed up by marketing initiatives aimed at recovering lost market share in the export market. There is also potential for growing sales in the local Philippine market where a significant share of the holiday décor products are purchased from abroad.

In a related report entitled "Holiday Décor Sector: Production Management Assessment Report (2008), findings of a production management study done on the Philippine holiday décor industry are highlighted. Based on information from selected manufacturing companies, this report offers indications on the status of production management in the industry since 2004 and explains the basic flow of the manufacturing process. As already noted by the "State of the Sector Report on Philippine Holiday Décor", the use of indigenous raw materials gives Philippine holiday décor products a distinctive appeal and advantage in the export market. In terms of cost structure, the report indicates that of the total manufacturing cost, 40% is for raw materials, 16% for labor, 14% for administrative costs, 13% for overhead costs, and the balance of 17% is for other items such as supply costs, maintenance, R&D, etc. In terms of sourcing raw materials, the report cites several problem areas, namely: quality, availability, delivery and price.

Another relevant study pertains to innovation. Sanguyu (2008) asserts that an "innovation strategy" is needed for the lantern industry of Pampanga to remain profitable, to have a significant impact on the local economy, and to compete in the export market. Through innovation, the players in the industry will be able to address the various issues they face; they will also benefit from opportunities that arise. Sanguyu (2008) notes that the Pampanga lantern industry is still in a "transitional stage": it has not reached a "mature state" despite tracing its origins to as early as the 19th century. He states further that an industry in this stage of innovation should focus on process innovation in order to increase production capacity.

III. FRAMEWORK AND METHODOLOGY

This research study used two models in its analysis of the Pampanga lantern industry. The first is the basic Cost-Volume-Profit (CVP) model used in financial analysis to gain a better understanding of the relationships between cost, volume, and profit. This is done by analyzing the impact on profits of changes in selling prices, volumes, variable costs, fixed costs and product mix (Garrison, Noreen & Brewer, 2006). By using this model, the analyst is able to determine the so called "break-even point" or the level of sales volume at which sales revenue equals all related costs. This model introduces the analyst to the "contribution margin" approach which is basically sales revenue less all variable costs (Maher, Stickney & Weil, 2006).

The second model used in this research study is the classic Strengths-Weaknesses-Opportunities-Threats Analysis or simply SWOT Analysis. This model was developed by Albert S. Humphrey when he led a research project at Stanford University in the 1960s and 1970s. This model analyzes the internal factors (strengths and weaknesses) as well as the external factors (opportunities and threats) found in an organization's environment. Through a SWOT analysis, one can come up with a SWOT matrix (also known as a TOWS matrix) which outlines strategies that logically flow from the SWOT profile. The TOWS strategies fall under four (4) categories, namely: (a) strengths-opportunities or S-O strategies; (b) weaknesses-opportunities or W-O strategies; (c) strengths-threats or S-T strategies; and (d) weaknesses-threats or W-T strategies. The results of such an analysis provide useful information to enable an organization to match its resources and capabilities with the competitive environment within which it operates. In this research study, the SWOT model is applied to an industry (i.e. the Pampanga lantern industry) rather than just to an individual firm or organization.

This research study also made use of both primary and secondary research methods. The primary research was completed with a survey of the major lantern manufacturers in Pampanga. The research tool used was a three-part questionnaire divided into general information, financial information and raw materials costing information. The secondary research was completed by compiling data from related literature, published reports and articles, as well as from various online sources of data. In addition to this, a separate basic accounting workshop was conducted among selected lantern makers during which the contribution margin approach was introduced to them. Through this workshop, the lantern makers learned how to construct basic income statements using the contribution margin approach. The workshop provided this research study with more relevant data with which to apply the CVP model.

IV. BUSINESS PROFILE OF THE PAMPANGA LANTERN INDUSTRY: SUMMARY OF FINDINGS

For this research study, a total of ten (10) lantern makers were interviewed using a three-part questionnaire. Of the original eleven (11) major manufacturers identified, six (6) respondents plus four (4) new respondents provided relevant data.

The respondent lantern makers sell primarily *capiz* and plastic lanterns in varying sizes and designs but following the basic five-pointed star (or double five-pointed star) frame structure. Among the respondents, 90% sell *capiz* lanterns, 70%

sell plastic lanterns, while 60% sell both *capiz* and plastic lanterns. Another type of Christmas décor, called flexilights, is sold by 40% of these manufacturers. Demand for lantern products is seasonal with the lean months being January to August and the peak months being September to December.

The responses revealed that these ten (10) lantern makers employed a total of 250 to 300 people during the lean months, and approximately 450 people during the peak months. Of these employees, 93% are skilled workers and trainees, 4% are designers, and 3% are supervisors (primarily the owners themselves). In terms of requirements for employment, 30% of the respondents had no requirements, while 70% required only prior experience in making lanterns. In terms of wages, the average that a worker can earn ranges from Php 200 to 750 per day depending on volume and type of work.

Generally, the process flow in the industry is such that workers are grouped according to processes (frame making, cutting & pasting, electrical components installation, finishing, etc.). They follow an assembly-line type of manufacturing operation. A common practice among 70% of the respondents (30% paid their employees on a per day basis) is to pay workers on a per piece system (i.e. "pakyaw system"), as summarized in Table 1 below.

