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**Feasibility Study
on
Vegetable Production**

Submitted to the

**Upland Development Programme
in Southern Mindanao (UDP)**

EXECUTIVE SUMMARY

This business shall be called **South Cotabato Organic Vegetable Production**. The name has been chosen to emphasize that the vegetables that are grown and marketed by the South Cotabato farmers are health-friendly and addresses the demand for more ecological and human friendly food sources apart from it providing income to a large number of vegetable grower from the place.

The production part of the business is to be run by the individual farmers while the marketing part is going to be facilitated by the Mt. Matte Highlanders Association.

The Market Study showed that vegetables like potato, carrots, cabbage, bulb onion, bell pepper and tomatoes planted in a $\frac{1}{4}$ hectare farm is very feasible the fact that these vegetables have great demand in the market all throughout the year. Based on the study, a total of 732.2 tons annually of these 6 types of vegetables are needed in the markets of General Santos City and Koronadal City.

Market price of each of the vegetable considered in the study varies during peak as well as lean seasons. Thus vegetable growers should take a careful consideration on the timing of each vegetable production period.

While the usual vegetable chain passes through the three marketing channels, vegetable growers are assured that 55% of their products go to the wholesale market, while 30% of their products go to the institutional markets like hotels and restaurants and the remaining 15% of their products go to the retail market.

On the other hand, the Technical and Production aspects of the study showed that planting these 6 types of vegetables in a $\frac{1}{4}$ hectare farm size is very much technically feasible. Aside from the ripened technical experience of South Cotabato farmers in vegetable production the availability of the technical expertise of the assigned Agricultural Technicians in the area ensures better and highly productive vegetable growing industry in the area.

The Organization and Management Aspect showed that the project is also organizationally viable since it will be run by the individual vegetable growers maximizing the utilization of its immediate household members.

Lastly, the Financial Study showed that the project is very feasible having an ROI of 272%. Cash Flow projections also showed that the project is viable since it has always positive cash balances in each year. The average net profit margin is 67%.

1.0. MARKETING ASPECT

1.1 Description of the Product

In horticulture, *vegetables* are herbaceous plants that are edible in whole or part. Parts usually eaten include roots, stems, tubers, leaf bases/petioles, entire leaves, flowers, immature and mature fruit. Vegetables are important in the human diet because they are rich in vitamins and minerals and supply fiber and bulk and are cheap source of protein. In the Philippines, vegetables are usually eaten with rice.

Vegetable crops play an important role in the economy of the Philippines as vegetable production, processing and trading provide livelihood for millions of Filipinos. The country's varied climate and geography favor the cultivation of wide range of vegetable crops and follow specialization in the production of the more economically important vegetables. Vegetable production in fact in Asia grew at an annual average rate of 3.4% in 1980s and 1990s (AVRDC).

In the Philippines, the most commonly grown vegetables consist of annual crops which include solanaceous, crucifers, cucurbits, bulb crops and other indigenous vegetables. In South Cotabato particularly, vegetable industry is growing at 2.2% per annum (Source: DA-UDP vegetable research, 2000). The so-called vegetable areas in South Cotabato is the TATATU areas (Municipalities of Tantangan, Tampakan and Tupi). These areas have large vegetable production area and have type IV climate wherein rainfall is more or less distributed throughout the year.

Specifically, the products to be marketed include: potato, carrots, cabbage, bell pepper, bulb onion, and tomatoes. These products include not just vegetables but spices as well.

Vegetable industry in South Cotabato specifically in the municipalities of Tantangan, Tampakan and Tupi (TATATU) is growing steadfastly. Vegetable crops as compared to other crop commodities are generally early maturing and have high nutritive value and are suitable in various cropping systems such as backyard gardening, subsistence farming, cash crop production and processed food production. Vegetable crops have a wide range of adaptation to soil and climatic conditions. It is worth noting that income from vegetable crops is generally higher than most field crops and probably as profitable as fruit crops per unit area and time.

Vegetable production holds potentials as an economic springboard for rural families from the nutrition standpoint and augmentation of the farm family income. Besides, its diversity and compatibility in most cropping systems, it requires little investment especially for a typical subsistence farmer. Government action programs on selected vegetables have shown promise of being profitable. Vegetables contain rich sources of Vitamin A, C, thiamin, niacin and other elements essential for human health.

1.2 Pricing

Price of the vegetable products in South Cotabato varies during its peak season as well as during the lean season. The listing of the vegetable prices for both season (peak and lean) is shown in table 1.

Table 1. Wholesale buying price by location (in kilogram)

Vegetables	GenSan		Koronadal		Tupi		Banga		Alabel	
	Peak	Lean	Peak	Lean	Peak	Lean	Peak	Lean	Peak	Lean
1. Potato	15-20	18-35	15-20	20-30	12-15	15-30	13-18	25-35	10-15	15-30
2. Carrots	10-15	20-30	10-15	20-30	10-20	12-35	8-15	20-30	10-20	35-45
3. Cabbage	3-8	10-25	3-10	10-25	5-10	10-25	6-18	20-30	15-20	25-30
4. Bulb Onion	25-30	28-75	20-50	25-75	40-80	60-120	40-60	70-120	30-65	50-95
5. Tomato	5-15	8-18	6-15	8-25	10-12	12-25	-	-	5-10	10-15
6. Bell Pepper	15-25	40-100	10-25	35-80	-	-	-	-	-	-

Source: Vegetable Market Research in South Cotabato 2002

Prices of vegetables vary over time within a particular market. The quality of vegetables, however, also plays an important role as determinant of the final price. It also varies between markets at any one time because of the different market specifications, end use and supply source.

Normal wholesale/retail mark ups for bulk transaction are in the 20-50% range but for the more perishable crops, mark ups of 100% and up are common.

Four (4) of the vegetables grown in South Cotabato that are included in this feasibility study has its best price during the months of January, September – December (Potato, Carrots, Cabbage and Bell Pepper). The bulb onion has a better command of price during the months of January to April as well as from October to December. The tomato on the other hand, commands a better price almost all throughout the year from the months of January, Mid-March up to the month of December, (Refer to Annex A for the commodity price calendar)

1.3 Market Area

Vegetables coming from Tantangan are marketed and delivered directly to Koronadal and Sultan Kudarat markets while the bulk of Tampakan and Tupi vegetables go to the two (2) major terminal markets in General Santos City and Koronadal City. However, there are also other market outlets for the vegetable products of South Cotabato like in Alabel, Banga, Digos City and Davao City.

1.4 Main Customers and Distribution Channel

The main customers of the vegetable products of South Cotabato are mostly the wholesale buyers of General Santos City and Koronadal City. Like in many other places, most vegetables in South Cotabato pass through wholesalers and retailers before they reach to the consumers' level. The wholesaler is responsible for assembling and retailing the produce and financing production and marketing. However, there are instances where the channels of distribution tend to vary with the value and degree of perishability of the vegetables. Highly perishable and valuable

vegetables such as cauliflower tend to go directly from the wholesaler to the larger retailers or institutional buyers (hotels and restaurants) while less perishable vegetables such as squash will follow a more traditional route of distribution.

The vegetable farmers sell their products based on market feedback. It means that the vegetable grower themselves inquire from their prospective buyers some product specifications such as the buyers' volume requirement, terms and mode of payments, delivery arrangements and especially price even prior to actual production of the said vegetable products.

1.5 Major Market Segments

The market segment for vegetable industry in South Cotabato basically comprise of the wholesale market, institutional market as well as the retail market. For higher value vegetables, 15% of the volume goes to retail, 30% to the institutional markets like hotels, restaurants and 55% to the wholesale market (UDP Vegetable Market Research, 2002).

The retail/consumer market is segmented into the traditional "wet markets" estimated to account for 70% of the retail trade in fresh vegetables. This is manifested as bulk purchases of goods from the "bagsakan centers" of GenSan and Koronadal are retailed in public and small markets of both cities and its neighboring towns.

