



Department of Agriculture
Philippine Coconut Authority



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Bureau of Agricultural Research

COCONUT SAP SUGAR INDUSTRY ROADMAP

Presented during the 1st National Coconut Sap Sugar Congress
Hotel Marco Polo Hotel, Davao City, Philippines / 5-6 March 2012

THE ROAD MAP

1. A blueprint of the focused and unified industry plans and directions.
2. A comprehensive assessment of the magnitude and opportunities of the industry.
3. Basis of implementing programs and projects to address issues and concerns of the industry.
4. The yardstick of achieving plans at a given timeline and investment.



COCONUT SAP SUGAR

An Alternative Sweetener



http://www.noble-house.tk/html/engels/Gula_Java/Coconut_blossom_sugar/Gandhi-coconut_blossom_sugar_antidote_against_misery.html

“The juice of the coconut tree can be transformed into a sugar as soft as honey... Nature created this product such that it could not be processed in factories. Palm sugar can only be produced in palm tree habitats.

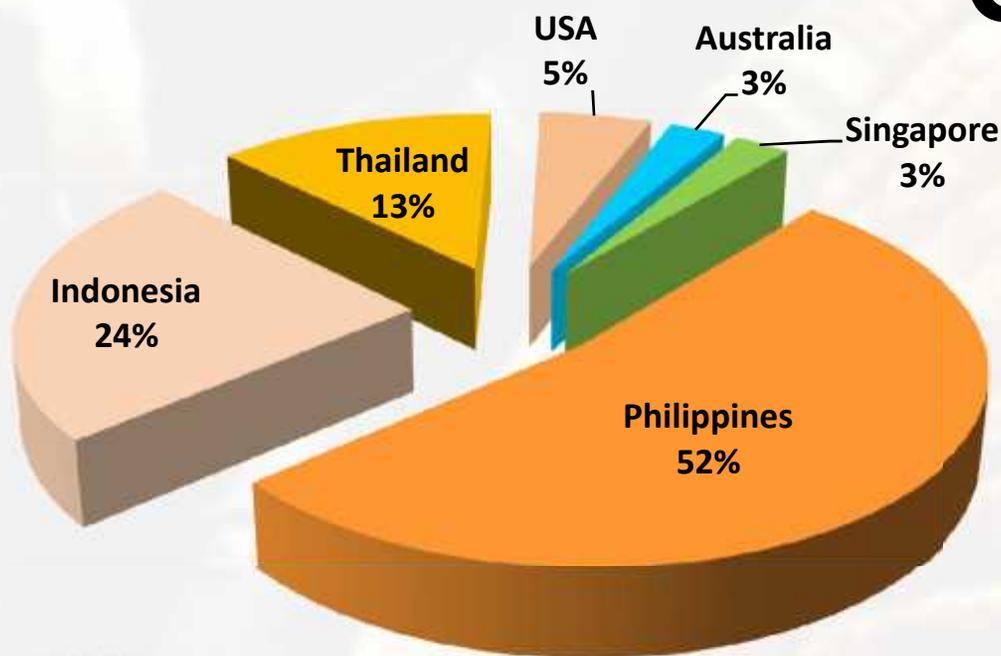
“Local populations can easily turn the nectar into coconut blossom sugar. It is a way to solve the world's poverty. It is also an antidote against misery.”

Mohan das K. Gandhi 3.5.1939

Mahatma Gandhi largely experimented with food; it was important to him. His personal diet was vegetarian and consisted of 1 litre of goat's milk; 150g wheat and rice; 75g leaf vegetables; 125g other vegetables; 25g lettuce; 40g ghee and 40-50g coconut blossom sugar.



GLOBAL INDUSTRY SITUATION



KEY PLAYERS

COUNTRY	MANUFACTURER	TRADER	DISTRIBUTOR
Indonesia	4	5	
Thailand	5		
Australia			1
Philippines	14	5	1
Singapore			1
USA			2