Table 1
Payment System for Labor

Labor Cost	Per Item	Comment
Php 2.00	per pc. of *capiz* installed	For pasting/installation
Php 10.00	per bulb	For installation; varies according to lantern size with a min. of six (6) bulbs per lantern (i.e. min. of Php 60.00 per lantern)
Php 25.00	per lantern	For cutting and pasting
Php 60.00	per lantern frame made	For *capiz* lanterns
Php 100.00	per lantern	For plastic lanterns

A majority of these lantern makers are single proprietors. In terms of an accounting or bookkeeping system, none of the lantern makers make use of any type of formal system. They report that they make use of a simple "listahan system" in which all orders are simply listed down and then noted whether paid or not. In terms of financing their operations, the following is a summary of their responses (see Table 2).

Table 2
Summary of Sources of Capital

Source of Capital	Percentage Response
Own Capital	70%
Suppliers (spontaneous liabilities)	30%
Relatives and friends	20%
Government agencies or programs	10%
Banks	10%
Informal lenders	10%

Note: Total percentages (%) do not add up to 100% since some had more than one source of capital.

When asked if they were happy with their sales performance, 80% said yes, while 20% said that there was room for improvement. This implies that a majority of the lantern makers surveyed believe that their businesses are profitable. In general, they believe their sales could pick up further through: a) better marketing and promotions; b) an increase in capital; c) joining exhibits sponsored by government agencies like the Department of Tourism (DOT); d) more referrals; e) improving the designs and quality of their products; f) brand/name recognition; and g) more exposure through the internet, commercials, and TV interviews. Table 3 summarizes the manner in which the lantern makers of Pampanga currently promote their products.

Table 3
Promotion Strategies Utilized

Markets Covered	Promotional Activity
Local market	- internet - word-of-mouth, referrals - set-up of booths in strategic locations - join out-of-town fairs sponsored by the government - join exhibits or trade fairs - brochures, catalogues - direct-selling in towns
Export market	- send designs abroad - through Overseas Filipino Workers (OFWs)

Related to the improvements of their sales performance is the identification of the major problems faced by this industry. In response to this concern, the lantern makers highlighted: a) the lack of capital; b) low demand for their products; c) the need for technical improvements especially in electrical standards; d) vulnerability to changes in the cost of raw materials; and e) wastage of raw materials due to errors.

Furthermore, in terms of receiving help from the government, only 20% received specific help while 80% have not received assistance thus far. Among the 20%, only one respondent applied for and received financial assistance through the OTOP program of the DTI. Another respondent received marketing assistance through the DOT. This study found out, however, that one reason why many did not receive government assistance was due to the fact that they did not have a registered or accredited association that could either facilitate the application process or that could guarantee loans. When asked as to what type of government assistance they would need, the majority of the lantern makers cited financing and marketing support.

As far as an industry association is concerned, there was a group called the Lantern Makers Association of San Fernando which is currently inactive. Based on feedback gathered from a separate survey of the lantern makers themselves, this association was hounded by several issues, namely: 1) the association was disorganized; 2) the leadership was embroiled in politicking; 3) some members felt that the association benefited only a few influential members; 4) some members lost interest because they did not receive any help from the government; 5) the association did not

create awareness; 6) some members felt that the association was not a serious organization; and 7) some members did not know if they were considered active or just mere "props" by the association.

Among the lantern makers who were not members, the reasons they did not join were: 1) they were neither aware of such an association nor were they invited to join; 2) they were aware of the association but had not heard of any serious members; and 3) the members themselves were not united.

All the lantern makers surveyed indicated, however, that there was still a definite need for a lantern makers association. The reasons are summarized below:

1) To promote unity and cooperation among the lantern makers;
2) To gain influence;
3) To take advantage of the large market for lanterns;
4) To guard against threats to the industry;
5) To learn more through organized seminars and training programs;
6) To share experiences and key learnings with others;
7) To share common grievances of the lantern makers regarding aspects of their businesses;
8) To help the lantern industry develop further since there are still a lot of lantern makers who are not progressive;
9) To further promote San Fernando, Pampanga as the "lantern capital" of the Philippines.

In terms of applying the CVP model, this research study analyzed the sales volumes, revenues and corresponding costs, and how these factors affected profits. It must be emphasized that the data collected is based on estimates from each lantern maker since none of them make use of any formal accounting or bookkeeping system. However, due to their years of experience in the industry, the small size of their operations (i.e. 25 to 45 people) and the fact that most of the owners are themselves directly involved in all areas of operations, the financial data gathered is considered relevant and conclusive.

The *capiz* lanterns are generally priced within the range of Php 500 – Php 5,500 per unit, the plastic lanterns within the range of Php 300 – Php 2,000 per unit, while the flexilights are priced from Php 800 – Php 5,000 per unit. Thus, based on sales prices and volumes gathered, and assuming an even sales mix among the different lantern sizes reported, Table 4 provides a summary of the estimated sales volume reported by the ten (10) lantern makers interviewed. Table 5, on the other hand, provides a summary of estimated sales revenues.

