

## **KAMIAS JAM (SWEET BILIMBI) A FEASIBILITY STUDY**

**LESLIE H. CIELOS <sup>1</sup>, RHEA MAE R. DELOS SANTOS <sup>2</sup>, ROCEL C. LANNA <sup>3</sup>,  
ROSABELLE L. PACULDAR <sup>4</sup>, ESTHER MARGARET C. QUEDDENG <sup>5</sup> and  
ALMAY R. TUDDAO <sup>6</sup>**

<sup>1,2,3,4,5,6</sup> University of Cagayan Valley, Tuguegarao City, Cagayan, Philippines.

### **Abstract**

The proponents came up with this project because Kamias is one of the tropical fruits that are underutilized or rarely used. It is one of nature's unappreciated fruits because of its sourness and bitterness. There are some related studies which stated that Kamias fruit or *Averrhoa bilimbi* is underutilized, from the authors S. Sugiharto and Charena Jumamil Castro. On the other hand, this sour fruit is a natural source of vitamins B and C, iron, phosphorus and antioxidants. In addition, it is rich in fiber and provides high nutritional value that are good for health. The proponents aim to utilize our product which would benefit the majority, and make our product "Kamias jam" be known to many. The goal is to make people appreciate the goodness in it and be able to taste the sweet side of the product. Aside from its cheaper price and affordability this will ensure that this product have met the quality standards.

### **PROJECT RATIONALE**

"KAMIAS JAM" is the name of the proposed product. Kamias is an indigenous fruit which is derived from the scientific name "*Averrhoa bilimbi*", also known as the "cucumber tree" or "tree sorrel" in English. Bilimbi is commonly known as Kamias in the Philippines, which is used as souring ingredient in some Filipino dishes like in stew such as "beef innards stew" specifically.

The proponents chose this product as we want to make Kamias to be known for its other use or purpose and not just a souring ingredient to some dishes. This proposed project is expected to satisfy our customers by providing them a delectable and quality product which they will surely love.

Location is one of the most important factors to be considered in putting up a business. It also plays a vital role in every business success. Moreover, good location decision can attract prospective customers for its accessibility and convenience. The proponents chose the location because of their availability of resources and easier transportation. In addition, the chosen location is accessible to schools and marketplace nearby which makes it easier to find.

### **STATEMENT OF THE OBJECTIVES**

The proposed study on Kamias jam aims to determine if the product would be feasible by the chosen participants in terms of its market aspect, technical aspect, organizational aspect, financial aspect, and socio-economic aspect. The proponents seek to determine its feasibility through the following aspects:

## 1. Market Aspect

One method of addressing the expense and difficulty of getting good nutrition at a lower price is to process fruits to become a staple item, especially if it maximizes the use of easily available and underutilized fruit as a source of food and nutrients. Fruits have a great nutritional content and provide various opportunities for customers to improve their health and well-being. The goal of this research was to discuss the creation of Kamias jam (Averrhoa bilimbi) in jars as a realistic gourmet substitute that could be competitively priced on the market and made accessible to a large number of people. It is even more of a revelation among the great names in the gourmet world due to its exceptional underappreciated nutritional content. The creation of value-added products from Kamias jam can support the local economy and contribute to community nutrition.

### 1.2 Project Description

The proposed idea is called Kamias Jam (Sweet Bilimbi). The choice was made by the proponents because they want Kamias to be renowned for more than just being a souring component in various foods. This proposed initiative is expected to gratify our clients, by offering them a delicious and high-quality product that they will undoubtedly adore. Averrhoa bilimbi plants are propagated in the Philippines, as has been seen. Yet, due to its sour taste, it is frequently not consumed by many, resulting in environmental waste that, when it goes bad or rotten, it serves as a breeding ground for insects. The motivation to perform studies is to prevent this fruit go to waste. This proposed project will serve as one of the comfort foods of the customers which provide them with great satisfaction.

### 1.3 Demand

#### 1.3.1 Present Demand

The target markets of the Sweet Bilimbi are the people of Amulung West, Cagayan. The proponents chose this location because of their rich resources of Kamias fruit, and it is also a good place to plant more Kamias trees that could help us reach our goals and objectives of producing more goods and meeting client demand.

**Figure 1: Presentation of the Proposed Target Market**

Barangay	Number Of Households	Percentage	Projected Number Of Customers
La Suerte	260	24%	62
Nagsabaran	105	10%	11
Catarauan	120	11%	13
Nanuccauan	200	19%	38
Bayabat	310	29%	90
WALK-IN/PASSERSBY	80	7%	6
TOTAL	1,075	100%	220

Figure 1 shows the number of households of the 5 barangays including walk ins or passerby and the percentage of the total target customers per barangay of the proposed project.

### 1.3.2 Projected Demand

Amulung West is one of the places that are rich in resources particularly Kamias fruit. The proponents aim to use the available resources and produce quality products like Kamias jam that will be made affordable and meet customer satisfaction.

**Table 1: Projected Demand**

Year	Projected Demand	Average Consumption	Projected Demand
1	220	220 x 3 jars x 12 months	7,920
2	220	220 x 3 jars x 12 months	7,920
3	220	220 x 3 jars x 12 months	7,920
4	220	220 x 3 jars x 12 months	7,920
5	220	220 x 3 jars x 12 months	7,920

Table 1 shows the projected demand based on the average consumption wherein the number of target customers who are willing to buy a jam or Kamias jam is equivalent to 220 multiplied to the number of jars they are willing to buy in a month which is 3, then multiplied it by the number of months in a year which is 12.

### 1.4 Supply

#### 1.4.1 Present Supply

The currently available jam products are the main rivals of the suggested invention like strawberry jam or other jams available in the market. To fulfill the rising demand of consumers, the proposed project will boost the current supply in Amulung West, Cagayan.

#### 1.4.2 Projected Supply

There are currently existing jam products within and outside the location but are not consumed because it's not affordable for the customers.