1.6 Marketing Systems

Marketing arrangements for vegetables vary widely from region to region and will depend on the type of production system involved. Homestead production of vegetables is widespread. The choice of a market outlet is influenced by the prices offered and the existence of alternatives. Other considerations include the perishability of the product, urgent need of money for farm operations, credit tie up arrangements with buyers and farmers' attitudes (Librero et al. 1987)

1.7 Demand and Supply Analysis

Total Demand

In considering the demand of the product, only the two (2) major markets are being considered, the General Santos City and Koronadal City markets. Table 2 shows the demand of the vegetable products in these major markets.

Table 2. Volume of vegetable products required in the market

Vegetables	Volume Required (kgs./year)		Total
	General Santos City	Koronadal	
1. Potato	134,515	83,500	218,015
2. Carrots	148,975	57,950	206,925
3. Cabbage	111,192	59,574	170,766
4. Bulb onion	25,630	63,375	89,005
5. Tomato	13,130	29,090	42,220
6. Bell Pepper	2,675	8,650	11,325
Total	436,117	302,139	738,256

Source: UDP Vegetable Market Research 2002

1.8 Total Supply

Bulk of the supply of vegetable products in South Cotabato mainly come from the three (3) municipalities namely Tantaran, Tampakan and Tupi. Since the major market is also at General Santos and Koronadal Cities, data on the vegetable product supply that would plough in to these major markets are shown in Table 3.

Table 3. Volume of vegetable supply in the market

Vegetables	Volume of Vegetable Supply (in kgs./year)		Total
	Gen San	Koronadal	
1. Potato	93,515	54,320	147,835
2. Carrots	114,775	38,900	153,675
3. Cabbage	36,822	43,488	80,310
4. Bulb Onion	24,375	51,325	75,700
5. Tomato	11,468	13,504	24,972
6. Bell Pepper	4,475	1,440	5,915
Total	285,430	202,977	488,407

Source: UDP Vegetable Market research 2002

These vegetables (potato, carrots, bell pepper, bulb onion and cabbage) are classified according to sizes like small, medium and big while tomato is classified as good or reject. Most common suppliers of these vegetables are from the Barangays of Miasong, Glandang, Banate, Laurel, Palakasam, Liganfa, San Jose and Qumang. Other sources of these vegetables come from Kapatagan (Davao del Sur), some barangays in Sultan Kudarat as well as from Koronadal.

1.9 Demand and Supply Gap Analysis

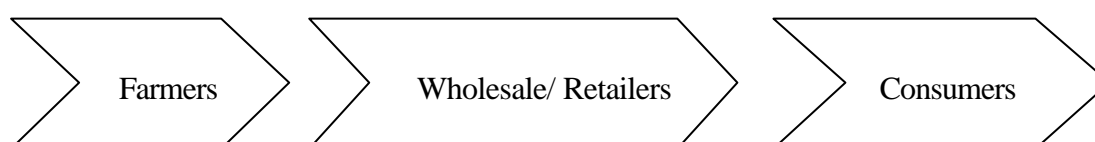
The demand and supply gap analysis of the vegetable products in South Cotabato can best be described through the table below:

Table 4. Demand and supply gap of the prioritized vegetable products in South Cotabato

Vegetables	Total Demand of vegetables for SoCot (kgs./year)	Total Volume of vegetables supplied in the market (kgs./year)	Demand-Supply Gap (kgs./yr)
1. Potato	218,015	147,835	70,180
2. Carrots	206,925	153,675	53,250
3. Cabbage	170,766	80,310	90,456
4. Bulb Onion	89,005	75,700	13,305
5. Tomato	42,220	24,972	17,248
6. Bell Pepper	11,325	5,915	5,410
Total	738,256	488,407	249,840

1.10 Marketing Channel

According to the recently conducted vegetable market research in South Cotabato, vegetable supply chain in the area followed the three (3) layer channels in marketing to wit:



This situation reaffirms the national data that most vegetables pass through the wholesalers and retailers before they reach consumers. Most often, the wholesaler is responsible for assembly and retailing the produce and financing production and marketing.

1.11 Marketing Costs

Vegetables in South Cotabato have the following marketing costs incurred based on the recently conducted vegetable research by UDP. Marketing costs incurred is presented in table 5 below:

Table 5. Marketing costs of a ¼ hectare vegetable production

Vegetables	Marketing Cost	Marketable Yield ¼ ha.	Total Mktg. Costs for ¼ ha.	Marketable Yield per 417 m2 (Kgs)	Total Cost for 417 m2 (P)
1	2*	3*	4 (2x3)	5+	6 (2x5)
1. Potato	6.50/kg.	1,390	9,035	232	1,508
2. Carrots	1.55/kg.	945	1,465	158	245
3. Cabbage	1.60/kg.	3,045	4,872	508	813
4. Bulb Onion	2.25/kg.	357	803	59	133
5. Tomato	2.70/kg.	107	289	18	49
6. Bell Pepper	2.25/kg.	191	423	32	72
Total		6,035	16,887	1,007	2,820

Source: UDP Vegetable Marketing Research 2002

Legend:

* Given Data

+ Ratio and proportion

The marketing costs presented in table 5 focused only on the prioritized vegetables which are to be produced by an individual farmer on a one fourth hectare farm.

1.12 Promotional Measures

In order to entice more buyers of the products, vegetable farmers should not forget to promote their products by way of the following system:

- a. Maintain good business relationship with existing buyers such as delivery of agreed volume and quantity of quality products on time, honesty in dealing with the business partners and many others.
- b. Take an extra effort at maintaining and expanding market networks thru participation in locally organized agri-trade fairs, .
- c. Regular participation to locally scheduled agri-trade fairs, market forum as well as market encounters.
- d. Distribution of flyers that will more or less contain the following capsulized information:
 - Name of farmer/producer
 - Types of vegetable grown
 - Planting/ harvesting calendar
 - Production Capacity
 - Farm location (including information on the accessibility of the farm to market road)
 - Indicative farm gate prices to entice the interest of buyers
- e. Maximizing the linkages built by the assisting line government agencies (e.g. DA and UDP) to avail marketing support services for client growers.

2.0. Technical and Production Aspect

2.1 The Vegetable Production Flow

While production and cultural practices vary from one type of vegetable to another, the general cultural practices for vegetable production discussed below apply:

a. Land Preparation

Prepare the field at least one month before planting by plowing and harrowing the area for several times. Follow each plowing with harrowing to efficiently prevent weeds from growing .

Prepare furrows at a distance required by each vegetable type to be grown. For wet season cropping, prepare raised beds instead of furrows. In low and mid elevation areas, make deep furrows with 0.5m wide. In high elevations, seed beds are prepared according to the width requirement of each type of vegetable.

b. Seedling Production

Seedling production is necessary for those vegetables which can not be directly seeded like tomato, eggplant, cabbage and others. These can be produced through seed bed methods and tray methods. Seed bed methods require incorporation of manure and rice hull ash or wood ash for better seedling growth results.

c. Planting and Transplanting

There are vegetables that can be either sown directly in soil or be transplanted. Direct seeding is carried out by broadcasting or by sowing the seeds in row, then covering the seeds through spreading additional top soil.

To facilitate transplanting, there is a need to water the seed beds and gently uprooting the seedlings and transplant it in lower at a distance required by each type of the vegetables,

d. Fertilization and Weeding

Applying the newly transplanted vegetable seedling with starter solutions using organic fertilizers at the rate of 2t/gallon of H₂O. However, there are vegetables that requires larger application of organic fertilizer at planting to be followed with side dressing applications especially on the vegetative stages of the grown vegetables. Fertilizers are best applied after weeding to facilitate maximum utilization of NPK contents of fertilizers by the plants.

e. Trellising/ Vine Training/ Pruning

For those creeping and climbing vegetables, use trellis to protect the fruits from rotting and malformation. Construct vertical and overhead trellis using Ipi-Ipil or bamboo poles, abaca twines or straw wires are done.