Table 4
Summary of Sales Volume

Product	Sales Volume (units)	% of Total	Local Volume (units)	% of Total Product Type	Export Volume (units)	% of Total Product Type
Capiz	12,883	34%	10,106	78%	2,777	22%
Plastic	23,360	63%	19,246	82%	4,114	18%
Flexilights	1,100	3%	899	82%	201	18%
Total	**37,343**	**100%**	**30,251**	**81%**	**7,092**	**19%**

Table 5
Summary of Sales Revenue

Product	Sales Revenue (Php 000s)	% of Total	Local Sales (Php 000s)	% of Total Product Type	Export Sales (Php 000s)	% of Total Product Type
Capiz	31,014	50%	24,019	77%	6,995	23%
Plastic	27,935	45%	22,884	82%	5,051	18%
Flexilights	3,194	5%	2,607	82%	586	18%
Total	**62,143**	**100%**	**49,510**	**80%**	**12,633**	**20%**

Note: Data on the traditional giant plastic lantern is not included in this study since its cost is normally subsidized by the local government and other sponsors. The giant lantern is not sold commercially, and normally produced only for the annual Giant Lantern Festival in December (Mallari, et al., 2008).

As shown further in Table 5, the lantern makers estimated their local sales to be around Php 49.5M or 80% of total sales with export sales at around Php 12.6M or 20% of total lantern sales revenue.

To give an indication of the world export market for holiday décor products, this research study referred to the "State of the Sector Report on Philippine Holiday Décor" published by CIDA in 2007. Under the product classification system of the DTI, Christmas lanterns are not directly specified under the Holiday Décor products group which has four product classifications (see Appendix B). Christmas lanterns would most likely fall under "Other articles for Christmas festivities". It is undetermined, however, if exports of Christmas lanterns are actually recorded at all by the DTI. Due to the informal nature of the lantern industry, and to the fact that no formal records are kept by the lantern makers, it would be difficult to accurately monitor trade data coming from this industry. Nevertheless, based on the CIDA report, world imports of holiday décor amounted to US$ 6.435 billion in 2005 with an average annual growth rate of 6.5% from 2002 to 2005. Of this amount, the U.S. was the largest importer with a share of 52%, followed by the EU25 nations[2] at 24%. On the export side, world exports of holiday décor amounted to US$ 3.981 billion in 2005 with an average annual growth rate of 0.8% from 2002 to 2005. Of this amount, China was the largest exporter with a share of 52%, followed by Hong Kong at 21% and the EU25 nations at 16%. Total exports to the U.S., the world's largest importer of holiday décor products, amounted to US$ 3.332 billion in 2005. The bulk of this, or 91%, was supplied by China as compared to only 0.7% supplied by the Philippines. For exports to the U.S. during the period 2002 to 2005, China achieved an average annual growth rate of 7.4% compared to a *negative* 18.8% for the Philippines.

Furthermore, the DTI reported that for 2006 the Philippines exported US$ 56.556 million worth of holiday décor products representing approximately 1.4% of total world exports. Over a seven year period from 2000 to 2006, the Philippines registered an average annual growth rate of *negative* 8.7% in exports of holiday décor products. If we compare total Philippine exports to the export sales revenue reported by the Pampanga lantern makers surveyed, we are looking at a mere 0.47% share of total Philippine exports (Php 12.633 million or approximately US$ 263,181 versus the US$ 56.556 million indicated above). This suggests that: a) there is a huge export market for holiday décor products; b) the share of the Philippines in this lucrative

market is still very minute; and c) there is an enormous opportunity for the growth of Philippine exports of holiday décor products. Although not specifically indicated in the export data reports from CIDA and DTI, Philippine lanterns have not made a significant entry into the export market primarily due to a lack of: a) quality standards; b) export certification; and c) access to international trade shows (which are expensive and require affiliation with an industry association). This research study determined that some of the factors which led to the decline in exports of holiday décor products (highlighted in Part II) are the same factors that prevent lantern products from being exported.

In terms of cost structure, this study was able to gather relevant cost information from nine (9) out of the ten (10) respondents. The follow-up accounting workshop conducted for the lantern makers also provided additional relevant cost information. Using the contribution margin approach under the CVP model, this study estimated the contribution margin income statement on a per unit basis for selected product types and sizes. The essence of this approach is to separate costs into its variable and fixed components. The contribution margin is the difference between sales revenues and all variable costs. Contribution margin is that amount which remains from sales revenue after deducting variable costs, and is also the amount used to cover all remaining fixed costs. Any amount remaining after deducting fixed costs from contribution margin becomes net operating income. Since most of the lantern makers surveyed (70%) indicated that manufacturing overhead costs or fixed costs were minimal, this study focuses on the computation of contribution margin.

In order to more accurately assess the contribution margins of each product, this research study came up with a simple price-variable cost-contribution margin model that was cascaded to the lantern makers during their basic accounting workshop. By explaining to them the significance and the practical applications of this basic CVP model, and by assisting them in providing the right inputs, this research study was able to determine sample contribution margins per unit and contribution margin ratios (CM %) for selected lanterns. The findings of this research study related to product-specific contribution margins are presented in Table 6 for *capiz* lanterns, in Table 7 for plastic lanterns and in Table 8 for flexilights.