**Table 2: Projected Supply**

YEAR	Projected Supply
1	198
2	198
3	198
4	198
5	198

Table 2 shows the projected supply of the proposed product which increases to 90% annually.

### 1.5 Demand Supply Analysis

Analyzing the Demand and Supply is needed. This is to determine whether the supply is sufficient to accommodate the demand of the customer. The trend on the supply and demand is that, the supply must not exceed the demand which means that, the demand is always higher than supply.

**Table 3: Demand and Supply Analysis**

Year	Projected Demand	Projected Supply	Variance	Satisfied	Unsatisfied (%)
1	220	198	22	90%	10%
2	220	198	22	90%	10%
3	220	198	22	90%	10%
4	220	198	22	90%	10%
5	220	198	22	90%	10%

Table 3 shows the Demand and Supply Analysis. As shown in the table, the variance or the difference between the demand and supply is the number of customers not accommodated which is also the basis in computing unsatisfied customers which is 10%. On the other hand, the results of satisfied customer are based on the projected supply divided by the projected demand which is 90% which means that this project is feasible for business.

## 1.6 Market Shares

Customers of Amulung West are the market. The proposed product has the potential to make a profit in light of the anticipated demand over the next five years, taking into account the competitiveness of the goods and their lower prices. Additionally, it is possible to maintain continuity in order to satisfy the service requirements and preferences of the target markets.

**Table 4: Projected Market Share**

Year	Total demand	Target market share	% of market share
1	220	198	90%
2	220	198	90%
3	220	198	90%
4	220	198	90%
5	220	198	90%

Table 4 shows Projected Market Share which is 90% of the total demand.

## 1.7 Marketing Program

### 1.7.1 Present Marketing Program

According to the information gathered from the existing jam products in some area, their current methods of marketing include putting up tarps in places where people can see them, such as in stores, on the post, and other places.

### 1.7.2 Proposed Marketing Program

A good, competitive and cheaper price is set. The price which the proponents have set per product is based on the quality of services to be provided. Price for each product is 120/jar. The Kamias jam or Sweet Bilimbi will surely satisfy the customers by giving a high-quality product.

## 1.8 Price Study

### 1.8.1 Present Selling Price

There are numerous jam varieties available on the market. The majority of them were prohibitively expensive.

## 1.8.2 Projected Selling Price

According to the surveys that the proponents put out, some jam products are too expensive for consumers. As a result, the proponents decided to charge a reasonable price that reflected the quality of service our product will provide.

**Table 5: Projected Selling Price**

Year	Present Selling price				Projected Selling Price			
	Quantity	Description	Unit Price	Total price	Quantity	Description	Unit price	Total Price
1	198	Peanut Butter	130	25,740	198	Kamias Jam	120	23,760
2	198	Peanut Butter	132	26,136	198	Kamias Jam	122	24,156
3	198	Peanut Butter	134	26,532	198	Kamias Jam	124	24,552
4	198	Peanut Butter	136	26,928	198	Kamias Jam	126	24,948
5	198	Peanut Butter	138	27,324	198	Kamias Jam	128	25,344

Table 5 shows projected selling price of the proponents' project which is cheaper than the others. The competitors have Peanut Butter worth 130 each while Kamias Jam is worth 120 each wherein the prices increase to 2 pesos each year depending on the changes in economic status or inflation rates.

## 2. Technical Feasibility Aspect

### 2.1 The Product

Kamias jam was developed by maximizing their nutritional properties and enhancing their flavor as they abound in various regions of the country. The Kamias is one of the most widely available but underutilized fruits in the Philippines. It has a number of health benefits and can even be used as a treatment to some diseases. Furthermore, in a tropical third world countries where bread is one of the staple foods, the jam becomes a perfect pair to the bread. This is one of the Filipino cultures that we had adapted from the past up to this moment.

### 2.2 Product Procedure

First step is to prepare the needed materials, ingredients and tools. Then, clean and wash bilimbi's and chop them in small pieces and remove all the seeds. Next is heat a pan with 1/2 cup water. Afterwards, when it boils, add chopped bilimbi and cover the lid then cook for about 20 minutes, and when it is already smooth, remove it to the pan and mash it until you crushed all the Kamias. After which, return it to the pan and let it boil for 5 minutes then add 1/2 kilo sugar. Mix well and cover as it cooks for about 15-20 minutes or until thickens. Open the lid occasionally and stir them well. Finally, turn off the heat when the jam just starts thickening, no need to thicken more, because after it cools down, it becomes thicker.

### 2.3 Production Building Size

The production and store floor area will be 76 square meters with provision for the future expansion.

## 2.4 Machinery, Equipment and Tools

**Table 6: List of Machineries and Equipment**

Quantity	Description	Use	Total Cost
1	Fire extinguisher	In case of fire	2,000
2	Chiller	For storing products	20,000
3	Trolleys	Use for carrying loads	3,000
1	Cashier counter	For transactions	10,000
1	Service counter	For production	12,000
1	Shelf	Enables the storage of our stock in an organize manner	30,000
1	Generator set	Substitute power supply sources	25,000
2	Gas range	For cooking	16,000
2	Kitchen sink	For washing	3,000
Total			121,000