Train the vines on the vertical trellis (e.g. bitter gourd). Lateral shoots may be pruned leaving only the main vine. Removing all female flowers below the overhead trellis enhanced full development of well formed fruits.

f. Pest Management and Maintenance

An integrated pest and disease management is encouraged nowadays. IPM can be applied by pruning and burning old infected leaves at regular intervals. Virus spread can be prevented by using healthy seeds. Avoid nematode damage through crop rotation and use of organic manure.

Another method for pest management is to use botanical pesticides or soap solutions which is found effective to control aphids and cabbage looper worms. Hot pepper extracts are sprayed to leafy vegetables (petchay/lettuce) to control damping off, soft root and club root diseases. Today's generation of farmers used organic pesticides in controlling the occurrence of pest and disease of plants.

g. Harvesting

Harvesting is done when vegetables have reached its full maturity growth stage. Some vegetables are harvested with mature, green or fully ripened fruits or harvesting is done just before fruits are fully ripe or when the peduncle starts to dry up (e.g. squash). Some mode of harvesting is done according to the number of days after planting (DAP) or when 75% of the leaves turn yellow or leaves would begin to fold over (e.g. garlic). (Please refer to table 6 for the detailed production process and maintenance of specific vegetables grown in South Cotabato)

2.2 Production Schedule and Farm Size

Each farmer shall be allowed to till one fourth (1/4) hectare only but each farmer has to grow six (6) types of vegetables with an average plantable size of 417 square meters per vegetable crop.

The limitation on the planting size of a vegetable farmer/grower is influenced by the intensity of the maintenance required by these types of vegetable crops. A total of ninety hectares (90.0 has.) shall be planted with these prioritized vegetables with one fourth hectare/farmer planted with 6 types of vegetables. Refer to Table 7 for the details of the production schedule.

The Vegetable Production Flow

Vegetable Production Flow

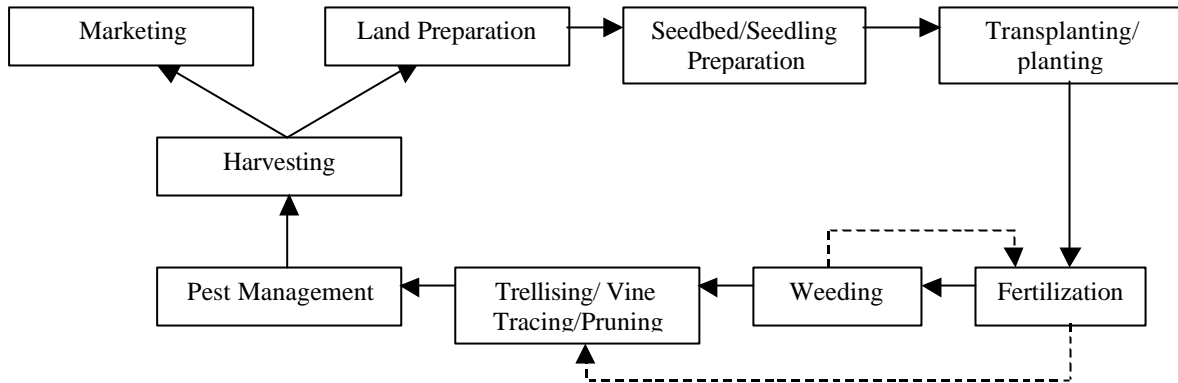


Table 6. Cultural practices and maintenance applied to South Cotabato Vegetable

Production Process and Maintenance							
Vegetables	Land Preparation	Seedling Preparation	Planting and Transplanting	Fertilization	Trellising/Vine Training/Pruning	Pest Management	Harvesting
1. Tomatoes	<ul style="list-style-type: none"> • Plowing/Harrowing one (1) month before planting • 0.75cm-1.0 width of furrows • 1m distance between furrows 	<ul style="list-style-type: none"> • seedbed preparation 	<ul style="list-style-type: none"> ☞ transplant 3-5 true leaves ☞ 1-2 seedlings/ hill with 40cm spacing/hill ☞ transplant time is during late in the afternoon 	<ul style="list-style-type: none"> ☞ 1 tbsp /hill of fertilizer applied 2 days before transplanting 	<ul style="list-style-type: none"> ☞ bamboo or ipil-ipil ☞ use of rope or twine 	<ul style="list-style-type: none"> ☞ organic pesticides ☞ use of biological agents such as trichogramma chillones 	<ul style="list-style-type: none"> ☞ harvest mature green or breaker stage preferably early in the morning
2. Bell Pepper	<ul style="list-style-type: none"> • Plowing/harrowing the area thoroughly • Make furrows 0.5-0.75m apart for single row planting 	<ul style="list-style-type: none"> • 1hectare requires 100-200grams of seeds 	<ul style="list-style-type: none"> ☞ transplant 3-4 weeks after sowing w/ a distance of 0.3-0.5m hill ☞ use mulch to control weeds and promote better growth 	<ul style="list-style-type: none"> ☞ apply basal fertilizer using 5-10 tons / has. Of manure 	<ul style="list-style-type: none"> ☞ apply mulching using rice hull and rice straw 	<ul style="list-style-type: none"> ☞ inter-cropping of marigold ☞ hot pepper spray ☞ maintain sanitation spray w/ organic pesticides or marigold extract ☞ rouging 	<ul style="list-style-type: none"> ☞ go-100 DAT ☞ harvest mature green fruits
3. Bulb Onion	<ul style="list-style-type: none"> • Application of 30cm rice hull layer 1 month prior to last preparation • Land preparation done 1 month prior to transplanting • Plowing/harrowing operations 	<ul style="list-style-type: none"> • 1hectare needs 5kgs. Seeds since a 300-500 sq. meter seedbed produces enough transplants • prepare seed beds at 1m wide • line sow at 3-5kgs. Seeds in a row • reduce watering • expose seedlings to sunlight before transplanting 	<ul style="list-style-type: none"> ☞ transplant 4-6 weeks after sowing ☞ 15cm./hill is the planting distance 	<ul style="list-style-type: none"> ☞ 1has.:11bags of 21-0-0, 27 bags of super phosphate, 4 bags of 0-0-60 ☞ basal/ side dressing 	<ul style="list-style-type: none"> ☞ 	<ul style="list-style-type: none"> ☞ proper irrigation ☞ practice crop rotation ☞ spray compost tea (compost tea is prepared by fermenting rice compost for 10-14 days. The eff===== is sprayed to control foliar disease) 	<ul style="list-style-type: none"> ☞ harvest when tops begin to fall over

Table 7 presents the production schedule or the planting calendar for vegetable suitable to type IV climate.

Table 7. Southern Mindanao Vegetable Product Planting Calendar

Vegetables	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Potato												
2. Carrot												
3. Cabbage												
4. Onion (Bulb)												
5. Tomato												
6. Bell Pepper												

Source: Dept. of Agriculture XI

2.3 Farm Location

The major vegetable producing zones in South Cotabato are in the municipalities of Tampakan, Tantaran and Tupi or most commonly known as the TATATU cluster municipalities.

2.4 Building and Facilities

Individual vegetable grower/farmer usually facilitate production-harvesting efforts in a makeshift shelter nearest to the production area. In most cases, farm area is inaccessible to water and power services. The makeshift shelter (payag) is usually constructed by the farmer and this is usually utilized as temporary storage of harvested products before it will be hauled by the buyers or brought to the BAGSAKAN CENTER. Most makeshift shelters' cost vary from P3,000 to P5,000 and this can be useful between 3– 5 years only.