Source: <https://www.alibaba.com>



PRODUCT BRANDS GLOBALLY AVAILABLE



Indonesia

Thailand



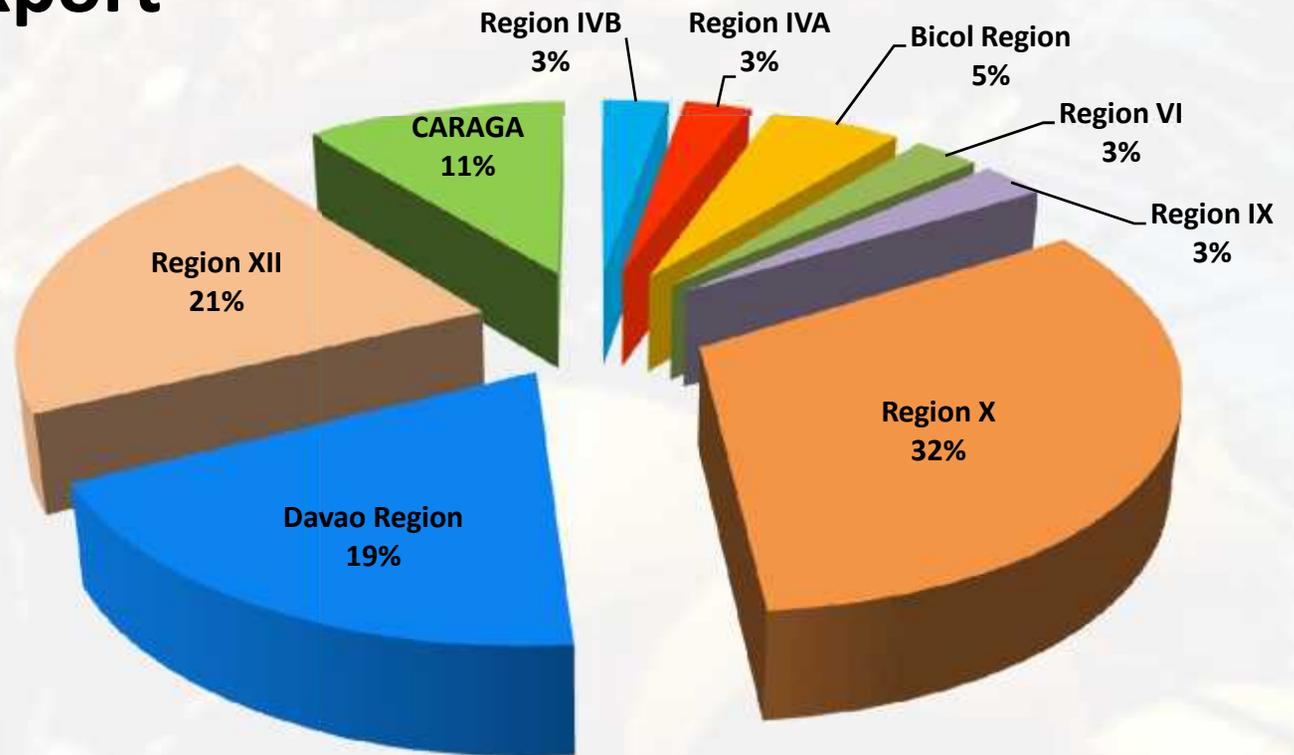
Indonesia

Thailand

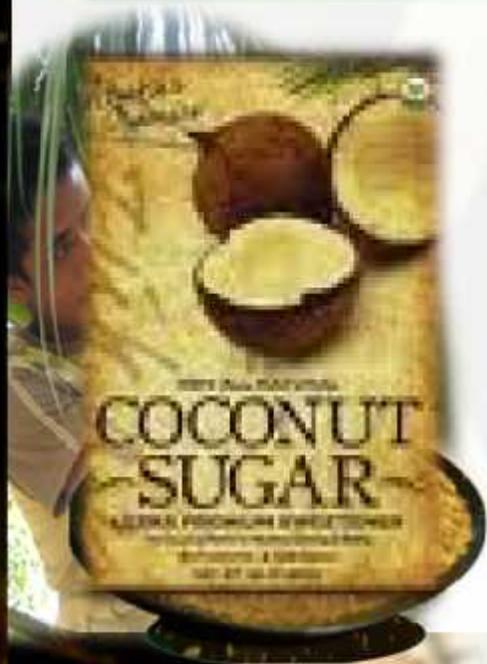
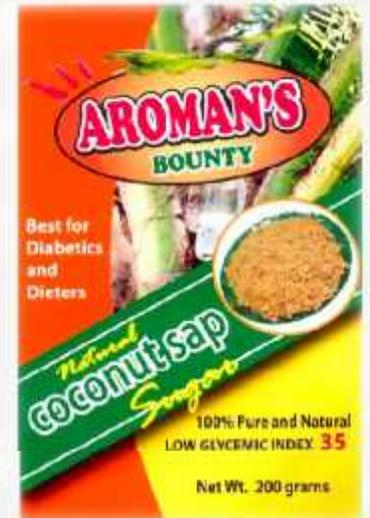
Thailand

LOCAL INDUSTRY SITUATION

Growing interests of the exporters and trading sectors due to increasing demand in the local and export market



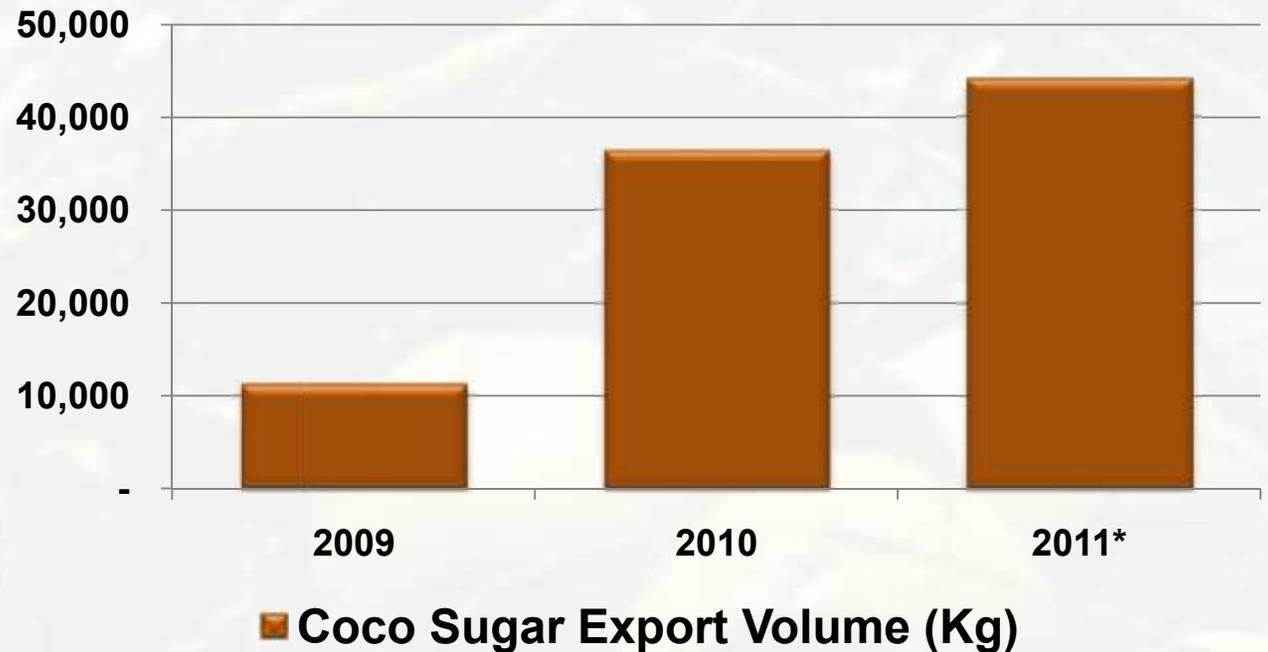
THE PHILIPPINE BRANDS



A surging trend in production and market demand as healthy and natural product from 2007 to present.