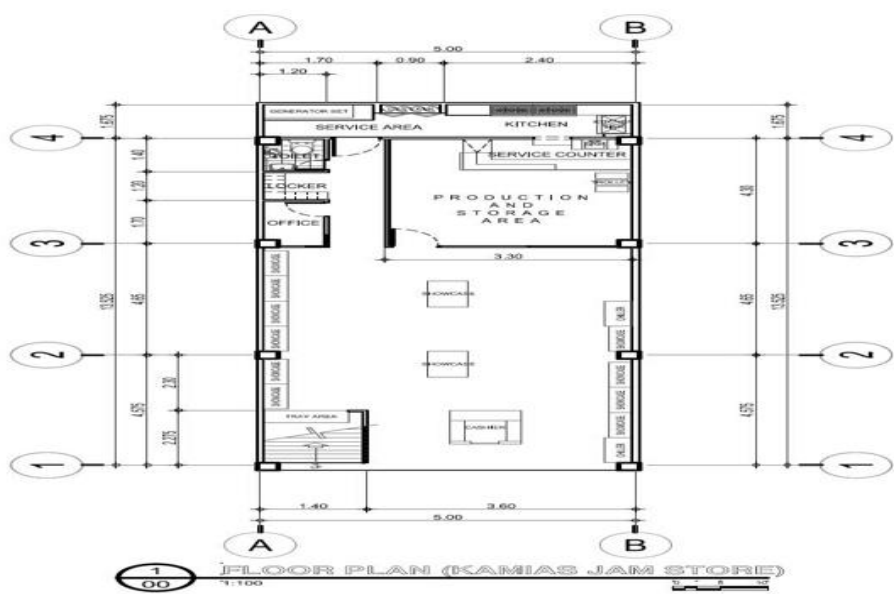
Table 6 shows the list of machines and equipment with their corresponding cost per unit. One (1) Fire extinguisher amounting to 2,000 each, two (2) chillers worth 10,000 per item, THREE (3) trolleys worth 1,000 per item, one (1) cashier counter worth 10,000 per item, one (1) service counter worth 12,000 per item, one (1) shelf worth 30,000 per item, two (2) gas range worth 8,000 per item and one (1) generator set worth 25,000.

## 2.5 Project Location

The proposed project is located at Amulung West, Cagayan which is near to the target market which includes the nearby barangays, schools and marketplace.

## 2.6 Business Layout

**Figure 2**



## 2.7 Building and Facilities

The rented commercial space in Amulung West, Cagayan is approximately 76sqm. Total renovation cost will include drainage system, electrical system, water system, machinery and equipment.

**Figure 3**



## 2.8 Materials or Supply

### 2.8.1 Initial

Initial construction materials and supplies are sufficiently available for the building renovation as more businesses are engaged in hardware and construction industry in the city. Below are the list of materials and supplies with their corresponding amount.

**Table 7: Initial Material Requirements**

PROPOSED IMPROVEMENT OF RENTED SPACE BILL OF MATERIALS	
DESCRIPTION	TOTAL AMOUNT
FINISHING WORKS AND EQUIPMENTS:	
1 PLASTERING	9,200
2 TILEWORKS	39,100
3 DOORS AND WINDOWS	2,125
4 CEILING WORKS	23,450
5 PAINTING WORKS	15,625
6 SANITARY WORKS	6,400
7 ELECTRICAL WORKS	25,000
SUB-TOTAL	120,900
TOTAL MATERIAL COST	120,900
LABOR COST (30% OF MATERIAL COST)	36,270
TOTAL CONSTRUCTION COST WITHY EQUIPMENT	157,170

Table 7 shows the list of initial materials, its cost per unit and the total cost.

## 2.8.2 Projected Materials or Supplies

**Table 8: Initial Material Requirement for First Month Operation**

Description	Quantity	Unit Cost	Total Cost
Kamias Fruit	56 kg	20	1,120
Sugar	28 kg	70.6	1,977
Salt	5 kg	26	130
Jar	140 pcs	25	3,500
Sticker	20 pc	3	60
Total			<b>6,787</b>

Table 8 shows the materials presented above are good for one month. Aside from the materials needed for the first month of production, an additional one-month inventory of the materials with the same quantity will also be purchased.

**Table 9: Projected Total Amount of Materials to be Purchased and Used**

Particulars	Y1	Y2	Y3	Y4	Y5
Inventory Beginning	-	6,787	6,990	7,200	7,416
Add: Purchases	88,231	90,878	93,604	96,412	99,305
Total Materials Available for Use	88,231	97,665	100,594	103,612	106,721
Less: Inventory End	6,787	6,990	7,200	7,416	7,639
Materials Used	81,444	90,674	93,394	96,196	99,082

**Table 10: Initial Supplies Requirement for First Month Operation**

Description	Quantity	Unit Cost	Total Cost
Plastic Bag	5 bundles	120	600
Columnar book	2 pcs	35	70
Dishwashing liquid	2 bottles	35	70
Sponge	2 pcs	25	50
Trash Bag-XL	1 pack	120	120
Total			<b>910</b>

The table above shows the list of supplies to be purchased for the first month operation of the project.

**Table 11: Projected Total Amount of Supplies to be Purchased and Used**

Particulars	Y1	Y2	Y3	Y4	Y5
Inventory Beginning	-	910	937	965	994
Add: Purchases	11,830	12,185	12,550	12,927	13,315
Total Supplies Available for Use	11,830	13,095	13,488	13,892	14,309
Less: Inventory End	910	937	965	994	1,024
Supplies Used	10,920	12,158	12,522	12,898	13,285

## 2.9 Utilities

The main source of electricity will be the Cagayan Electric Cooperative I and a stand-by generator shall be used for any power interruption. Water consumption will be primarily source



by BAWASA and one (1) tank shall serve as back up on water supply in case of problems. Fuel from nearby gasoline station shall be purchased for the stand by electricity generator.

## 2.10 Waste Disposal

The commercial space will be provided trash bins for proper disposal of garbage which will be collected every day.

## 2.11 Cost of Production

**Table 12: Cost of Production per Unit**

Raw Material Cost	Labor Cost	Overhead Cost	Operating Cost	Other pertinent cost	Total cost of production
6,787	36,400	43,187	21,300	910	108,584

Table 12 shows the total initial cost of production per unit in a month.