To facilitate good yield and better vegetable crop production, cropping maintenance is of utmost necessity from seedling stage to maturity. To achieve this, vegetable growers are required to establish proper and/or efficient watering/irrigation facilities.

2.5 Machinery and Equipment

Farm Production Level

Table 8 shows common types of equipments used in the vegetable production of South Cotabato farmers.

Table 8. Equipment used in the vegetable production phases:

Farm Operation Phases	Equipment & Machineries needed	Quantity	Cost
1. Land Preparation	Plow	1	1,000
	Harrow	1	800
	Carabao	1	10,000
2. Seedling Preparation	Bolo	1	180
	Shovel	2	300
	Hoe	2	300
3. Planting/ Harvesting	Same tool in #2	-	-
4. Fertilization/ Weeding	Pail	3	300
	Scythe	2	300
5. Trellising/ Vine Training & Pruning	Bolo (same tool in #2)	-	-
6. Pest Management	Knapsack sprayer	1	1,150
7. Harvesting	Knife	5	250
	Kegs	10	500
Total			15,080.00

These farm equipment to be used in the vegetable production operation can be acquired from local sources such as from the traders in General Santos City or Koronadal City.

These equipments are to be used during the entire production period and are to be acquired/purchased on cash basis and/or these are considered farmers' counterpart the fact that it is already within the possession of the farmers.

2.6 Raw Materials and Supplies

The most common raw materials/ supplies used in vegetable production are the *planting materials* (which include seeds or tubers), *fertilizers* (organic) as well as organic pesticides.

2.7 Waste Disposal

Vegetable waste especially during harvest time are just allowed to rot or decompose in the field. However, there are cases when vegetable wastes are placed within the periphery of the production area and just allowed a natural decomposition to happen. Burning is also done, but not to be encouraged. Other means of disposing waste is through composting. Farmers should be taught on the proper way of composting maximizing the technical expertise of the Agri Technicians. The compost product can in turn be utilized by the farmers themselves in their farms.

2.8 Labor Requirements

Labor requirement in vegetable production also requires some degree of technical expertise which can be developed and enhanced through experience. In most cases, a total of 8 man animal days (MAD) and 25 mandays (MD) is required in a hectare of vegetable production. This consist of the following:

Operations	Labor Req't.	Unit Cost	Total Cost/cropping	Total labor cost/year
1. Land Preparation and Lay – out	8 MAD	200 / MAD	1,600	3,200.00
2. Planting	9 MD	100 / MD	900	1800.00
3. Crops Mgt.	8 MD	100 / MD	800	1600.00
4. Harvest/ Marketing	8 MD	100 / MD	800	1600.00
Total	25 MD			5,032.00

Note: Assumed to have 2 cropping cycles/year of operation

Since this study has its focus only on the one-fourth (1/4) hectare vegetable farm, the following labor requirement is needed:

Operations	Labor Req't.	Unit Cost	Total Cost/cropping
A. Land Preparation			
1. Plowing	2 MAD	200/MAD	400
2. Harrowing	1 MAD	200/MAD	200
3. Plotting Lay-out	2 MD	100/MD	200
4. Seed bed prep	1 MD	100/MD	100
5. Planting	2 MD	100/MD	200

2.9 Total Production Costs

Table 9 below details the production costs incurred in a ¼ hectare production area:

Table 9: Total Production Costs of the 6 vegetables in a ¼hectare farm

Vegetables	Prod'n costs per ¼ ha.	Marketable Yield ¼ ha.	Plantable Area (Has)	Marketable Yield per 417 m2 (Kgs)	Total Cost for 417 m2 (P)
1. Potato	8000	1,390	12.0	232	1,334
2. Carrots	3900	945	14.0	158	651
3. Cabbage	5300	3,045	8.0	508	884
4. Bulb Onion	6000	357	9.0	59	1,001
5. Tomato	650	107	40.0	18	108
6. Bell Pepper	1500	191	7.0	32	250
Total		6,035	90.0	1,007	4,228

3.0. Organization and Management Aspect

3.1 Name of the Enterprise:

The business is called South Cotabato Organic Vegetable Production

3.2 Form of Enterprise

The business is solely a single proprietorship type of business which is to be managed individually by each farmer grower. However, Mt. Matte Highlanders' association will act as the product consolidator of the farmer growers. This means to say that the association must have in its possession available records on the list of farmers and the vegetables they had grown in each cropping cycle and provide such information to the Financial Service Center (FSC) for financial assistance consideration.

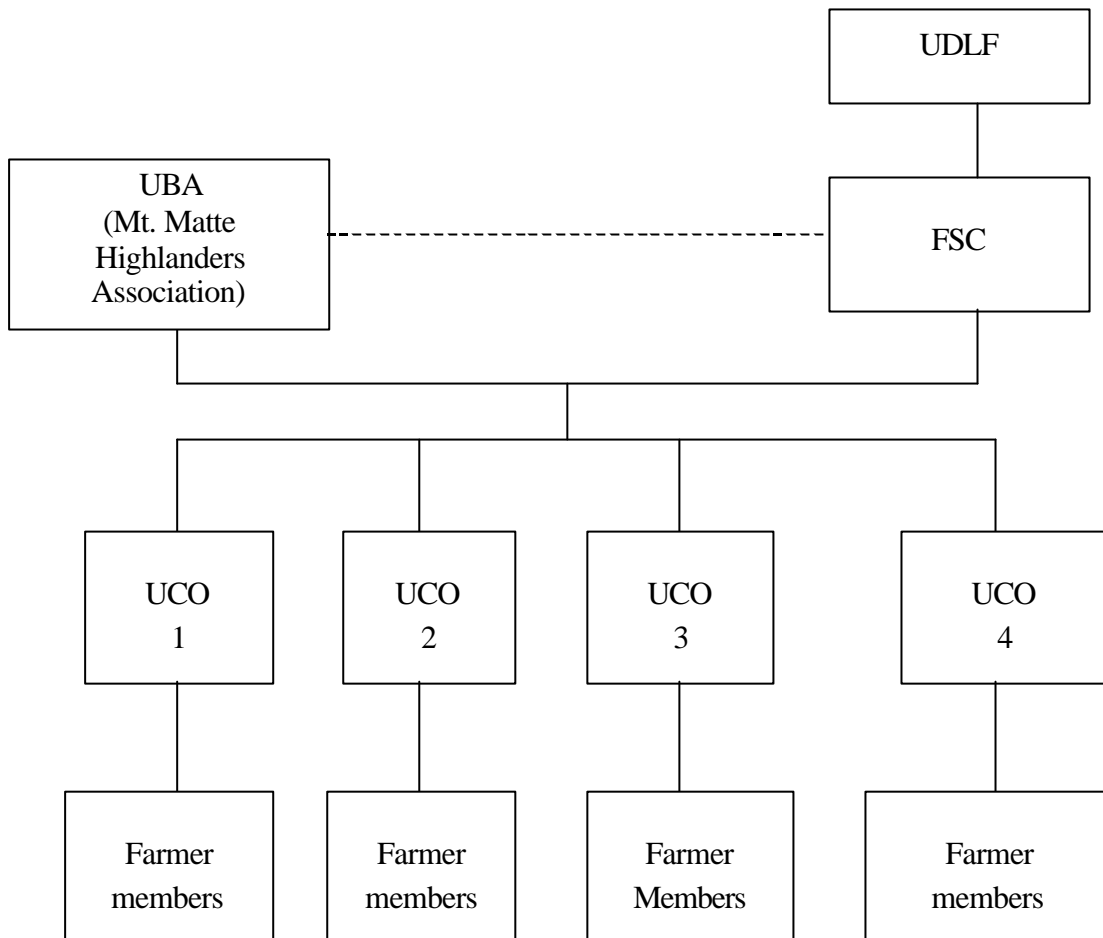
Likewise, the association too must have in its possession information on the financial assistance portfolio available in the FSC so that it will also be relayed to the farmer grower themselves.