Table 6
Sample Contribution Margins for *Capiz* Lanterns

Size	**Small**		**Medium**		**Large**	
PHP	**Per Unit**	**Ratio (%)**	**Per Unit**	**Ratio (%)**	**Per Unit**	**Ratio (%)**
Selling price	1,200.00	100%	1,800.00	100%	2,200.00	100%
Less:						
Variable costs						
Raw materials	800.00	67%	1,150.00	64%	1,550.00	70%
Labor	150.00	13%	250.00	14%	400.00	18%
Total variable costs	950.00	79%	1,400.00	78%	1,950.00	89%
Contribution margin	250.00	21%	400.00	22%	250.00	11%

Table 7
Sample Contribution Margins for Plastic Lanterns

Size	Small		Medium		Large	
PHP	**Per Unit**	**Ratio (%)**	**Per Unit**	**Ratio (%)**	**Per Unit**	**Ratio (%)**
Selling price	500.00	100%	900.00	100%	1,500.00	100%
Less:						
Variable costs						
Raw materials	320.00	64%	530.00	59%	850.00	57%
Labor	50.00	10%	80.00	9%	150.00	10%
Total variable costs	370.00	74%	610.00	68%	1,000.00	67%
Contribution margin	130.00	26%	290.00	32%	500.00	33%

Table 8
Sample Contribution Margins for Flexilights

Size	Small		Medium		Large	
PHP	**Per Unit**	**Ratio (%)**	**Per Unit**	**Ratio (%)**	**Per Unit**	**Ratio (%)**
Selling price	500.00	100%	1,000.00	100%	2,000.00	100%
Less:						
Variable costs						
Raw materials	370.00	74%	700.00	70%	1,500.00	75%
Labor	50.00	10%	150.00	15%	200.00	10%
Total variable costs	420.00	84%	850.00	85%	1,700.00	85%
Contribution margin	80.00	16%	150.00	15%	300.00	15%

From these results, we see that for all types and sizes of lanterns, contribution margin ratios are all in the double-digit levels ranging from a low of 11% for *capiz* lanterns to a high of 33% for plastic lanterns. We also see that on a contribution margin basis (i.e. before covering for fixed costs) the most profitable would be plastic lanterns, followed by *capiz* lanterns, and finally flexilights.

In order to perform a more in-depth CVP analysis, this research study applied the above data to sample unit sales volumes provided by the lantern makers during their workshop. An estimated amount of fixed costs per year was also provided by them. The resulting total contribution margin income statement is summarized in Table 9.

Table 9
Sample Contribution Margin Income Statement

PRODUCT	*CAPIZ*		PLASTIC		FLEXILIGHTS		TOTAL	
Volume (units)	900		190		750		1,840	
PHP sales mix	58%		6%		36%		100%	
	PHP Amount	% of Sales	PHP Amount	% of Sales	PHP Amount	% of Sales	PHP Amount	% of Sales
Sales	1,460,000	100%	155,000	100%	900,000	100%	2,515,000	100%
Less: Var. costs								
Raw materials	975,000	67%	92,500	60%	666,000	74%	1,733,500	69%
Labor	215,000	15%	15,000	10%	97,500	11%	327,500	13%
Total variable costs	1,190,000	82%	107,500	69%	763,500	85%	2,061,000	82%
Contribution margin	270,000	18%	47,500	31%	136,500	15%	454,000	18%
Less: Fixed costs							165,000	7%
Net income							289,000	11%

Note: To arrive at this total contribution margin income statement, separate computations were made using data from Tables 6 to 8 together with unit sales volumes for small, medium and large sizes of each product type.

Given these results, this study then derived the following data useful to a CVP analysis:

1) Break-Even point in PHP Sales = Fixed Costs ÷ CM % = PHP 914,042, with the following breakdown:

	Sales	Units	Sales mix
Capiz	Php 530,617	327	58%
Plastic	Php 56,333	69	6%
Flexilights	Php 327,093	273	36%

2) Margin of Safety = Actual Sales – Break-Even Sales = PHP 1,600,958

3) Margin of Safety % = Margin of Safety ÷ Actual Sales = 64%

4) Degree of Operating Leverage = Contribution Margin ÷ Net Income = 1.57x

It is worthwhile to note the following conclusions from Table 9, namely: a) the total contribution margin of PHP 454,000 per year (or 37,833 per month) is probably just enough to cover the living expenses of one household in Pampanga. This would already include any fixed costs associated with running a home-based business such as lantern-making; b) this sample income statement shows that sales revenues are skewed towards *capiz* and flexilights which have average CM ratios of 18% and 15% respectively, while the plastic lantern which has an average CM ratio of 31% accounts for only 6% of total sales revenue; c) If this lantern maker shifted sales volume to the more profitable plastic lanterns, they would increase their profits considerably; and d) within the *capiz* category, they should focus on selling more of the small and medium sizes since the large size generates a CM ratio of only 11%, as shown previously in Table 6.

Given this analysis, this research study then performed a sample CVP scenario analysis to provide insights into some possibilities available to this lantern maker (see Appendix C for all supporting computations). The results of these CVP scenarios are summarized in Table 10 below.