EXPORT VOLUME

Current Export Price:
US\$ 4.50 - 6.50 per pound



*Partial Data / Source: PCA-MDD, 2011



EXPORT DESTINATION



INDUSTRY MILESTONES

2011-present

Intensive promotion as PCA's promising product pushed by Admin Forbes

2007

PCA funded GI Analysis of Coco Sugar thru FNRI-DOST
Dr. Trinidad Trinidad

March 7: Press Release about the GI Introduction in Korean Market
Promotion in the Export Market

2002-05

Coco Sugar Technology Development thru COGENT in Balingasag, Misamis Oriental

RM Cruz, Luisa Molo and Joy Gamolo and Erlene Manohar

1995

Coco Sugar Project of PCA Funded by FAO in ZRC - Dr. Magat

2008-2010

Commercialization
Coco Natura Branding & Packaging

Establishment of Aroman Women's Natural Food Producer

Ms. Erlene Manohar ; Mr. Tammy Jalos; Ms. Elvira Silva; and Engr.. Evelyn Caro

2006

Introduced the Coco Sugar in the Coco Week Trade Fair - RM Cruz and Ms. Erlene Manohar

Coco Sugar Processing Project supported by former Admin. Garin

1997-2001

SCTNP Technology was developed - Dr. Magat



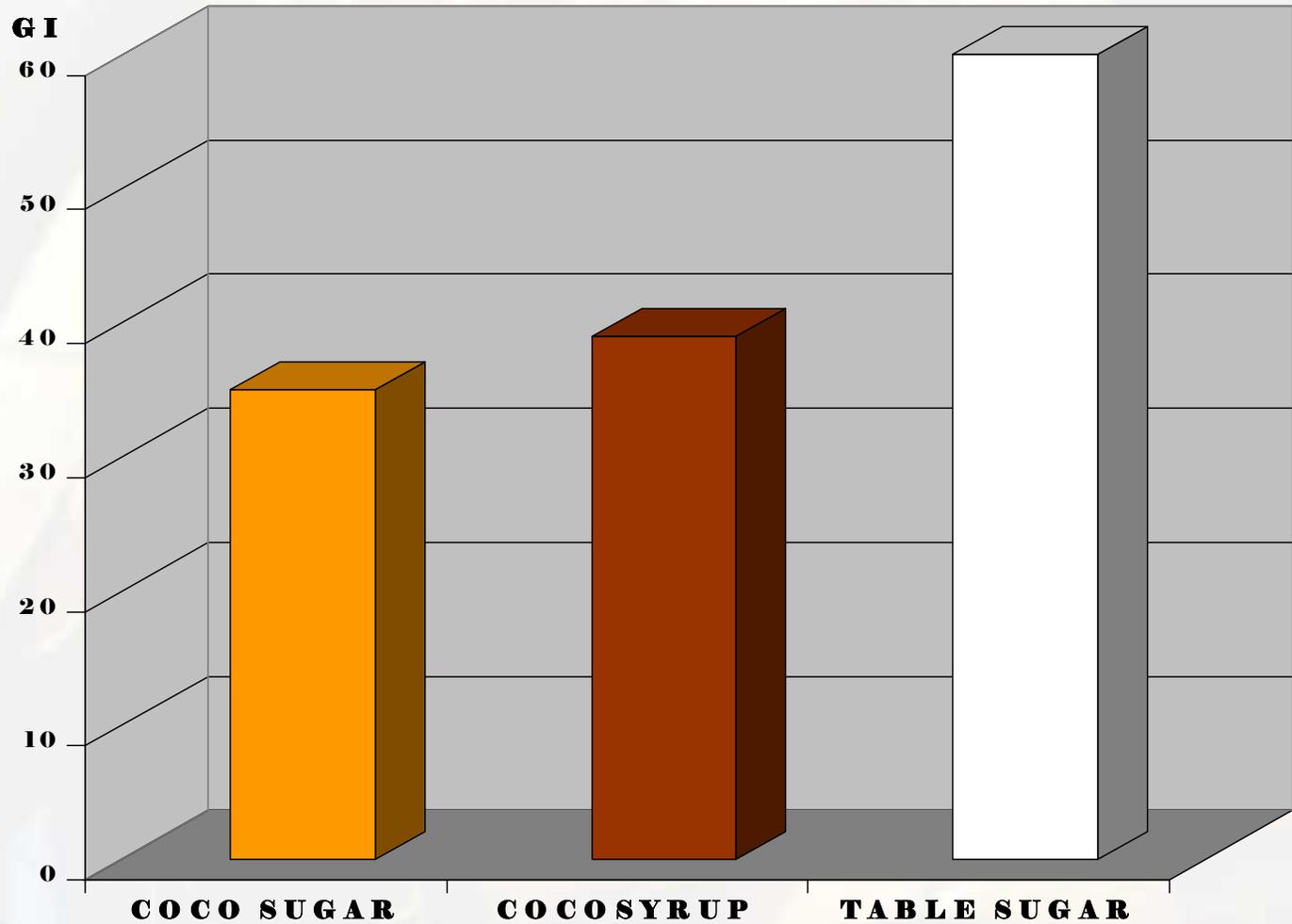
INDUSTRY MILESTONES

1. Established the health benefits of coconut sap sugar classified as low GI (35) alternative sweetener for diabetics
2. Developed an industry with vast economic prospects in the local and global market
3. Product quality improvement of commercially viable and low investment farm level technology
4. Set forward an industry with competitive advantage in local and export market.
5. Generated jobs for rural communities and provided immediate source of income
6. Developed a marketing scheme for sustainability of the industry



Comparative GI's of Sugars

Glycemic Index (GI) below 55 is considered low.