The association too should initiate setting up the selection criteria for potential borrowers and to be endorsed to the Financial Service Center

3.3 Organizational Structure

The organizational structure that is being presented here is a pilot organizational structure representing one barangay only.

Organizational Structure



3.4 Duties, Functions and Responsibilities

1. UDLF (Upland Dev't. Loan Fund)
 - a. Considered to be the fund source for this project
2. FSC (Financial Service Center)
 - a. Shall facilitate the releasing of loan funds to qualified farmers
 - b. Shall process the necessary documents for the legality of the loan fund accessing.
 - c. Shall be responsible for setting the final selection criteria for would-be clients

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- d. Responsible to collect the repayments of the farmer borrowers
 - e. Responsible also to conduct orientation session to the farmer borrowers emphasizing some critical points in loaning such as the interest rate, mode of repayment, loan maturity and many more.
 - f. Shall facilitate in updating the loan records of each borrower and provide such information to the borrowers themselves.
3. Upland Barangay Association (s)
 - a. Conduct consultation among the upland community organization
 - b. Formulate policies as to repayment process, loan fund usage and limits
 - c. Provide information/ updates on production trends and market potentials of the grown vegetable production
 4. Upland Community Organizations
 - a. Conduct meeting with their respective members for information updating
 5. Members
 - a. Considered as the vegetable growers who are in charge in the production of the necessary vegetable products

3.5 Qualification of Members

1. Physically fit to do hard labor
2. Must not below 18 years of age but not more than 60 years old
3. Must have at least $\frac{1}{4}$ hectare of land tilled
4. Willing to attend trainings and adopt technologies that enhance agricultural productivity
5. Must cooperate with the policies formulated by the UCOs

3.6 Pre Operating Activities and Expenses

The vegetable production pre-operating activities and expenses of a farmer- grower include preparation of planting materials as well as purchase of farm inputs needed for the whole cropping season. These activities assumed to constitute only 10% of the total production costs.

4.0. Financial Study

4.1. Assumptions

- b. A total of 90 hectares are targeted to be planted with these six (6) prioritized vegetables
- c. A total of 360 target farmer growers are to be assisted
- d. Each farmer has to farm $\frac{1}{4}$ hectare to be planted with these 6 types of vegetables
- e. Average production area per vegetable per farmer is 417 square meters only
- f. Interest rate is 36% per annum

4.2. Total Financial Requirement

Each vegetable farm size required by the farmer to till which is one fourth hectare would require a total production cost of P4,228.00 (See Table 9), thus production cost per hectare will be amounting to P16,912.00. Therefore, for the ninety hectares (90.0) potential plantable areas for these 6 types of vegetable crops, the financial requirement is P1,522,080.00

This figure affirms that the proposed loan package model for each farmer to avail of a one fourth hectare farm which is P5,000.00 is enough in order for the vegetable farmer grower to proceed in its farming operations.

4.3. Project Financial Statement

Schedule 1

Projected sales of a one fourth hectare vegetable farm planted with 6 types of vegetables during Peak Period/Cropping season

Year	Potato			Carrots			Cabbage			Bulb Onion			Tomato			Bell Pepper			Grand Total
	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	
2003	232	17.60	4,083.20	158	10.60	1,674.80	508	13.20	6,705.60	59	57.00	3,363.00	18	14.30	257.40	32	25.00	800.00	16,884.00
2004	232	19.36	4,491.52	158	11.66	1,842.28	508	14.52	7,376.16	59	62.70	3,699.30	18	15.73	283.14	32	27.50	880.00	18,572.40
2005	232	21.30	4,941.60	158	12.83	2,027.14	508	16.00	8,128.00	59	68.97	4,069.23	18	17.30	311.40	32	30.25	968.00	20,445.37
2006	244	23.43	5,716.92	166	14.11	2,342.26	533	17.60	9,380.80	62	75.81	4,700.22	19	19.03	361.57	34	33.27	1,131.18	23,632.95
2007	244	25.77	6,287.88	166	15.50	2,573.00	533	19.36	10,318.88	62	83.31	5,165.22	19	20.93	397.67	34	36.60	1,244.40	25,987.05

Assumptions:

1. Buying price taken from the average of the maximum price during peak season
2. Only the marketable yield is considered
3. There is no increase in the quantity of the marketable yield for the first three years
4. A 5% increase of the marketable yield to happen by year 4 and shall remain in year 5. Projected increase in the marketable yield is influenced by the decline of the production .
5. A 10% annual increase of price of the vegetable products is projected.

Schedule 2:

Projected sales of a one fourth hectare vegetable farm planted with 6 types of vegetables during lean period/cropping season

Year	Potato			Carrots			Cabbage			Bulb Onion			Tomato			Bell Pepper			Grand Total
	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	Marketable Yield	Price per Kg.	Total	
2003	232	32.00	7,424.00	158	34.00	5,372.00	508	27.00	13,716.00	59	97.00	5,723.00	18	20.75	373.50	32	90.00	2,880.00	35,488.50
2004	232	32.00	7,424.00	158	34.00	5,372.00	508	27.00	13,716.00	59	97.00	5,723.00	18	20.75	373.50	32	90.00	2,880.00	35,488.50
2005	232	32.00	7,424.00	158	34.00	5,372.00	508	27.00	13,716.00	59	97.00	5,723.00	18	20.75	373.50	32	90.00	2,880.00	35,488.50
2006	244	32.00	7,808.00	166	34.00	5,644.00	533	27.00	14,391.00	62	97.00	6,014.00	19	20.75	394.25	34	90.00	3,060.00	37,311.25
2007	244	32.00	7,808.00	166	34.00	5,644.00	533	27.00	14,391.00	62	97.00	6,014.00	19	20.75	394.25	34	90.00	3,060.00	37,311.25

Assumptions:

1. There is no increase in the quantity of the marketable yield for the first three years
2. There is 5% increase of marketable yield for year 4 only
3. No increase in price of the vegetable products during lean period is projected

Schedule 3: Projected Annual Income Statement Per Vegetable (2 cropping cycle)

Assumptions:

1. There is 5% increase of expenses per year
2. Each farmer will access loan on a per cropping basis and will pay it on a per cropping basis too
3. Interest rate is 36% per annum, since the farmer will pay it after every cropping interest rate is computed at 18% / cropping
4. Farmer can access a total of P10,000.00 annually basing on their P5,000.00 loan package/farmer/cropping
5. Principal amount and interest payment is distributed to each vegetable.
6. One cropping cycle is estimated to cover six (6) months
7. Computation is good for 2 croppings

Projected Annual Income Statement Per Vegetable (2 Cropping Cycles)

3.a. Name of Vegetable: Potato

Particulars	2003	2004	2005	2006	2007
Sales	8,166.40	8,983.04	9,883.20	11,434.00	12,576.00
Less: Operating Expenses					
Production Cost	2,668.00	2,801.40	2,941.47	3,088.54	3,243.00
Loan Payment	1,967.00	1,967.00	1,967.00	1,967.00	1,967.00
Net Income	3,531.40	4,214.64	4,974.73	6,378.46	7,366.00

3.b. Name of Vegetable : Carrots

Particulars	2003	2004	2005	2006	2007
Sales	3,350.00	3,684.00	4,054.00	4,681.00	5,153.00
Less: Operating Expenses					
Production Cost	1,302.00	1,367.00	1,435.00	1,507.00	1,582.00
Loan Payment	1,967.00	1,967.00	1,967.00	1,967.00	1,967.00
Net Income	81.00	350.00	652.00	1,207.00	1,604.00