Table 10
Summary of Cost-Volume-Profit Analysis

Possible Scenario	**CVP Tool Used**	**Result**	**Comment**
(1) By how much should Sales increase in order to increase Net Income by 50%?	Target Profit Analysis OR Operating Leverage	To achieve the target profit, sales should increase by 32%.	Every 10% increase in net income requires approximately 6% increase in sales.
(2) What is the effect on net income if sales is shifted from *capiz*-large to *capiz*-medium?	Incremental Analysis	Net income increases by Php 30,000.	
(3) What is the effect on net income if sales is shifted from plastic-small to both plastic-medium and plastic-large?	Incremental Analysis	Net income increases by Php 26,500.	Combining independent scenarios (2) and (3) results in a total increase in net income of Php 56,500.
(4) If spending for Advertising or Trade Fairs / Exhibits would increase sales by 20%, what is the maximum that can be spent in order to maintain current profit levels?	Incremental Analysis OR Operating Leverage	The maximum allowable advertising/selling expense would be Php 90,800 per year.	
(5) In order to increase sales of the most profitable product line (plastic lanterns) by 20%, they would need to use higher-quality plastic which would increase raw materials costs by 10%. Because of a better quality product, however, they would be able to increase selling prices by 10%. Should they implement this change?	Incremental Analysis	Net income increases by Php 17,000. YES, implement this change.	They could increase profits further by selling more of the medium and large sizes due to their higher CM ratios.

V. PATHWAYS TO GROWTH AND SUSTAINABILITY

This section identified strategies that would lead to the growth and long-term sustainability of the Pampanga lantern industry. The first step in this process is an assessment of the industry using the SWOT environmental scanning model. Using the output of the SWOT analysis, this study developed strategies that are detailed in a SWOT (or TOWS) matrix. The results of the analysis using the SWOT model are summarized in Table 11 below.

Table 11
SWOT Analysis

INTERNAL FACTORS
Strengths 1) Good quality of lanterns produced; 2) Good designs of products known for being creative and innovative; 3) Wide price range of products offered (from Php 500 to Php 5,500) ensuring that the lanterns remain affordable; 4) Manufacturing operations requiring only small and unsophisticated facilities (since most are home-based operations); 5) Minimal capital needed for operations; 6) Staging of the annual Giant Lantern Festival as a showcase for the industry's talent and creativity (a tourist event which helps promote their products).
Weaknesses 1) Lack of product standards required for the export market; 2) Lack of any formal accounting or bookkeeping system which results in the inability to: a) monitor sales, expenses and profits (especially of previous years) b) determine profitable products (as well as the unprofitable ones) c) determine the best product mix to ensure greatest overall profitability d) identify actual overhead costs incurred; 3) Lack of access to proper funding and assistance; 4) Lack of a formal and active industry association; 5) Common product designs which are primarily for the Christmas season; 6) Seasonality of demand for products.
EXTERNAL FACTORS
Opportunities 1) Existence of a large export market; 2) Existence of assistance programs from government, the private sector, and non-government organizations or NGOs; 3) Existence of a very competitive fast-moving consumer goods (FMCG) industry that always needs promotional items such as lanterns; 4) Existence of other significant holiday seasons in the Philippines and within Asia (other than the Christmas season).
Threats 1) Difficulty in accurately tracking sales data and sales trends of products sold in the local and export markets; 2) Competition from other cities, provinces, and other countries that have lower cost structures and are able to achieve economies of scale; 3) Vulnerability of the industry to fluctuations in the cost of raw materials; 4) Impact of the global financial crisis on the general demand for lanterns.

The second step in this process is to identify viable strategies that would lead to the growth and long-term sustainability of the Pampanga lantern industry. Using the SWOT analysis, this research study summarized strategies using the four TOWS categories highlighted in Table 12 below. These categories are defined as:

1. *S-O or Maxi-Maxi* – strategies which go after opportunities that match strengths. The objective here is to maximize strengths and opportunities.
2. *W-O or Mini-Maxi* – strategies which go after opportunities by improving on or removing weaknesses. The objective here is to minimize weaknesses and maximize opportunities.
3. *S-T or Maxi-Mini* – strategies that utilize strengths to minimize the effects of threats. The objective here is to maximize strengths and minimize threats.
4. *W-T or Mini-Mini* – strategies that shield weaknesses from the effects of threats. The objective here is to minimize weaknesses and threats.