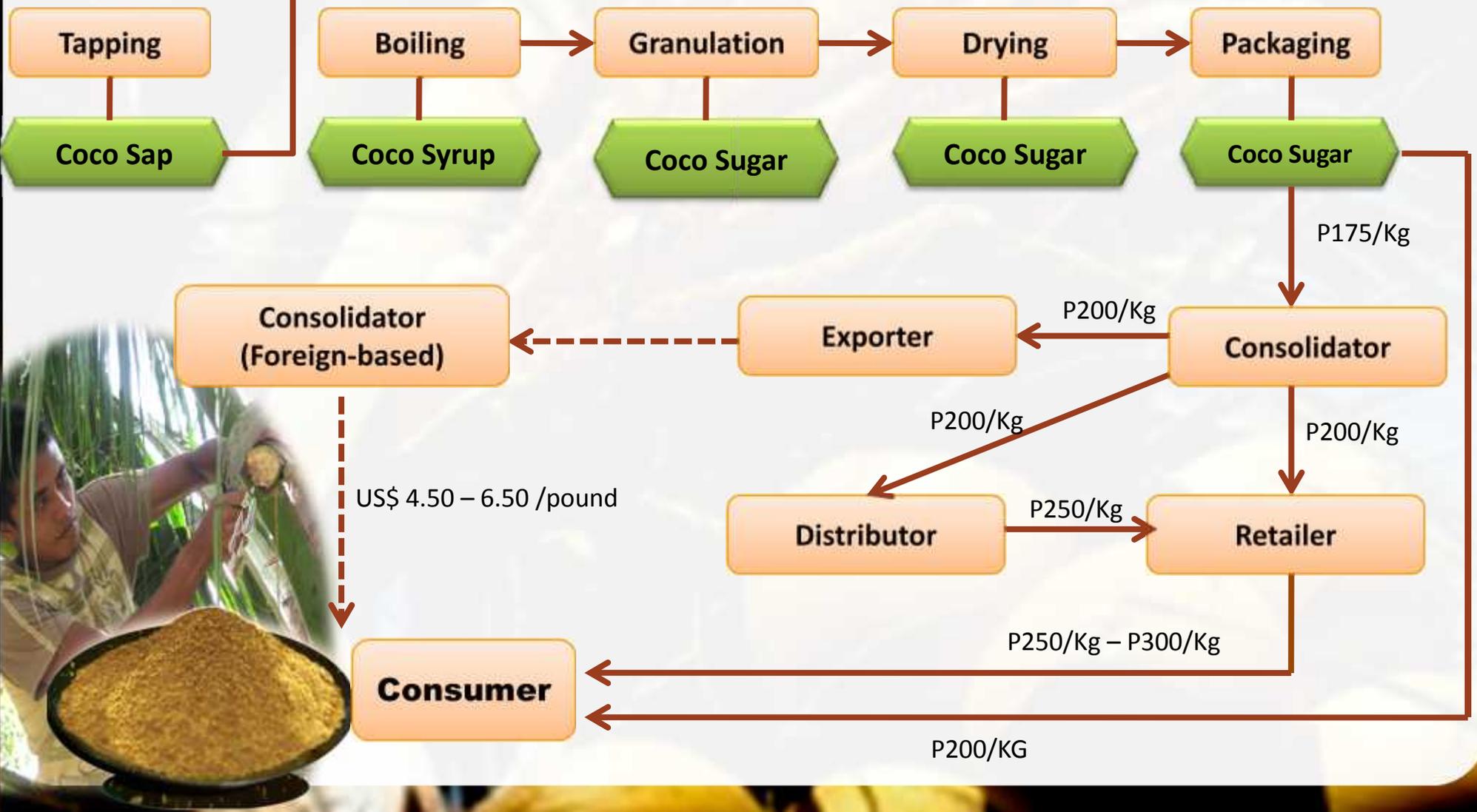


Source: FNRI GI Results (Trinidad, 2011)



SUPPLY-VALUE CHAIN OF COCONUT SAP SUGAR ENTERPRISE

Cooperative/Agripreneurs/Producers



Improved Product Utilization



**Raw
Sugar**



**Bottled
Sugar**



**Other
Uses**



AS FARM LEVEL AGRI-BUSINESS

The history and romance of the Manobo's tribal past made Aroman ethnically significant.

In the early times the estrangement of the neighbouring Muslim tribes led to the marriage of the Manobos and the Maguindanaon royal heirs for a peaceful solution. Thus, the place of Aroman located in vast land of North Cotabato is popularly known as the place of tribal weddings. The word "*Aroman*" was derived from the local dialect "*Pigkarumaan*" which means a place of weddings.

At present, Aroman is popular here and abroad to be the finest producer of newest coconut sap-based product tapped from the unopened inflorescence of coconut the "*Coconut Sap Sugar*". Because of the uniqueness of the product, it became popular and reported not to cause the increase in blood sugar.