## 2.12 Labor Requirement

**Table 13: Direct, Indirect and Administrative**

Type/Position	Number of Workers	Wage rate per month	Total per year
Direct labor			
Production Worker	1	12,480	149,760
Indirect Labor			
Cashier	1	10,920	131,040
Administrative			
Manager	1	13,000	156,000
Total	3	36,400	436,800

Table 13 shows the position to be filled up, number of workers needed in each job with their equivalent compensation per month.

**Table 14: Projected Total Labor Cost**

Type	Year 1	Year 2	Year 3	Year 4	Year 5
Wage	436,800	463,008	490,789	520,236	551,450
13th Month Pay	36,400	38,584	40,900	43,353	45,954
Mandatory Contributions	47,088	51,096	55,476	59,916	63,156
<b>Total</b>	<b>520,288</b>	<b>552,688</b>	<b>587,165</b>	<b>623,505</b>	<b>660,560</b>

The table 14 shows the wage rate of every employee for one month or 26 business days. The wage rate per day of the supervisor is P500, production worker is P480 while P420 for the cashier which increases to 6% per year. The other benefits of the employees include the 13<sup>th</sup> month pay which is equivalent to the one-month wage computation and the share of the employer in the mandatory contributions such as SSS, PhilHealth and HDMF.

Presented above is the projected total labor cost inclusive of the wages, 13<sup>th</sup> month pay and mandatory contributions of the employees for the five-year period.

### 3. Organization And Management Aspect

#### 3.1 Form of Organization

The proposed project will adopt a sole proprietorship type of business with 3 employees, 1 helper, one cashier and manager. It is recommended for the proposed project since the start-up cost is only minimal. In addition, it is easy to establish with fewer requirements, the owner has full control of the operation and considering the knowledge of the proponent, sole proprietorship involves only simple accounting and tax calculations.

#### Registration of the Business

As a sole proprietorship and in order to have an official and legitimate running business it must be registered in relevant regulatory agencies to operate.

**Projected Permits/Licenses/Fees**

Particulars	Y1	Y2	Y3	Y4	Y5
Barangay Clearance	1,000	1,000	1,000	1,000	1,000
Community Tax Certificate	500	500	500	500	500
DTI Registration	200	-	-	-	-
Mayor's Permit	1,000	1,000	1,000	1,000	1,000
BIR Registration/Renewal	500	500	500	500	500
TOTAL	3,200	3,000	3,000	3,000	3,000

#### Other Operating Expenses

Aside from the materials/supplies and labor costs, the other cash operating expenses needed to operate the proposed project include the utilities expense, permit/licenses/fees, rent expense, repairs and maintenance, transportation expense, advertising and promotion expense, and internet and telecommunication expense. The cost of the other operating expenses needed for the first month of the operation is presented below.

**Table 15: Initial Other Operating Expenses for 1 month**

Cost Item	Total Cost
Utilities	
Power	4,000
Water	2,000
Gas	3,000
Rent expense	8,000
Advertising and promotion expense	1,000
Internet and telecommunication expense	1,300
Repair and Maintenance	1,500
Miscellaneous expenses	500
Total	21,300

#### Rent Expense

The business will be occupying a for lease space at P8,000 per month. The monthly rental will be paid on or before the end of month.

### Repairs and Maintenance

The repairs and maintenance are expenses for the normal maintenance and upkeep of the product, machines and equipment which is estimated to be P1, 500 for the initial year of operation.

### Miscellaneous Expenses

The miscellaneous expenses include all incidental cost not classified to the specific expenses which is estimated to be P500 per month.

After considering all the information stated above, the projected other operating expenses is presented as follows.

**Table 16: Projected Other Operating Expenses**

Item	Y1	Y2	Y3	Y4	Y5
Utilities expense	108,000	111,240	114,577	118,015	121,555
Rent expense	96,000	98,880	101,846	104,902	108,049
Repairs and maintenance	24,000	24,720	25,462	26,225	27,012
Advertising and promotion expense	12,000	12,360	12,731	13,113	13,506
Internet and telecommunication expense	15,600	15,600	15,600	15,600	15,600
Miscellaneous expense	6,000	6,180	6,365	6,556	6,753
Total	261,600	268,980	276,581	284,411	292,475

Table 16 shows the projected other operating expenses which increases 3% based in the changes in inflation rates per year.

### 3.2 People involve before and during the Operation

The people who will be involved before and during the operating periods are the construction workers of the building, the partners who will manage the operation of the business, the caretaker who will be responsible for the maintenance of the production area and the monitoring of product safety.

### 3.3 Qualification and Number of Labor required

**Table 17: Qualification and Number of Workers**

Position	No. of Labor	Educational Qualification	Age	Experience
Construction workers	15	N/A	18 years old and above	Must have an experience in Construction works
Project Engineer	1	College Graduate: Engineer	20 years old and above	With related experience
Architect	1	College Graduate: Architect	20 years old and above	With related experience
Caretaker	1	N/A	18 years old and above	With related experience

Table 17 shows the Qualification standards of the workers needed in the operation to assure that the hired laborer can handle the job. The number of laborer and age required in each position.

### 3.4 Training and Number of Labor Required

Training is necessary for the organization and also enables learning and personal development to improve the quality, Productivity and ethics in business for its development and profitability.

### 3.5 Implementing Strategy

Successful implementation is the sole responsibility of the proponents which needs a big understanding about the product. The preparation of the feasibility study, documents needed, plant, design and specification, site assessment shall be done within eight (8) months. Then, purchase and delivery of equipment shall also be done in two (2) months. The start of the construction of the building and installation of Facilities and fixtures during the second month of the purchase and delivery of equipment's. After that, while construction of the building is ongoing, hiring of personnel shall be done also together with the advertising campaign for the product to be known in public.