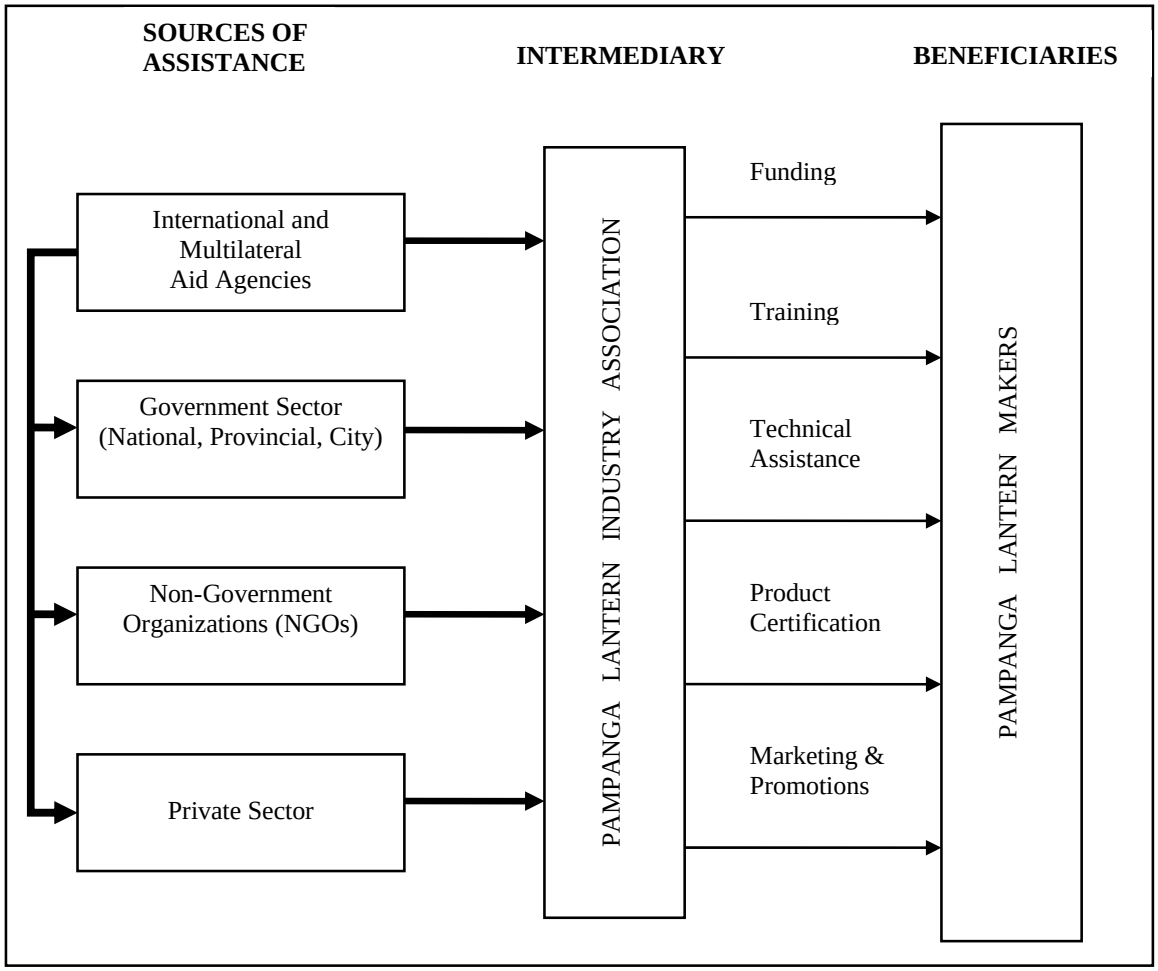
Table 12
TOWS Matrix

	Strengths	**Weaknesses**
Opportunities	***S-O Strategies*** a) Tap more of the export market through product certification, accreditation with government export agencies, participation in trade fairs and missions; b) Grow the local market through partnerships with companies and local government units that require large quantities of promotional or decorative materials; c) Explore the production of other types of Christmas lanterns (other than the basic star structure); d) Explore the production of lanterns for other major festivities that are celebrated locally or abroad (e.g. Chinese New Year, Deepavali, Hari Raya Puasa, Vesak Day); e) With the help of the local government, create more awareness and publicity around the annual Giant Lantern Festival of Pampanga.	***W-O Strategies*** a) Improve on product quality in order to exceed export standards; b) Obtain training on basic bookkeeping and accounting; c) Identify the programs and specific requirements of organizations that can provide technical or financial assistance; d) Expand product lines to include non-traditional Christmas lanterns, festival-specific lanterns, generic lanterns, decorative products; e) Identify products that can be produced and sold during off-peak months; f) Invest in the training of workers and designers through the help of other organizations; g) Organize a Pampanga lantern industry association.
Threats	***S-T Strategies*** a) Seek ways to reduce product costs in order to compete with low-cost producers; b) Investigate product cost structure and profitability of competitors through product sampling or market intelligence; c) During this global financial crisis, focus on increasing sales to the local market; d) Shift production and sales to lower-priced products; e) Seek out buyers through local trade fairs and exhibits (vs. relying only on road-side stalls); f) While waiting for the recovery of the global market, use the time to improve on product attributes such as design, quality, and pricing.	***W-T Strategies*** a) Set product standards and gain international accreditation for these standards; b) Obtain export quality certification for products; c) Expand product lines; d) Establish a basic financial reporting process; e) Establish an active industry association that would benefit all manufacturers.

Note: Some of the above SWOT factors and corresponding TOWS strategies were highlighted in the recent UPDEPP lantern industry study (Mallari, et al., 2008).

In order to effectively implement some of the strategies enumerated in the TOWS matrix above, this research study proposes the following assistance linkage framework for the Pampanga lantern industry (see Table 13 below). With this framework as a guide, the lantern makers would be able to access the assistance they need and thereby address the major issues they face as an industry. The essence of this proposed framework is the creation (or revival) of a lantern makers association (i.e. lantern industry association) which shall serve as a means for individual lantern makers to tap available resources of various assistance providers.

Table 13
Assistance Linkage Framework for the Pampanga Lantern Industry



VI. CONCLUSION AND RECOMMENDATIONS

Based on the information gathered from the lantern makers of Pampanga as well as on the separate analysis performed, this research study concludes that the industry is indeed profitable. This study also concludes that business-specific fixed costs related to the manufacture of lanterns are minimal due to the fact that manufacturing is mostly done within the residences of the lantern makers themselves. The contribution margins generated, however, are then used by the lantern makers to pay for their living expenses. Thus, if we include living expenses as part of their fixed costs, the lantern makers would generally report minimal or no excess profits at the end of a year. They may have zero net income on an accounting basis, however, their home-based lantern businesses enable them to cover all of their living expenses for the year plus pay off all of their loans to suppliers. Presently, the lantern makers know that they are profitable if, after the selling season, they are able to pay their suppliers, informal creditors, workers and all their household expenses (and still have some funds left-over to cover them through the lean months).