3.c. Name of Vegetable: Cabbage

Particulars	2003	2004	2005	2006	2007
Sales	13,411.00	14,752.00	16,256.00	18,762.00	20,638.00
Less: Operating Expenses					
Production Cost	1,768.00	1,856.00	1,948.00	2,046.00	2,148.00
Loan Payment	1,967.00	1,967.00	1,967.00	1,967.00	1,967.00
Net Income	9,676.00	10,929.00	12,341.00	14,749.00	16,523.00

3.d. Name of Vegetable: Bulb Onion

Particulars	2003	2004	2005	2006	2007
Sales	6,726.00	7,399.00	8,138.00	9,400.00	10,330.00
Less: Operating Expenses					
Production Cost	2,002.00	2,102.00	2,207.00	2,317.00	2,433.00
Loan Payment	1,967.00	1,967.00	1,967.00	1,967.00	1,967.00
Net Income	2,757.00	3,330.00	3,964.00	5,116.00	5,930.00

3.e. Name of Vegetable: Tomato

Particulars	2003	2004	2005	2006	2007
Sales	257.40	283.14	311.40	361.51	398.00
Less: Operating Expenses					
Production Cost	216.00	227.00	238.00	250.00	262.00
Loan Payment	1,967.00	1,967.00	1,967.00	1,967.00	1,967.00
Net Income	(1,926.40)	(1,910.86)	(1,893.60)	(1,855.49)	(1,831.00)

3.f. Name of Vegetable: Bell Pepper

Particulars	2003	2004	2005	2006	2007
Sales	800.00	880.00	968.00	1,131.00	1,244.00
Less: Operating Expenses					
Production Cost	500.00	525.00	551.00	578.00	607.00
Loan Payment	1,967.00	1,967.00	1,967.00	1,967.00	1,967.00
Net Income	(1,667.00)	(1,612.00)	(1,550.00)	(1,414.00)	(1,330.00)

Schedule 4: Projected financial statement of a one fourth hectare planted with 6 types of vegetables (2 cropping cycles only)

a) Projected Annual Income Statement of a ¼ hectare farm planted with 6 vegetables

Particulars	2003	2004	2005	2006	2007
Sales	32,711.00	35,981.00	39,621.00	45,772.00	50,339.00
Less: Operating Expenses					
Production Cost	8,456.00	8,878.00	9,320.47	9,786.54	10,275.00
Loan Payment	11,802.00	11,802.00	11,802.00	11,802.00	11,802.00
Net Income	12,453.00	15,301.00	18,498.53	24,183.46	28,262.00

Assumption: 2 cropping seasons

b) Cash Flow Statement of a one fourth hectare farm
(For Year 1)

Cash In

Sales	32,711.00
Loan Proceeds	10,000.00
Equity	500.00
Total Cash In	43,211.00

Cash Out

Production Cost	8,456.00
Loan Payments	11,802.00
Total Cash Out	20,258.00
Net Cash Flow	22,953.00

c) Financial Analysis for a one fourth hectare only

$$\begin{aligned} \text{Return on Investment} &= \frac{\text{Net Income}}{\text{Total Capital Requirement}} \\ &= \frac{12,453.00}{10,000.00} = 124\% \end{aligned}$$

$$\begin{aligned} \text{Net Profit Margin} &= \frac{\text{Net Profit}}{\text{Sales}} \\ &= \frac{12,453}{32,711} = 38\% \end{aligned}$$

$$\begin{aligned} \text{Cash Payback Period} &= \frac{\text{Total Capital Requirement}}{\text{Net Income}} \\ &= \frac{10,000.00}{12,453.00} \\ &= 0.8 \sim 1 \text{ year} \end{aligned}$$

Schedule 5:

Income Statement for Each Vegetable Planted/Cropping/Farmer

Particulars	Potato	Carrots	Cabbage	Bulb Onion	Tomato	Bell Pepper	Total
Sales	4,083.20	1,674.80	6,705.60	3,363.00	257.40	800.00	16,884.00
Less: Operating Expenses							
Production Cost	1,334.00	651.00	884.00	1,001.00	108.00	250.00	4,228.00
Loan Payment	983.33	983.33	983.33	983.33	983.33	983.33	5,899.98
Net Income	1,765.87	40.47	4,838.27	1,378.67	(833.93)	(433.33)	6,756.02

Note: Each vegetable is planted in a 417 square meter area. The above data showed that tomato and bell pepper can not pay off the cost incurred. The payment of the loan will be subsidized from the income of cabbage, potato and bulb onion. The general picture however shows that planting 6 vegetables in a ¼ hectare farm can still generate a farmer's income amounting to P6,756.00 on a per cropping basis. Only the marketable yield is considered.

Schedule 6:

Production Volume of ¼ hectare planted with 6 crops/farmer (within 5 years) in kilograms.

Year and Cropping Season	Potato	Carrots	Cabbage	Bulb Onion	Tomato	Bell Pepper	Total
2003	232	158	508	59	18	32	1007
	232	158	508	59	18	32	1007
2004	464	316	1016	118	36	64	2014
2005	464	316	1016	118	36	64	2014
2006	244	166	533	62	19	34	1058
	244	166	533	62	19	34	1058
2007	488	332	1066	124	38	68	2116
Total	2368	1612	5180	602	184	328	10274

Note:

1. Only the marketable yield is considered
2. Increase of Marketable yield (5%) during the 4th and 5th year assuming there is also a decline of production losses

Schedule 7:

Production Volume of Marketable Yield for the 90 hectares for the 3 municipalities

Year	# of farmers to be served per cropping	# of Hectares per cropping	Production Volume (1/4 hectare)						Total Production Volume					
			Potato	Carrots	Cabbage	Bulb Onion	Tomato	B. Pepper	Potato	Carrots	Cabbage	Bulb Onion	Tomato	B. Pepper
Year 1 Cr 1	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Cr 2	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Year 2 Cr 1	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Cr 2	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Year 3 Cr 1	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Cr 2	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Year 4 Cr 1	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Cr 2	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Year 5 Cr 1	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Cr 2	360	90	232	158	508	59	18	32	8,350	56,880	182,880	21,240	6,480	11,520
Total	3,600	900	2,320	1,580	5,080	590	180	320	83,500	568,800	1,828,800	212,400	64,800	115,200

Schedule 8:

Projected Sales of Marketable yield for 90 hectares planted with 6 types of vegetables

Year	Vegetable 1			Vegetable 2			Vegetable 3			Vegetable 4			Vegetable 5			Vegetable 6			Grand Total
	M'tble Yield	Price (P)	Total	M'tble Yield	Price (P)	Total	M'tble Yield	Price (P)	Total	M'tble Yield	Price (P)	Total	M'tble Yield	Price (P)	Total	M'tble Yield	Price (P)	Total	
2003	167,040	17.60	2,939,904.00	113,760	10.6	1,205,856.00	365,760	13.20	4,828,032.00	42,480	57.00	2,421,360.00	12,960	14.30	185,328.00	23,040	25.00	576,000.00	12,156,480.00
2004	167,040	19.36	3,233,894.40	113,760	11.66	1,326,441.60	365,760	14.52	5,310,835.20	42,480	62.70	2,663,496.00	12,960	15.73	203,860.80	23,040	27.50	633,600.00	13,372,128.00
2005	167,040	21.30	3,557,952.00	113,760	12.83	1,459,540.80	365,760	16.00	5,852,160.00	42,480	68.97	2,929,845.60	12,960	17.30	224,208.00	23,040	30.25	696,960.00	14,720,666.40
2006	119,520	23.43	2,800,353.60	119,520	14.11	1,686,427.20	383,760	17.60	6,754,176.00	44,640	75.81	3,384,158.40	13,680	19.03	260,330.40	24,480	33.27	814,449.60	15,699,895.20
2007	119,520	25.77	3,080,030.40	119,520	15.52	1,854,950.40	383,760	19.36	7,429,593.60	44,640	83.31	3,718,958.40	13,680	20.93	286,322.40	24,480	36.60	895,968.00	17,265,823.20