#### 3.5.1 Work Schedule

**Table 18: Work Schedule**

Identification Of Activity	Activity Description	Time/Duration Month
A	Feasibility Study Preparation	3 months
B	Preparation of other Documents (Loan Documents, Business Permit etc.)	2 months
C	Plan, design and Specification preparation	5 months
D	Site Assessment and appraisal	5 months
E	Purchase and Delivery of Equipment	8 months
F	Construction and Installation of Facilities, Equipment's, Furniture's and Fixtures	1 year
G	Hiring of Personnel	1 month
H	Advertising Campaign	2 months

Table 18 shows that the total Project Duration before the operation of the business shall be two (2) years and 3 months.

**Figure 4: Gantt Chart**

Activities	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
A. Feasibility Study Preparation												
B. Preparation of other Documents (Loan Documents, Business Permit etc.)												
C. Plan, design and Specification preparation												
D. Site Assessment and appraisal												
E. Purchase and Delivery of Equipment												
F. Construction and Installation of Facilities, Equipment's, Furniture's and Fixtures												
G. Hiring of Personnel												
H. Advertising Campaign												

## Pre-operating Activities and Schedule

The overall plan for the project shall be the responsibility of the owner. The pre-operating activities to be undertaken prior to start of operation, the person responsible, duration, physical inputs required and cost required are presented below.

**Table 19: Pre-operating Activities and Schedule**

Code	Activity Description	Person Responsible	Duration (weeks)	Physical Inputs Required	Cost Required
A	Formation of the business (other expenses incurred in processing the registration, acquiring necessary permits, etc.)	Owner and relevant agencies	5	-	1,000
B	Processing, approval and release of loan by creditor	Owner and Creditor	2	-	1,000
C	Dry-run operation	Owner	0.5	Raw materials and supplies	2,500
D	Grand opening related expenses	Owner and Staff	1.5	Design materials, flyers and tarpaulin, signboard	4,000
Total					8,500

## 4. FINANCING AND FINANCIAL ASPECTS

### 4.1. Total Project Cost

The estimated total project cost includes the pre-operating expenses, fixed assets and working capital needed to start the business.

**Table 20: Estimated Total Project Cost**

Cost/Expense Item	Amount
<b>a) Pre-operating expenses</b>	
Pre-operating activities	8,500
<b>b) Fixed Assets</b>	
Building Improvement	157,150
Machines and Equipment	66,000
Furniture and Fixtures	55,000
<b>c) Working Capital for 1 month</b>	
Initial Materials and Supplies	7,697
Initial Labor Cost	36,400
Initial Other Operating Expenses	21,300
<b>TOTAL</b>	<b>352,047</b>

### 4.2. Sources/Forms of Capital

The owner will borrow P100, 000 from the Bank and to contribute P252, 047 in cash to start the business and to complete the funding requirement.

**Table 21: Sources of Fund**

Owner's Contribution	252,047
Loan (18%)	100,000
Total	352,047

The interest rate of the loan is 18% and payable monthly for two (2) years. The creditor adopted the Uniform Total Amortization (Annuity Method) in computing the loan amortization.

### 4.3. Major Financial Assumptions

The financial assumptions used to prepare the projected financial statements of the study is presented below which explains how the figures for every item cost is computed or projected.

#### 4.3.1 Sales and collection terms used

- It is assumed that there will be an increase of P2 every year on the prices of the product respectively.
- All sales are in cash basis.

#### 4.3.2 Purchases and payment terms

- An increase of 3% per year on the cost of materials and total supplies cost is assumed considering the year-to-date inflation rate which is almost 3%.
- All purchases are made in cash.

#### 4.3.3 Basis of ending inventory

- The cost of the ending inventory is assumed to be 1/13 of the total purchase for that year which is equivalent to one month cost of materials/supplies.

#### 4.3.4 Loan amortization method used, including the terms and conditions

- The creditor adopted the Uniform Total Amortization (Annuity Method) in computing the loan amortization.
- The loan interest rate is 18% annually and payable monthly for two (2) years.

#### 4.3.5 Depreciation method used

- The business will use the straight-line method in depreciating the machines, equipment, and furniture and fixtures over their estimated useful life.

#### 4.3.6 Basis of projection in other item cost

##### a. Labor Cost

The wage increases by 6% annually based on the average of percentage change of the five (5) latest wage order. In addition, it is assumed that the number of manpower requirement for the first five years will not change considering the minimal increase of projected market share in units per day.

## b. Other Benefits – Mandatory Contributions

### • SSS Contribution

The rates as well as the monthly salary credit used in the computation of the SSS contribution is based on the salient provisions of RA No. 11199 also known as the Social Security Act of 2018.

### • PhilHealth Contribution

The rates used in the computation of the PhilHealth contribution is based on the new rates prescribed under PhilHealth Circular No. 2019-0009.

### • Pag-IBIG Contribution

As of date, the current counterpart share of the employers to their employees for the Pag-IBIG monthly savings is pegged at just P100.

## c. Other Operating Expenses

- An annual increase of 3% per year in the cost of utilities, transportation, repairs and maintenance, advertising and promotion, and miscellaneous expense is assumed considering the year-to-date inflation rate which is 3% based on the Philippine Statistics Authority's Summary Inflation Report Consumer Price Index.

### 4.3.7 Tax computation basis

- The income tax of the proprietor will be computed using the new TRAIN (Tax Reform for Acceleration and Inclusion) Income Tax Table applicable for the year 2023 onwards.
- Income tax is paid on the 15<sup>th</sup> of April the next year.
- The Other Percentage Tax (OPT) is a 3% business tax imposed on businesses with an annual revenue that do not exceed P3,000,000 and is not VAT registered. This is filed every quarter and paid the next month after the covered quarter.

## 4.4 Supporting Financial Schedules

### 4.4.1 Depreciation Schedule

The machines/equipment and furniture and fixtures are depreciated using straight line-method using their estimated useful life. The schedule presented below summarizes the cost, annual depreciation expense, accumulated depreciation and net book value of the machines and equipment, building improvement, and furniture and fixtures.