Apart from profitability, this industry is viable due to several other factors, namely: a) small capital requirement; b) minimal skills requirement; c) products with an established "brand name", known for their creativity and good quality; d) existing demand for products both locally and abroad.

This research study determined that the lantern products are generally of good quality and design. There is room for improvement, however, since no common product quality standards exist. There is also an opportunity to expand product lines to include non-traditional Christmas lanterns or lanterns for other festivities and celebrations.

As to formal business structures, this study concludes that the only areas that can be considered as "more developed" are the production flow and design areas of the lantern industry. The lantern makers do not use any kind of formal accounting system other than the very simple "listahan system" mentioned previously. This makes them unable to measure their profitability and, more importantly, unable to determine which product variants are profitable and which are not. Identifying the more profitable products (vs. the less profitable ones) would enable them to maximize profits by selecting the best product sales mix. As a result of this system, the lantern makers also do not have any historical financial data with which to accurately forecast expected financial performance. Consequently, applying for financial assistance is hampered since this requires the submission of financial statements, or at least some documentation on past and future financial performance. Prospective lenders or donors need to assess an organization's past financial performance and then determine their capacity to repay (in the case of a loan) as well as how funds will be used. These lenders or donors would also require some kind of post-audit that explains how funds were actually spent.

Finally, this study established that the Pampanga lantern makers are no longer organized as an association. Two major effects of this on the industry are: 1) their inability to gain formal exposure to the export market through trade fairs; and 2) their inability to access government assistance. Participation in trade fairs organized by the government through the Center for International Trade Expositions and Missions (CITEM), for example, normally requires endorsement from an accredited industry association. Although they have sought government assistance in the past, most of them did not receive any simply because they did not have a registered industry association that could facilitate the process. For the reasons stated above, and as emphasized by the lantern makers themselves, it is therefore critical that a

formal lantern makers association be established. Through this association, the lantern makers will gain the influence, unity, and recognition they need to progress.

At this point in time, it would be best for the local government and the provincial DTI office to take the lead in organizing the lantern makers into an association. This would help the new association avoid the mistakes of the past. It is also in the government's best interest to get this association and its members registered as businesses.

In general, the lantern industry of Pampanga is a very entrenched and prominent cottage industry known for its good products and with a lot of potential for future growth. There is a need, however, for the lantern makers and the government to take concrete steps that would result in substantial improvements to the industry's profitability. These are necessary to ensure the long-term sustainability of the Pampanga lantern industry.

This research study concludes with recommendations[3] based on the most immediate needs identified. Furthermore, these recommendations also address and elaborate on some of the relevant issues faced by the lantern industry as highlighted in Part II of this paper. These recommendations are as follows:

1) Establish (or revive) an active industry association with the help of the local government and the provincial DTI office, through which the lantern makers can:
   a) Promote and sell products through joint marketing initiatives;
   b) Access available assistance programs of the government, non-government organizations, multilateral agencies, and the private sector (see Table 13 for a proposed framework);
   c) Set industry standards and obtain export certification of all products. This can be done in coordination with the DTI's Bureau of Product Standards;
   d) Apply for accreditation as an industry association with the DTI and related agencies or organizations;
   e) Exhibit their products in local and international trade fairs and trade missions at lower cost. This can be done in coordination with the DTI's CITEM;
   f) Establish linkages with selected government agencies or government corporations in order to utilize available resources (e.g., the Philippine Trade Training Center, the Product Development and Design Center of the Philippines, and the Technical Education and Skills Development Authority or TESDA);
   g) Share their knowledge and resources in order to benefit the entire industry (e.g. market information, supply chain information, supply and demand studies, etc.);
   h) Apply as regular members of the accredited Christmas Décor Producers and Exporters Association of the Philippines (CDPEAP); or simply explore possible cooperative agreements or partnerships with the CDPEAP;

2) Obtain training on and adopt basic financial reporting processes in order to record and monitor sales, expenses and profits[4]. One specific proposal would be for the University of the Philippines (through affiliate units such as the U.P.Diliman Extension Program in Pampanga and the Institute for Small Scale Industries) together with the City of San Fernando to conduct a series of basic accounting workshops for the lantern makers. These workshops would include topics on bookkeeping, product costing, and financial reporting and analysis. This would help lantern makers

forecast their financial performance, achieve cost competitiveness, improve profitability, and also help them qualify for available assistance programs;

3) Introduce product innovations to existing product lines (to include innovations in quality, design, packaging, and the use of raw materials other than *capiz* or plastic). These product innovations should also consider the preferences of the export market. This can be done in coordination with the DTI's Product Development and Design Center of the Philippines;

4) Expand product lines to include non-traditional Christmas lanterns, lanterns for other major festive occasions, low-priced lanterns, decorative lanterns or related products;

5) Despite continuous efforts by the city government of San Fernando to assist the lantern makers, it is clear that they are not able to get the assistance they need. The city government needs to find a more effective way to link the industry with available assistance programs (see Table 13 for a proposed framework); and

6) The city government, together with the provincial DTI office and the provincial government, needs to take the lead in assisting the lantern industry with their immediate needs (i.e. lantern makers association, formal accounting systems, financial assistance, product certification, marketing and promotions, and training).