Aroman's Bounty The Manobo's Sweet Scent of Success and Labor of Love



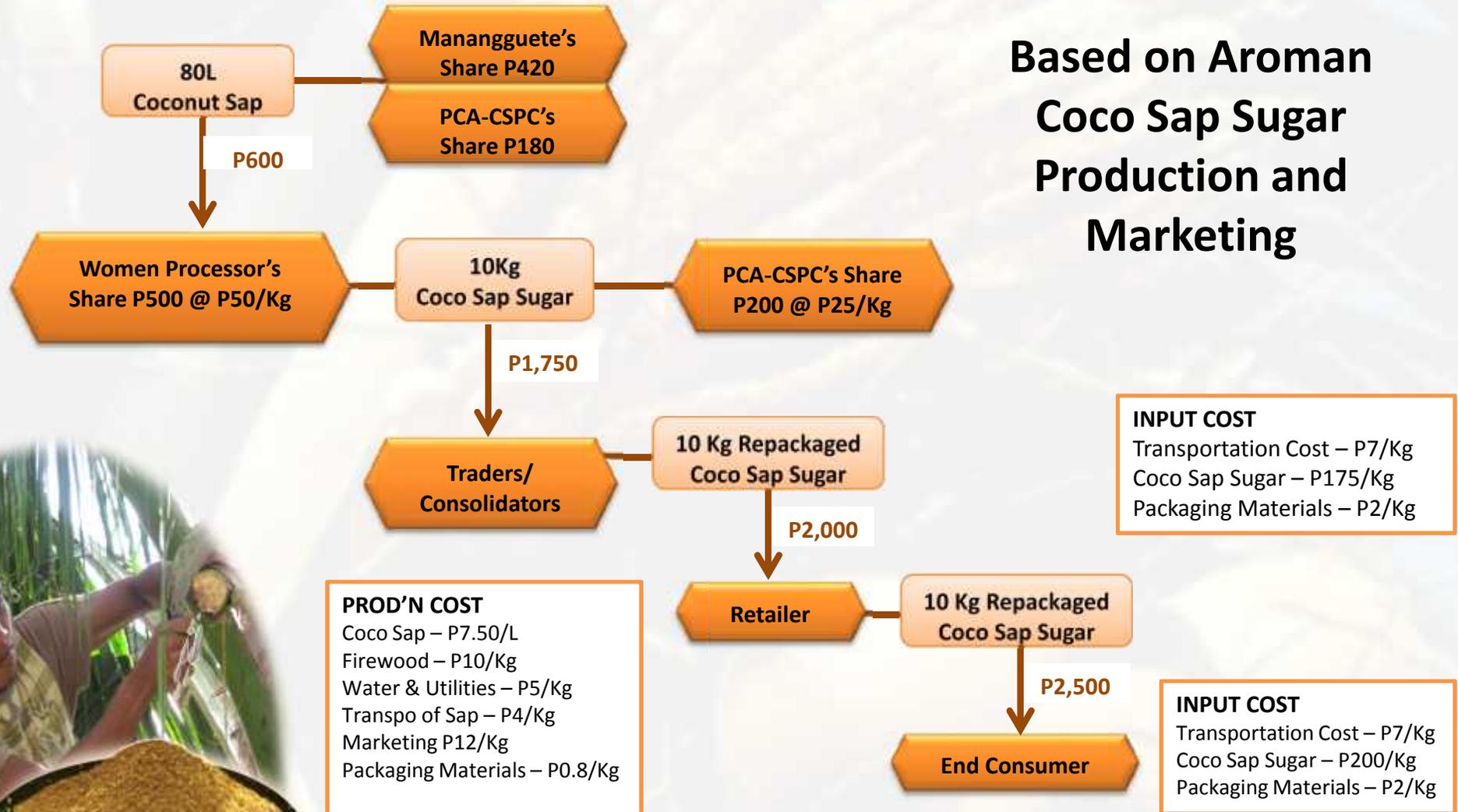
The **Coconut Sap Sugar** is a sweet bounty reaped from the harvest of cooperation, hard work and never ending labor of love of the Manobo women in Aroman. A healthy and natural gift from the Tree of Life, nurtured and patiently explored to restore health and allow the diabetics to savour the sweetness of life. This product of Aroman connotes the romantic tribal history of the place and the fast rising progress for the local people. Romancing the success of the coconut sap sugar business of the Aroman's Women Natural Food Producers marked a better future for the descendants of the Manobos and conserving the indigenous nature of the people behind its bounty.

Source of income of local people in coconut growing communities in North and South Cotabato, Davao, Misamis Oriental, Alabat, Quezon and in the Bicol Region



INCOME GENERATION

Based on Aroman
Coco Sap Sugar
Production and
Marketing



COMPARISON OF INCOME IN ONE HECTARE FARM

Product	Ave. Prod'n	Ave. Cost	Farm Gate (P/Kg)	Gross Income (P)	Net Income (P)	Average Income in Region XII (2009)	Annual Per Capita Poverty Threshold (2009)
Copra	1000	17,880	35	35,000	17,120	96,000	16,841
Coconut Sugar	9000	943,050	175	1,575,000	631,950	96,000	16,841

Assumptions:

- 1) **1kg of Coco Sugar = 4 Coconut Trees (dwarf var.);**
- 2) **Average Annual Coco Sugar Production is 9000 kg/ha**
- 3) **Annual Productive Copra Production is equal to 1000 kg/ha**
- 4) **750 kilos per month/ha**