**Table 22: Depreciation Schedule for Machines and Equipment**

Year	Cost	Annual Depreciation	Accumulated Depreciation	Net Book Value
1	66,000	9,429	9,429	56,571
2	66,000	9,429	18,857	47,143
3	66,000	9,429	28,286	37,714
4	66,000	9,429	37,714	28,286
5	66,000	9,429	47,143	18,857

**Table 23: Depreciation Schedule for Building Improvement**

Year	Cost	Annual Depreciation	Accumulated Depreciation	Net Book Value
1	157,150	15,715	15,715	141,435
2	157,150	15,715	31,430	125,720
3	157,150	15,715	47,145	110,005
4	157,150	15,715	62,860	94,290
5	157,150	15,715	78,575	78,575

**Table 24: Depreciation Schedule for Furniture and Fixtures**

Year	Cost	Annual Depreciation	Accumulated Depreciation	Net Book Value
1	55,000	7,857	7,857	47,143
2	55,000	7,857	15,714	39,286
3	55,000	7,857	23,571	31,429
4	55,000	7,857	31,429	23,571
5	55,000	7,857	39,286	15,714

#### 4.4.2 Loan Amortization Schedule

The table below shows the amortization schedule of the loan payable amount of P100, 000 from the Bank.

**Table 25: Loan Amortization Schedule**

Year	Principal	Interest	Total Payment
1	45,545	14,364	59,909
2	54,455	5,454	59,909
Total	100,000	19,818	119,818

#### 4.5. Projected Financial Statements

The projected financial statements of the proposed project for the first-five year of operation are presented below.

##### 4.5.1 Projected Income Statement

Projected Income Statement						
For the Year Ended Year 1 to Year 5						
	Ref.	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	Schedule 2	<b>1,058,400</b>	<b>1,129,842</b>	<b>1,205,782</b>	<b>1,286,492</b>	<b>1,372,258</b>
Less: Cost of Revenue	Schedule 3	601,732.00	643,362.00	680,560.00	719,701	759,642
Gross Profit		<b>456,668.00</b>	<b>486,480.00</b>	<b>525,222.20</b>	<b>566,791</b>	<b>612,616</b>
Less: Operating Expenses						
Pre-operating expenses	Table 18	8,500	-	-	-	-
Utilities expense	Table 15	108,000	111,240	114,577	118,015	121,555
Permit/licenses/ fees		3,200	3,000	3,000	3,000	3,000
Depreciation expense	Table 21,22,23	33,001	33,001	33,001	33,001	33,001
Rent expense	Table 15	96,000	98,880	101,846	104,902	108,049
Supplies expense	Table 11	10,920	12,158	12,522	12,898	13,285
Repairs and maintenance	Table 15	24,000	24,720	25,462	26,225	27,012



Advertising and promotion expense	Table 15	12,000	12,360	12,731	13,113	13,506
Internet and telecommunication expense	Table 15	15,600	15,600	15,600	15,600	15,600
Interest expense	Table 24	14,364	5,454	-	-	-
Miscellaneous expense	Table 15	6,000	6,180	6,365	6,556	6,753
Other percentage tax	Schedule 5	31,752	33,895	36,173	38,595	41,168
<b>Total Operating Expenses</b>		<b>363,337</b>	<b>356,487</b>	<b>361,277</b>	<b>371,905</b>	<b>382,929</b>
<b>Operating Income</b>		<b>93,331</b>	<b>129,993</b>	<b>163,945</b>	<b>194,886</b>	<b>229,687</b>
Less: Income tax expense		-	-	-	-	-
<b>Net Income</b>		<b>93,331</b>	<b>129,993</b>	<b>163,945</b>	<b>194,886</b>	<b>229,687</b>

#### 4.5.2 Projected Cash Flow Statement

Projected Cash Flow Statement						
For the Year Ended Year 1 - Year 5						
	Ref	Year 1	Year 2	Year 3	Year 4	Year 5
<b>CASH INFLOWS</b>						
Cash from revenue	Schedule 2	1,058,400	1,129,842	1,205,782	1,286,492	1,372,258
Cash received from owner's contribution	Table 20	252,047	-	-	-	-
Cash received from borrowings	Table 20	100,000	-	-	-	-
<b>Total Cash Inflows</b>		<b>1,410,447</b>	<b>1,129,842</b>	<b>1,205,782</b>	<b>1,286,492</b>	<b>1,372,258</b>
<b>CASH OUTFLOWS</b>						
Payments for pre-operating activities	Table 18	8,500	-	-	-	-
Payment for building improvement	Table 7	157,150	-	-	-	-
Purchase of materials	Table 9	88,231	90,878	93,604	96,412	99,305
Purchase of supplies	Table 10	11,830	12,185	12,550	12,927	13,315
Payment of wages and other benefits, net of mandatory contributions	Table 13	473,200	501,592	531,689	563,589	597,404
Payment of SSS, PhilHealth and PagIBIG	Table 13	47,088	51,096	55,476	59,916	63,156
Payment for rent expense	Table 15	96,000	98,880	101,846	104,902	108,049
Payments for utilities	Table 15	108,000	111,240	114,577	118,015	121,555
Payments for permit/licenses/fees		3,200	3,000	3,000	3,000	3,000
Payments for repairs and maintenance	Table 15	24,000	24,720	25,462	26,225	27,012
Payment for internet and telecommunication	Table 15	15,600	15,600	15,600	15,600	15,600
Payments for advertising and promotion expense	Table 15	12,000	12,360	12,731	13,113	13,506
Purchase of machines and equipment	Table 6	66,000	-	-	-	-