Legend:

- Vegetable 1-Potato
- 2-Carrots
- 3-Cabbage
- 4-Bulb Onion
- 5-Tomato
- 6-Bell Pepper

Schedule 9:

Projected Income Statement for the 90 hectares farmed by 360 target farmers
(5 Years)

Particulars	2003	2004	2005	2006	2007
Sales	12,156,480.00	13,365,302.00	14,720,667.00	15,699,895.00	17,265,822.00
Less: Operating Expenses					
Production Costs					
Potato	967,680.00	1,008,504.00	1,058,929.20	1,111,874.40	1,167,480.00
Carrots	468,720.00	492,120.00	516,960.00	542,520.00	569,520.00
Cabbage	636,480.00	668,160.00	701,280.00	736,560.00	773,280.00
Bulb Onion	720,720.00	756,720.00	794,520.00	834,120.00	875,880.00
Tomato	77,760.00	81,720.00	85,680.00	90,000.00	943,320.00
Bell Pepper	180,000.00	189,000.00	198,360.00	208,080.00	218,520.00
Interest Expense	1,296,000.00	1,296,000.00	1,296,000.00	1,296,000.00	1,296,000.00
Total Expenses	4,347,360.00	4,492,224.00	4,651,729.20	4,819,154.40	5,844,000.00
Profit/Loss	7,809,120.00	8,873,078.00	10,068,937.80	10,880,740.60	11,421,822.00

Schedule 10:

Projected Cash flow Statement for the 90 hectares (good for 360 farmers) in five years

	2003	2004	2005	2006	2007
Cash Inflow					
Sales	12,156,480.00	13,365,302.00	14,720,667.00	15,699,895.00	17,265,822.00
Counterpart (Savings Mob)	180,000.00	180,000.00	180,000.00	180,000.00	180,000.00
Loan Proceeds	3,600,000.00	3,600,000.00	3,600,000.00	3,600,000.00	3,600,000.00
Total Cash Inflow	15,936,480.00	17,145,302.00	18,500,667.00	19,479,895.00	21,045,822.00
Cash Outflow					
Production Loan	3,051,360.00	3,196,224.00	3,355,729.20	3,523,154.40	4,548,000.00
Loan Payment					
Principal	3,600,000.00	3,600,000.00	3,600,000.00	3,600,000.00	3,600,000.00
Interest	1,296,000.00	1,296,000.00	1,296,000.00	1,296,000.00	1,296,000.00
Total Cash Outflow	7,947,360.00	8,092,224.00	8,251,729.20	8,419,154.40	9,444,000.00
Total Cash Flow/Increase In Cash	7,989,120.00	9,053,078.00	10,248,937.80	11,060,740.60	11,601,822.00
Cash Beginning Balance	-	7,989,120.00	17,042,198.00	27,291,135.80	38,351,876.40
Cash Ending Balance	7,989,120.00	17,042,198.00	27,291,135.80	38,351,876.40	49,953,698.40

Schedule 11

Projected Balance Sheet for the 90 hectares production in 5 years

	2003	2004	2005	2006	2007
Assets					
Cash	7,989,120.00	17,042,198.00	27,291,135.80	38,351,876.40	49,353,398.40
Total Assets	7,989,120.00	17,042,198.00	27,291,135.80	38,351,876.40	49,353,398.40
Liabilities and Owner Equity					
Loans Payable	-	-	-	-	-
Member Equity	180,000.00	360,000.00	540,000.00	720,000.00	900,000.00
Undivided Income/Loan	7,809,120.00	16,682,198.00	26,751,135.80	37,631,876.40	49,053,698.40
Total Liabilities	7,989,120.00	17,042,198.00	27,291,135.80	38,351,876.40	49,953,698.40

5.0. Socio Economic Viability

The opportunities for increased income for the farmers in South Cotabato by growing these prioritized vegetables will generate the following socio economic benefits:

1. With increase income from vegetable growing, the living condition of the farmers would improve which would redound to better family condition and would influence better access to education
2. Improved family health in the rural areas the fact that fifty two percent (52%) of the production losses are being consumed
3. Enhanced the development of self confidence among the farmers in the sense that they are directly the ones that will negotiate with the FSC for loan availment
4. Improved the attitude towards credit in the sense that they are really to pay the loans availed
5. Improved the organizational capacity also of the organization in running certain economic affairs of the group

Annex A. Commodity Price Calendar

Commodity	January	February	March	April	May	June	July	August	September	October	November	December
Potato												
Carrots												
Cabbage												
Baguio Beans												
Cauliflower												
Raddish												
Bell Pepper												
Chinese Cabbage												
Chayote												
Bulb Onion												
Ginger												
Garlic												
String Beans												
Squash												
Eggplant												
Ampalaya												
Mongo												
Tomato												

Legend:

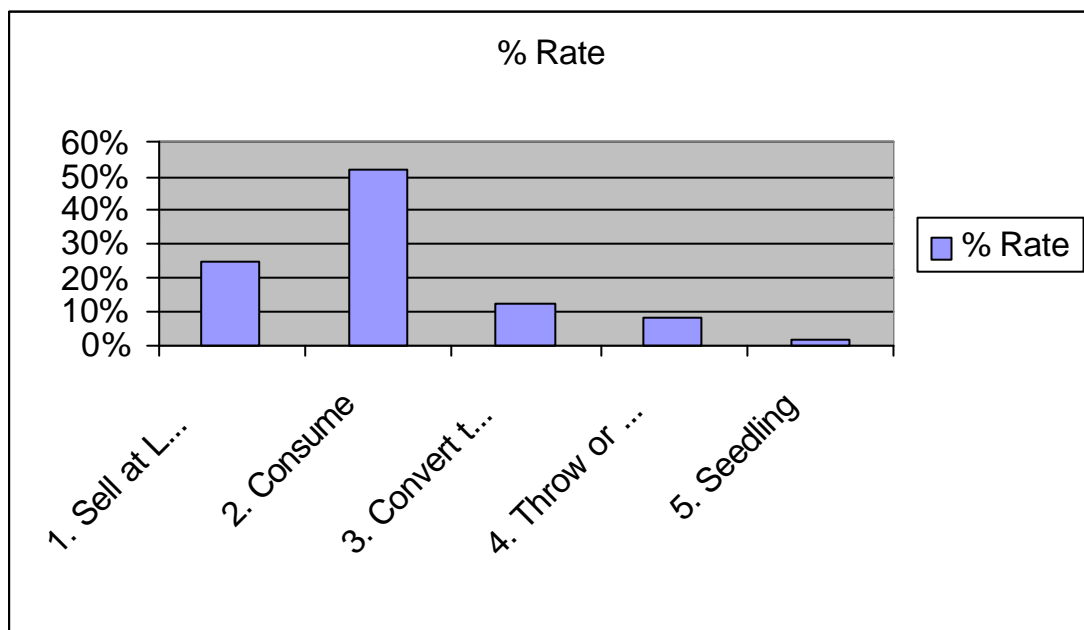
Low Price 
 High Price 

Source: Vegetable Marketing Research in South Cotabato

Annex B

Farmers' Production Loss Usage

Usage	% Rate
1. Sell at Lower Price	25%
2. Consume	52%
3. Convert to Feeds	12%
4. Throw or Give Away	8%
5. Seedling	2%



Source: Vegetable Market Research 2002 by UDP

Analysis:

The quantity of the production losses of the vegetable farmers have still productive uses.

A bigger portion of the considered production losses is being consumed (52%) while those that are sold at lower prices reach 26%, those products which are converted to feeds is 12% and those that are already thrown away is 8%.