MARKETING SCHEME

STATUS

PROPOSED



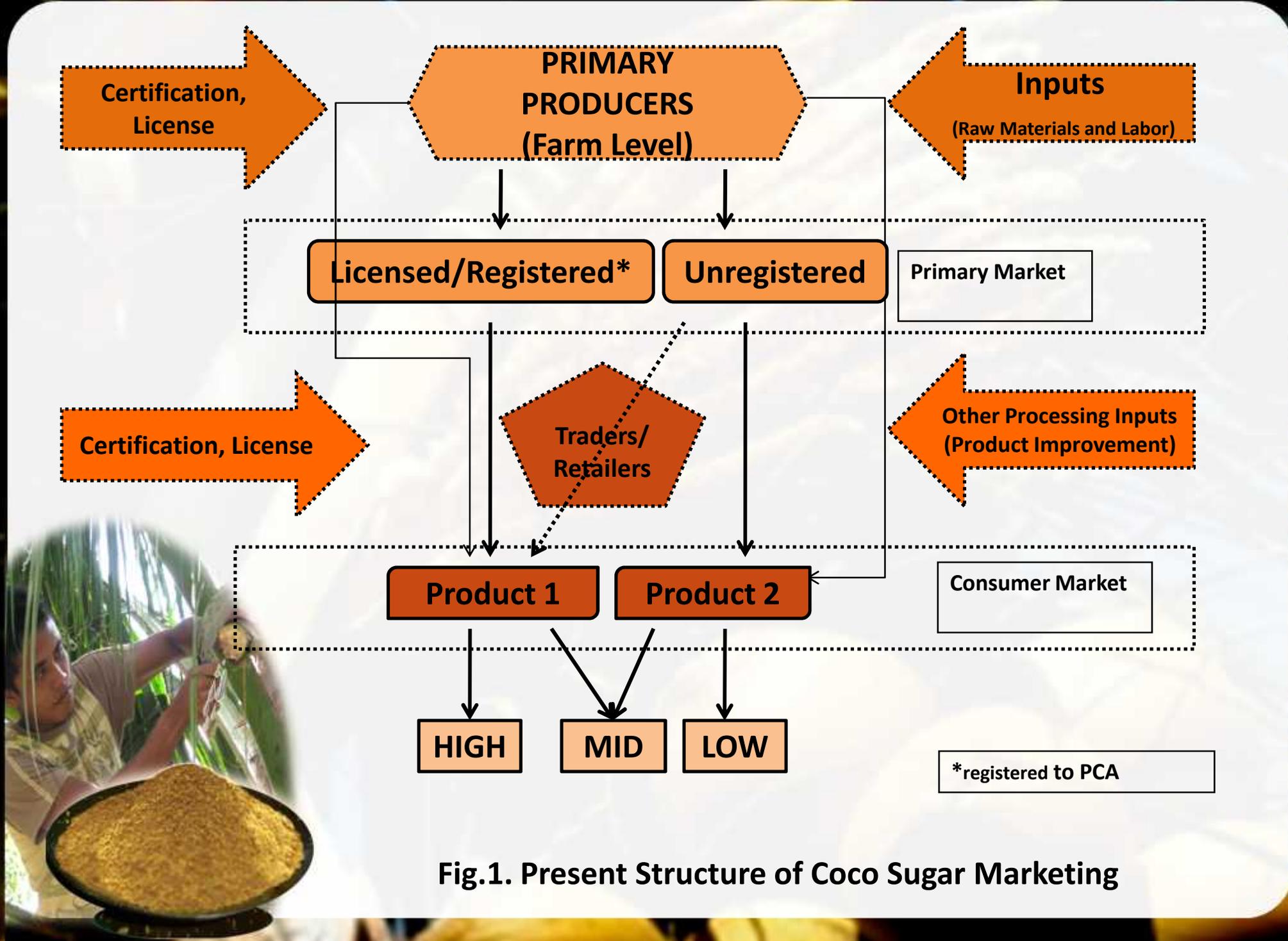


Fig.1. Present Structure of Coco Sugar Marketing

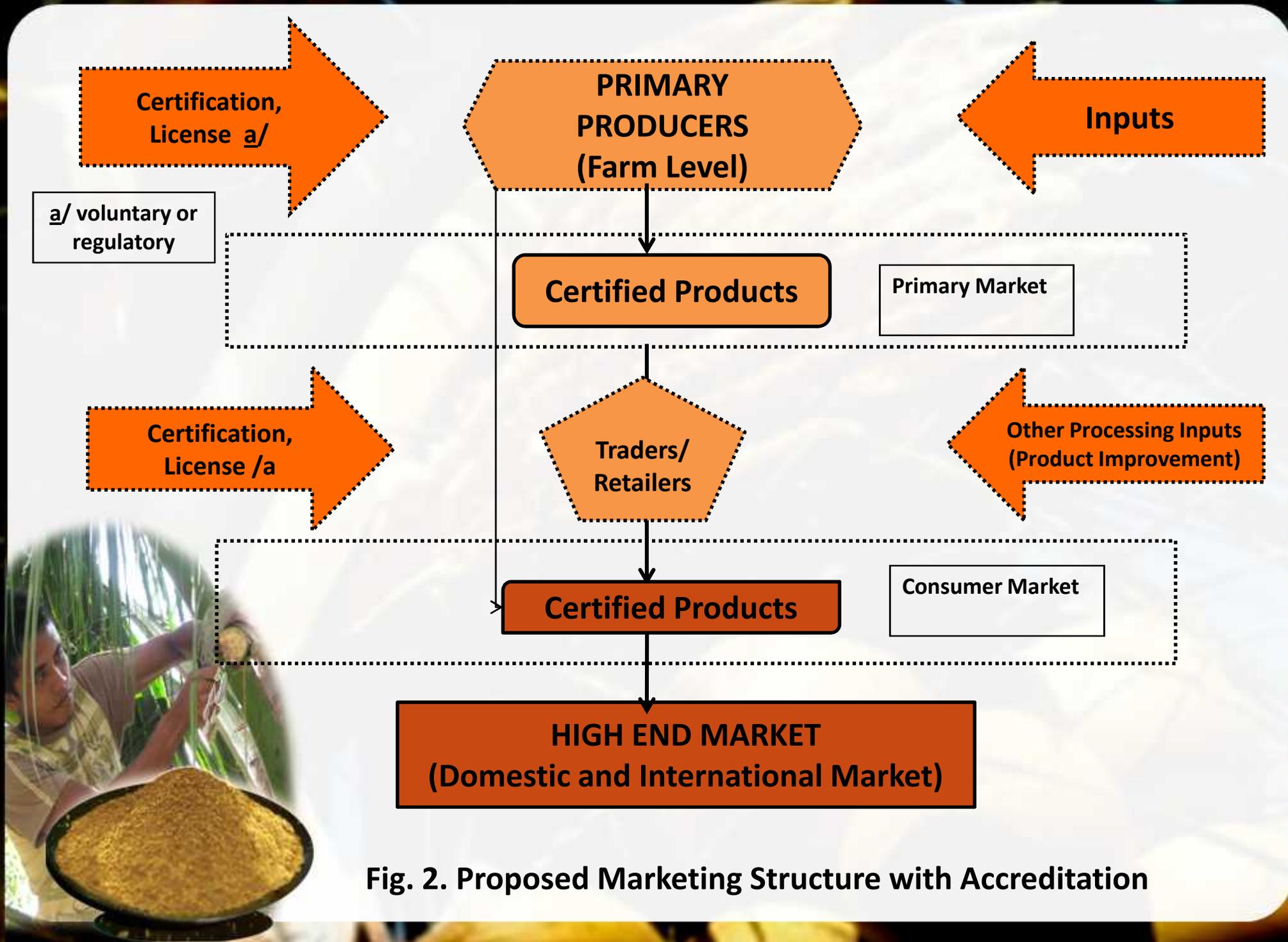


Fig. 2. Proposed Marketing Structure with Accreditation

PROJECTED SUPPLY REQUIREMENT FOR ALTERNATIVE SWEETENER AND OPPORTUNITIES



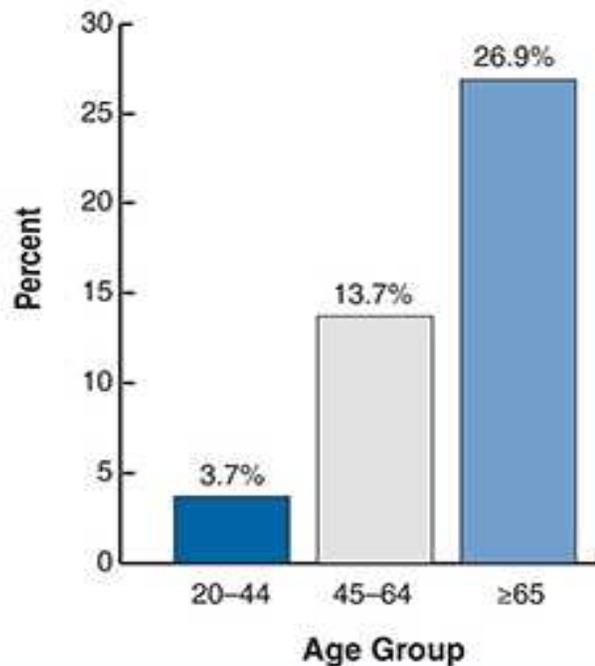
PROSPECTS

- 1. Increasing number of diabetic people 346 M in the world, in USA 23.6 M and 8 M in the Philippines (WHO, 2011) as possible users of the product;**
- 2. Growing interests of consumers on natural and healthy products in the local and global market;**
- 3. Shift of consumers' interest on organic and natural products**
- 4. Development of quality and competitive product; and**
- 5. Increasing demand and growing interest of the business sectors in the export and domestic scenario.**



DIABETES STATISTICS

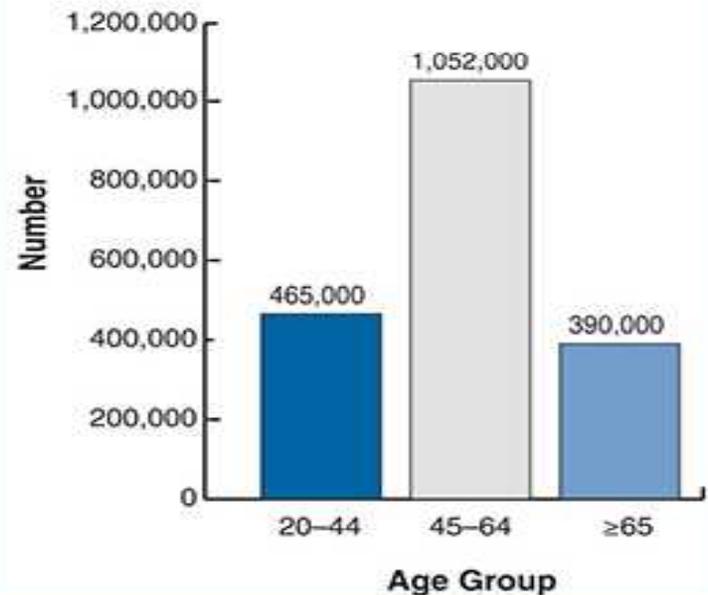
Estimated percentage of people ages 20 years or older with diagnosed and undiagnosed diabetes, by age group, United States, 2005–2008



Source: 2005–2008 National Health and Nutrition Examination Survey

Estimated number of new cases of diagnosed diabetes among people ages 20 years or older, by age group, United States, 2010

About 1.9 million people ages 20 years or older were newly diagnosed with diabetes in 2010.