Purchase of furniture and fixtures	Table 6	55,000	-	-	-	-
Payment of loan amortization	Schedule 4	45,545	54,455	-	-	-
Payment of interest expense	Schedule 4	14,364	5,454	-	-	-
Payment of income tax		-	-	-	-	-
Payment for miscellaneous expenses	Table 15	6,000	6,180	6,365	6,556	6,753
Payment of other percentage tax		23,814	33,360	35,604	37,990	40,525
<b>Total Cash Outflows</b>		<b>1,255,522</b>	<b>1,021,000</b>	<b>1,008,505</b>	<b>1,058,245</b>	<b>1,109,179</b>
<b>Net Cash Inflows</b>		<b>154,925</b>	<b>108,842</b>	<b>197,277</b>	<b>228,247</b>	<b>263,078</b>
Add: Cash Balance, Beginning		-	154,925	263,768	461,045	689,292
<b>Cash Balance, Ending</b>		<b>154,925</b>	<b>263,768</b>	<b>461,045</b>	<b>689,292</b>	<b>952,370</b>

#### 4.5.3 Projected Balance Sheet

Projected Statement of Financial Position						
As of the Year 1 – Year 5						
	Ref.	Year 1	Year 2	Year 3	Year 4	Year 5
<b>ASSETS</b>						
Current Assets						
Cash	CF	154,925	263,768	461,045	689,292	952,370
Materials and Supplies Inventory	Table 9 &10	7,697	7,928	8,166	8,411	8,663
<b>Total current asset</b>		<b>162,622</b>	<b>271,695</b>	<b>469,210</b>	<b>697,702</b>	<b>961,033</b>
Non-current Assets						
Machines & Equipment, net	Table 21	56,571	47,143	37,714	28,286	18,857
Furniture & Fixtures, net	Table 23	47,143	39,286	31,429	23,571	15,714
Building Improvement, net	Table 22	141,435	125,720	110,005	94,290	78,575
<b>Total non-current asset</b>		<b>245,149</b>	<b>212,149</b>	<b>179,148</b>	<b>146,147</b>	<b>113,146</b>
<b>TOTAL ASSETS</b>		<b>407,771</b>	<b>483,844</b>	<b>648,358</b>	<b>843,849</b>	<b>1,074,179</b>
<b>LIABILITIES AND OWNER'S EQUITY</b>						
Current Liabilities						
Current Loan Payable	Schedule 4	54,455	-	-	-	-
Tax Payable		7,938	8,473	9,043	9,648	10,291
<b>Total Current Liabilities</b>		<b>62,393</b>	<b>8,473</b>	<b>9,043</b>	<b>9,648</b>	<b>10,291</b>
Non-current Liabilities						
<b>Total Non-current Liabilities</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL LIABILITIES</b>		<b>62,393</b>	<b>8,473</b>	<b>9,043</b>	<b>9,648</b>	<b>10,291</b>
Owner's Equity						
Capital Beginning		-	345,378	475,371	639,316	834,202
Add/Deduct:						
Contribution		252,047				
Net Income/(Loss)	IS	93,331	129,993	163,945	194,886	229,687
Capital Ending		345,378	475,371	639,316	834,202	1,063,889
<b>TOTAL LIABILITIES AND EQUITY</b>		<b>407,771</b>	<b>483,844</b>	<b>648,358</b>	<b>843,849</b>	<b>1,074,179</b>

## 4.6. Financial Analysis

### 4.6.1 Profitability Analysis

The following tests are the ones commonly used by decision makers and financial analysts to evaluate the performance or profitability of a project.

#### 4.6.2 Gross Profit Margin

The gross profit margin indicates the mark-up of the products sold. The annual gross profit and net sales of the project are presented below.

Formula:

$$\text{GPM} = \frac{\text{GP}}{\text{NS}} \times 100\%$$

where:

GPM = gross profit margin  
 GP = gross profit  
 NS = net sales

**Table 26: Projected Gross Profit Margin**

Year	1	2	3	4	5
Gross Profit	456,668	486,480	525,222	566,791	612,616
Net Sales	1,058,400	1,129,842	1,205,782	1,286,492	1,372,258
Gross Profit Margin	43%	43%	44%	44%	45%

The table shows that for every peso of sales made during the initial year, about 57 centavos represents the cost of the product, and 43 centavos was the mark-up. The same reasoning applies with the succeeding years.

#### 4.6.3 Return on Assets

It is sometimes called return on investment, a tool to measure the operating efficiency of the project. It indicates how well the owner used the asset under its control to generate income.

Formula:

$$\text{ROA} = \frac{\text{IBIT}}{\text{TA}} \times 100\%$$

where:

ROA = return on assets  
 IBIT = income before interest and taxes  
 TA = total assets

**Table 27: Projected Return on Assets**

Year	1	2	3	4	5
Income before interest and taxes (IBIT)	107,695	135,447	163,945	194,886	229,687
Average Total Assets	407,771	483,844	648,358	843,849	1,074,179
Return on Assets	26%	28%	25%	23%	21%

This table means that for every peso of asset in year 1, it earned 26 centavos. The same reasoning applies with the succeeding years. As observed, the return on assets decreases from Year 1 to Year 5. It only goes to show that the assets in the succeeding years are not properly utilized to generate income. Any excess cash may be used by the proprietor for expanding, reinvesting in its operation or other ventures.

#### 4.6.4 Liquidity Analysis

The following tests are the commonly used ones to evaluate project's ability to pay its short-term obligations as they fell due.

#### 4.6.5 Current Ratio

The current ratio or working capital ratio measures the number of times that the current liabilities could be paid with current assets.

Formula:

$$CR = \frac{CA}{CL}$$

where:

CR = current ratio  
CA = current assets  
CL = current liabilities

**Table 28: Projected Current Ratio**

Year	1	2	3	4	5
Current Assets	162,622	271,695	469,210	697,702	961,033
Current Liabilities	62,393	8,473	9,043	9,648	10,291
Current Ratio	<b>2.61</b>	<b>32.07</b>	<b>51.89</b>	<b>72.32</b>	<b>93.39</b>

The current ratio in the table indicates that the project has P2.61 current assets to pay every peso current obligation in year 1. This only goes to show that the project is liquid and can easily pay off its current liabilities using its current assets. However, the ratios are too high from Year 2 to Year 5, which may indicate that the proprietor is not efficiently using its current assets. The owner can use the other cash for other investment or undertakings.