NOTES

[1] The One Town One Product-Philippines program of the DTI was established in 2004 to promote entrepreneurship and create jobs. Administered through local government units (LGUs), OTOP is a comprehensive assistance package that supports micro, small and medium enterprises in the manufacture and sale of indigenous products.

[2] EU25 nations refers to the 25 member countries of the European Union as of 2004. Currently, the union is composed of 27 nations with the inclusion of Bulgaria and Romania in 2007.

[3] Some of these recommendations are similar to the ones cited by Mallari et al. (2008) and Sanguyu (2008) in their lantern industry studies.

[4] Suggested readings for this would be "The Ultimate Guide to Starting Your Own Business" and "Accounting 101 for Small Businesses" both published by Entrepreneur Philippines (Summit Books) and available in major bookstores.

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Appendix A
Acronyms

CDPEAP	Christmas Décor Producers and Exporters Association of the Philippines
CIDA	Canadian International Development Agency
CITEM	Center for International Trade Expositions and Missions
CM	Contribution Margin
CVP	Cost-Volume-Profit
DOT	Department of Tourism
DTI	Department of Trade & Industry
FMCG	Fast-Moving Consumer Goods
HS	Harmonized System
LGU	Local Government Unit
NGO	Non-Government Organization
OFW	Overseas Filipino Worker
OTOP	One Town One Product
PSCC	Philippine Standard Commodity Classification
SWOT	Strengths Weaknesses Opportunities Threats
TESDA	Technical Education and Skills Development Authority
UPDEPP	University of the Philippines Diliman Extension Program in Pampanga

Appendix B
Harmonized System (HS Code) and
Philippine Standard Commodity Classification (PSCC)
for Holiday Décor Products

HS Code	PSCC	Description
9505.1000	894.45.00	Other articles for Christmas festivities (e.g. artificial Christmas tree decorations, imitation Yule logs, nativity scenes and figures excluding lighting fittings and bulbs)
9505.9000	894.49.09	Other entertainment articles including carnival articles
9505.9000	894.49.01	Articles for Easter activities
9405.3000	894.41.00	Lighting sets of a kind used for Christmas trees

Source: Canadian International Development Agency (Pearl2 Initiative) and Philippine Department of Trade & Industry.

Appendix C-1
Sample Cost-Volume-Profit Analysis

(1) Increase Net Income by: **50%**

Method 1

Target PHP Sales =	165,000	+	433,500	
			18%	
Target PHP Sales =	3,315,479			

	Target Sales	Sales Mix	Change in Sales
Capiz	1,924,692	58%	32%
Plastic	204,334	6%	32%
Flexilights	1,186,454	36%	32%

Method 2

Degree of Operating Leverage (DOL) =	454,000		
	289,000		
Degree of Operating Leverage (DOL) =	1.57		
Target PHP Sales =	32%	increase	
Target PHP Sales =	3,315,479		

Note: Change in Sales x DOL = Change in Net Income

(2) Shift Sales Mix within CAPIZ from Large size to Medium size

Expected Contribution Margin of CAPIZ					300,000
	Small	Medium	Large	Total	
Sales Mix (Units)	400	500	0	900	
CM/unit	250.00	400.00	250.00		
Expected CM	100,000	200,000	0	300,000	
Present Contribution Margin of CAPIZ					270,000
Increase in Net Income					30,000

(3) Shift Sales Mix within PLASTIC from Small to Medium and Large sizes

Expected Contribution Margin of PLASTIC					74,000
	Small	Medium	Large	Total	
Sales Mix (Units)	0	100	90	190	
CM/unit	130.00	290.00	500.00		
Expected CM	0	29,000	45,000	74,000	
Present Contribution Margin of PLASTIC					47,500
Increase in Net Income					26,500

Appendix C-2
Sample Cost-Volume-Profit Analysis

(4) If spending for Advertising or Trade Fairs / Exhibits would increase Sales by 20%, what is the maximum they can spend to maintain current net income?

Method 1

Expected Total Contribution Margin (Php 2,515,000 X 1.20 X 18% CM Ratio)	544,800
Present Total Contribution Margin	454,000
Incremental Contribution Margin	90,800
Less incremental advertising expenses (maximum)	90,800
Change in Net Income	0

Method 2

Degree of Operating Leverage (DOL) =	1.57	
Increase in Sales =	20%	
% Increase in Net Income =	31%	
Php Increase in Net Income =	90,800	Maximum allowable Advertising Expenses

(5) In order to increase sales of the most profitable product (Plastic) by 20%
they need to use higher-quality plastic which will increase RM cost by 10%
they would, however, be able to charge more per lantern, by 10%
Should they implement this change? YES

Expected Contribution Margin of PLASTIC 64,500

	Small	Medium	Large	Total
Old Sales (Units)	100	50	40	190
New Sales (Units)	120	60	48	228
Old CM/unit	130.00	290.00	500.00	
Increase in Price/unit	50.00	90.00	150.00	
Increase in RM/unit	32.00	53.00	85.00	
New CM/unit	148.00	327.00	565.00	
Expected CM	17,760	19,620	27,120	64,500

Present Contribution Margin of PLASTIC	47,500
Increase in Net Income	17,000

Note: They could increase profits further by selling more Medium and Large sizes due to their higher CM ratios.