Source: 2007–2009 National Health Interview Survey estimates projected to the year 2010

PROJECTED REQUIREMENT FOR ALTERNATIVE SWEETENER



Assumptions

1. 346 M people are diabetics worldwide, (WHO, 2011);
2. Computation of daily sugar intake is based on the Recommended Daily Intake (RDI) for diabetic which is 5g daily;
3. Computation of annual requirement of alternative sweetener is based on the percentage of diabetics multiplied by RDI of sugar and number of days
$$\frac{[(346M \times 0.01) \times (5 \times 365)]}{(1000g/Kg)} \div (1000Kg/MT)$$
4. Percentage of target diabetics : 2012-1%; 2013-2%; 2014-3%; 2015-4%; and 2016-5%

Basic Source of Data: WHO



INDUSTRY GOAL

"DEVELOPMENT OF THE
COCONUT SAP SUGAR
INDUSTRY FOR HEALTH AND
EMANCIPATION OF THE
COCONUT FARMERS FROM
POVERTY"

*Coconut blossom sugar provides a way to solve
world's poverty, as antidote against misery
Gandhi: 3. 5. 1939, Source: <http://www>.*





PLANS

PROGRAMS

TARGETS

DRIVERS OF INDUSTRY DEVELOPMENT

Production

Supply of Sap

Labor input

R&D

Process
Technology

Medical
Research

Market

Promotion

Product
Standards

INDUSTRY DEVELOPMENT PLAN

FOR DOMESTIC MARKET

1. Promote utilization to produce healthy and natural high-end products
2. Conduct further research on the health benefits of the product
3. Develop low input product processing and affordable equipment
4. Provision of capital for commercial scale production