#### 4.6.6. Quick Ratio

The quick or acid test ratio measures the ability of the project to pay its current obligations.

Formula:

$$QR = \frac{QA}{CL}$$

where:

QR = quick ratio  
QA = quick assets  
CL = current liabilities

**Table 29: Projected Quick Ratio**

Year	1	2	3	4	5
Quick Assets	154,925	263,768	461,045	689,292	952,370
Current Liabilities	62,393	8,473	9,043	9,648	10,291
Quick Ratio	<b>2.48</b>	<b>31.13</b>	<b>50.99</b>	<b>71.45</b>	<b>92.55</b>

The table shows that for every peso current liability, there is equivalent P2.48 quick asset ready to pay any current obligations in year 1. As observed, the ratios are too high from Year 2 to Year 5, which means that there is an excessive cash which can be utilize by expanding, reinvesting in its operation, or other ventures to generate profit.

## 5. Socio-economic Aspect

### 5.1 Socio-economic Contribution

Amulung West, Cagayan is far from the city and there are limited stores there that sells jams, that's why the proponents came up with this project in order to make our product accessible to the customers and satisfy their needs. This project aims to provide quality product like Kamias jam for the customers to enjoy a healthy spread for snacks and even breakfast. In addition, Kamias jam will also be beneficial to them for it provides health benefits to consumers.

## CONCLUSION

The proponents conclude that after considering the different aspects of the Kamias jam product in this study, the establishment of the Kamias business is feasible.

## RECOMMENDATION

Based on the summary of findings and conclusion, the proponents came up with the following recommendations:

- 1) In order for this study to be feasible, it should guarantee quality product and be able to satisfy consumer expectations and standards. On the other hand, it should not only be focused on generating profits but also on its social and economic aspects.
- 2) The business needs to expand for them to attract more customers and future investors.

## Bibliography

- 1) Caoli M. A., Arellano S. A., and Magsino R. F., (2017, May 22). "Acceptability of Kamias Wine". Academia.edu. <https://www.academia.edu/>
- 2) Gaytos, C. E., Abalorio, J., Lavilla, I., & Abalorio, L. (2019). Acceptability of Bilimbi (Averrhoa Bilimbi) Candy. Available at SSRN 3432417.
- 3) Castro, C.J., (2021) "Development of Kamias jam with Coconut Water" International Journal of Vocational Education and Training Research. Vol. 7, No. 1, 2021, pp. 1-5. doi: 10.11648/j.ijvetr.20210701.11
- 4) Ramirez, C.D., Singian, I.C., Cruz, C.O. (2017, Nov. 2) "Development of Spray-Dried Powdered Kamias". Retrieved from <https://ejournals.ph/article.php?id=11732>

- 5) Morton, J. (edited 2019, Jan. 4) "Fruits in warm climates". Retrieved from <https://hort.puodue.edu/newcrop/morton/bilimbi.html>
- 6) Imiru, G. A., (2017) "The effect of Packaging Attributes on Consumer Buying Decision Behavior in Major Commercial Cities in Ethiopia"  
[https://www.researchgate.net/publication/321344308\\_The\\_Effect\\_of\\_Packaging\\_Attributes\\_on\\_Consumer\\_Buying\\_Decision\\_Behavior\\_in\\_Major\\_Commercial\\_Cities\\_in\\_Ethiopia](https://www.researchgate.net/publication/321344308_The_Effect_of_Packaging_Attributes_on_Consumer_Buying_Decision_Behavior_in_Major_Commercial_Cities_in_Ethiopia)
- 7) [https://www.researchgate.net/publication/339639421\\_The\\_Analysis\\_of\\_Marketing\\_Factors\\_Influencing\\_Consumers'\\_Preferences\\_and\\_Acceptance\\_of\\_Organic\\_Food\\_Products-Recommendations\\_for\\_the\\_Optimization\\_of\\_the\\_Offer\\_in\\_a\\_Developing\\_Market](https://www.researchgate.net/publication/339639421_The_Analysis_of_Marketing_Factors_Influencing_Consumers'_Preferences_and_Acceptance_of_Organic_Food_Products-Recommendations_for_the_Optimization_of_the_Offer_in_a_Developing_Market)
- 8) Sajdakowska, M.; Gębski, J.; Wardaszka, A.; Wiczorek, A.
- 9) [https://www.researchgate.net/publication/361891534\\_Evaluation\\_of\\_Food\\_Labelling\\_the\\_Products\\_with\\_Information\\_Regarding\\_the\\_Level\\_of\\_Sugar\\_A\\_Preliminary\\_Study](https://www.researchgate.net/publication/361891534_Evaluation_of_Food_Labelling_the_Products_with_Information_Regarding_the_Level_of_Sugar_A_Preliminary_Study)
- 10) Akinruwa, T.E. (Doctoral Research Student)
- 11) <https://www.eajournals.org/wp-content/uploads/Effectiveness-of-Product-Packaging-on-Customer-Patronage-of-Bournvita-in-Ekiti-State.pdf>
- 12) Sugiharto, S. (2020 / July / 3) "The potentials of two underutilized acidic fruits (*Averrhoa bilimbi* L. and *Phyllanthus acidus* L.) as phytobiotics for broiler chickens"
- 13) [https://scholar.google.com/citations?view\\_op=view\\_citation&hl=en&user=DnxSWQUAAAAJ&cstart=20&pagesize=80&citation\\_for\\_view=DnxSWQUAAAAJ;q-HalDI95KYC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=DnxSWQUAAAAJ&cstart=20&pagesize=80&citation_for_view=DnxSWQUAAAAJ;q-HalDI95KYC)