Annex C

Presentation of a comparative Analysis on Vegetable Producers' Production Cost and Yield on a ¼ hectare/vegetable and ¼ hectare with 6 crops

Vegetable	Marketable Yield		Production Costs		% rate
	a. 2,500 sq. meter / veg.	b. 417 sq. meter / veg.	a. 2,500 sq. meter / veg.	b. 417 sq. meter / veg.	
Potato	1,390	232	8,000	1,334	17
Carrots	945	158	3,900	651	17
Cabbage	3,045	508	5,300	884	17
Bulb Onion	357	59	6,080	1,001	17
Tomato	107	32	650	108	17
Bell Pepper	191	18	1,500	250	17

A – Data based on the UDP vegetable marketable research

B – Data computed by ratio and proportion

Annex D

Computed data on Ra tio and Proportion

Vegetable	Marketable Yield		Production Costs		Marketing Costs	
	Baseline (2500sq. Meter)	417 sq. meter	Baseline (2500sq. Meter)	417 sq. meter	Baseline (2500sq. Meter)	417 sq. meter
Potato	1390	232	8000	1334	6.50/kg	1507
Carrots	945	158	3900	651	1.55/kg	244
Cabbage	3045	508	5300	884	1.60/kg	244
Bulb Onion	357	59	6000	1001	2.25/kg	134
Tomato	107	32	650	108	2.25/kg	73
Bell Pepper	191	18	1500	250	270/kg	49

Annex E

Total Production Costs Per Vegetable (2 cropping x 360 farmers)

Vegetable	Year	Production Cost		No. of Farmers	Total Amount
Potato	Year 1	2,688.00	X	360	967,680.00
	Year 2	2,801.40	X	360	1,008,504.00
	Year 3	2,941.47	X	360	1,058,929.20
	Year 4	3,088.54	X	360	1,111,874.40
	Year 5	3,243.00	X	360	1,167,480.00
Carrots	Year 1	1,302.00	X	360	468,720.00
	Year 2	1,367.00	X	360	492,120.00
	Year 3	1,435.00	X	360	516,600.00
	Year 4	1,507.00	X	360	542,520.00
	Year 5	1,582.00	X	360	569,520.00
Cabbage	Year 1	1,768.00	X	360	636,480.00
	Year 2	1,856.00	X	360	668,160.00
	Year 3	1,948.00	X	360	701,280.00
	Year 4	2,046.00	X	360	736,560.00
	Year 5	2,148.00	X	360	773,280.00
B. Onion	Year 1	2,002.00	X	360	720,720.00
	Year 2	2,101.00	X	360	756,360.00
	Year 3	2,207.00	X	360	794,520.00
	Year 4	2,317.00	X	360	834,120.00
	Year 5	2,433.00	X	360	875,880.00
Tomato	Year 1	216.00	X	360	77,760.00
	Year 2	227.00	X	360	81,720.00
	Year 3	238.00	X	360	85,680.00
	Year 4	250.00	X	360	90,000.00
	Year 5	262.00	X	360	94,320.00
Bell Pepper	Year 1	500.00	X	360	180,000.00
	Year 2	525.00	X	360	189,000.00
	Year 3	551.00	X	360	198,360.00
	Year 4	578.00	X	360	208,080.00
	Year 5	607.00	X	360	218,520.00

Annex F. Details of the computation of the data used

Expenses Per Year

Equity - 500/year divided by 2 = 250/2,500 ha.

P250 = $\frac{1}{4}$ ha. = .25 ha.

Loan - 10,000 / year divided by 2 = 5,000/2,500 ha.

P5,000 = $\frac{1}{4}$ ha. = .25 ha.

Equity: 500/farmers x 360 farmers

Year 1	180,000.00
Year 2	180,000.00
Year 3	180,000.00
Year 4	180,000.00
Year 5	180,000.00

Loan Proceeds: 10,000 / year / farmer x 360 farmers

Year 1	3,600,000.00	x	36%	1,296,000.00
Year 2	3,600,000.00	x	36%	1,296,000.00
Year 3	3,600,000.00	x	36%	1,296,000.00
Year 4	3,600,000.00	x	36%	1,296,000.00
Year 5	3,600,000.00	x	36%	1,296,000.00

Annex G. General financial analysis of the 90 hectares planted with 6 vegetables (360 farmers) in 5 years

Financial Analysis

		2003		2004		2005		2006		2007	
Return on Investment	Net Income	7,809,120.00	217.00%	8,873,078.00	246.00%	10,068,987.80	280.00%	10,880,740.00	302.24%	11,421,822.00	317.27%
	Total Capital Req't.	3,600,000.00		3,600,000.00		3,600,000.00		3,600,000.00		3,600,000.00	
Net Profit Margin	Net Profit	7,809,120.00	64.00%	8,873,078.00	66.00%	10,068,987.80	68.00%	10,880,740.60	69.30%	11,421,822.00	66.15%
	Sales	12,516,480.00		13,365,302.00		14,720,667.00		15,699,895.00		17,265,822.00	
Cash Payback Period	Total Capital Req't.	3,600,000.00	0.46	3,600,000.00	0.40	3,600,000.00	0.36	3,600,000.00	0.33	3,600,000.00	0.32
	Net Income	7,809,120.00		8,873,078.00		10,068,987.80		10,880,780.60		11,421,822.00	

Annex H

Total Production Data of the Prioritized Vegetables for a ¼ hectare area in South Cotabato

Vegetables	Source	Prod'n. Costs	Yield (Kgs.)	Prod'n Loss	Consumption (kgs)	Marketable Yield
1. Potato	Tupi	8000	1500	-105	5-10	1385
2. Carrots	Tupi	3900	1000	-75	3-5	920
3. Cabbage	Tupi	5300	3600	1080	5-15	2505
4. Bulb Onion	Tampakan	6000	400	40	.5-3	357
5. Tomato	Tantangan/ Tampakan	650	160	48	1-5	107
6. Bell Pepper	Tampakan	1500	240	48	.25-1	191

Source: UDP Vegetable Marketing Research 2002

Annex I

Price trends of the six (6) vegetables in South Cotabato for the last 5 years (1997 – 2001)

Vegetables	Region XI					Region XII					Ave. Price
	97	98	99	00	01	97	98	99	00	01	
1. Potato	25.80	32.79	34.88	35.70	33.00	21.95	25.88	27.98	26.15	25.10	28.92
2. Carrots	24.72	42.28	35.69	31.69	34.24	30.53	46.27	40.66	33.52	35.72	35.53
3. Cabbage	19.09	29.80	19.45	23.25	12.35	18.17	27.42	17.16	21.41	19.42	20.75
4. Bulb Onion	153.87	61.41	58.61	168.45	149.94	162.45	41.26	39.07	-	156.25	109.10
5. Tomato	15.93	25.02	19.72	18.65	22.45	17.89	23.64	17.01	17.77	18.58	19.66
6. Bell Pepper	46.88	81.36	66.78	54.39	48.58	46.88	62.78	46.59	45.69	49	50.03

Source: Bureau of Agricultural Statistics Office, Davao City

ANNEX J

Summary of Projected Sales of a ¼ hectare farm of 6 vegetables for one cropping only

Vegetables	2003	2004	2005	2006	2007
1. Potato	4,083.20	4,491.52	4,941.60	5,717.00	6,288.00
2. Carrots	1,674.80	1,872.28	2,027.14	2,342.26	2,576.32
3. Cabbage	6,705.60	7,376.16	8,128.00	9,380.80	10,319.00
4. Bulb Onion	3,363.00	3,699.30	4,069.23	4,700.22	5,165.22
5. Tomato	257.40	283.14	311.40	361.51	397.67
6. Bell Pepper	800.00	880.00	968.00	1,131.18	1,244.40
Total	16,884.00	18,572.40	20,445.23	23,631.13	25,952.60