FOR THE EXPORT MARKET

1. Increase the volume of production to address the increasing demand
2. Standardize processing for product quality compliance
3. Strict compliance to the GMP-HACCP and other regulatory requirements
4. Establish international trading system and market linkages

INPUTS FOR INDUSTRY DEVELOPMENT

- 1. Dwarf varieties such as EGD, MRD, Catigan are high sap producers that can be planted for expansion of supply source**
- 2. Low GI classification of coconut sugar and the high element contents are product advantage for market promotion;**
- 3. Emerging natural and healthy sap-based products such as coconut sap syrup and spread will enhance product utilization and diversification; and**
- 4. Existing local brands are already available in the global market and increasing market destinations**



OBJECTIVES

- 1. To increase the production trend of the coconut sap sugar to address the increasing market demand;**
- 2. To capture at least 1% of the projected average world requirement of diabetics for alternative sweetener from 2012-2016 which is estimated at an average of 36 MMT after 5 years**
- 3. To conduct in-depth medical researches to support product promotion;**
- 4. To introduce innovations to lower the cost of production, processing and packaging thru R and D;**
- 5. To safeguard product quality to maintain the competitive advantage of the product in the global market.**

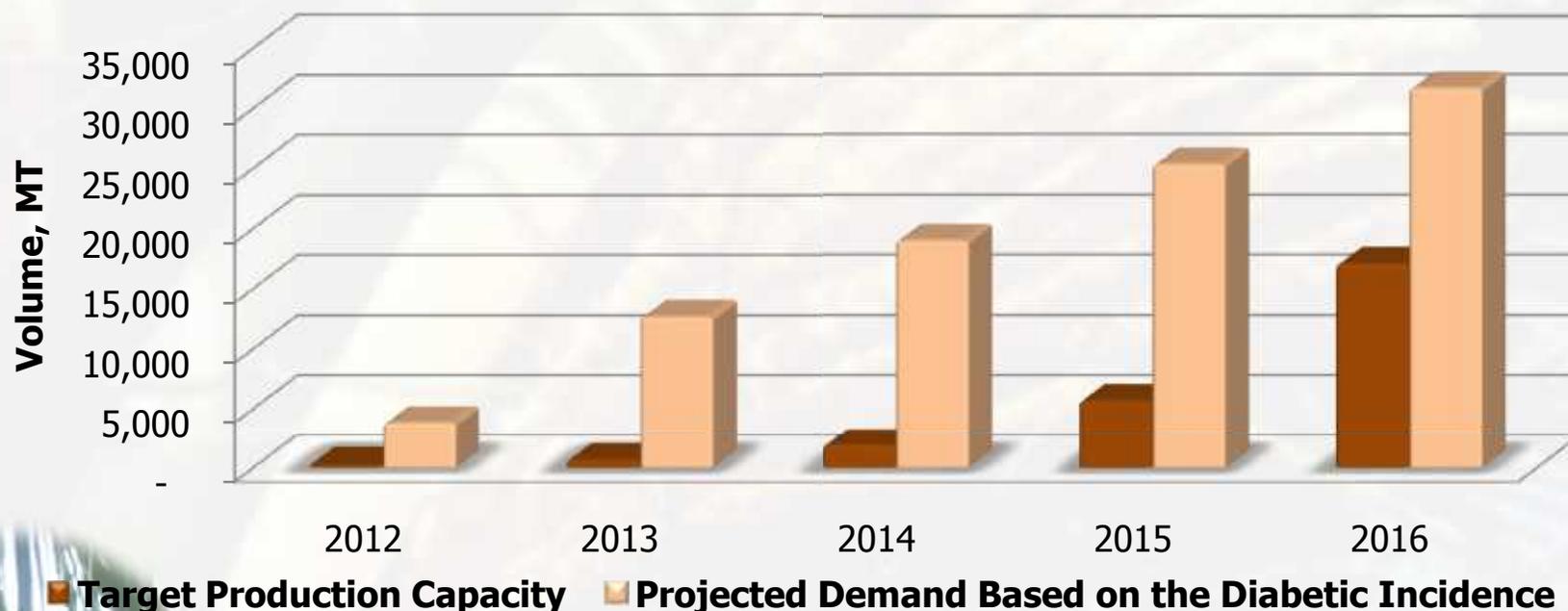


EXPECTED OUTPUTS

- 1. Increased production to meet the average projected market demand of 36 MMT by the end of 2016;**
- 2. Increased foreign market demand and addressed the requirements of prospective users (the diabetics);**
- 3. Conducted medical health researches in support of market promotion**
- 4. Carried out R & D to improve processing and packaging technologies;**
- 5. Established accreditation system of coconut sap sugar processing plants and certified quality sap-products.**



PROJECTED PRODUCTION



Assumptions:

- 1) Target production is based on the current production capacity which is 70MT and increases threefold every year;
- 2) Computation of daily sugar intake is based on the Recommended Daily Intake for diabetic which is 5g daily;
- 3) Computation of annual requirement of alternative sweetener is based on the percentage of diabetics multiplied by RDI of sugar and number of days
$$\frac{[(346M \times 0.01) \times (5 \times 365)]}{(1000g/Kg)} \div (1000Kg/MT)$$
- 4) Percentage of target diabetics : 2012-1%; 2013-2%; 2014-3%; 2015-4%; and 2016-5%



PROJECTED PRODUCTION

YEAR	Target Production Capacity (MT)	Projected Demand Based on the Diabetic Incidence (MT)	Production Gap (MT)
2012	210	3,789	3,579
2013	630	12,629	11,999
2014	1,890	18,944	17,054
2015	5,670	25,258	19,588
2016	17,010	31,573	14,563

Assumptions:

- 1) Target production is based on the current production capacity which is 70MT and increase threefold every year;
- 2) Computation of daily sugar intake is based on the Recommended Daily Sugar Intake for diabetic which is 5g daily;
- 3) Computation of annual requirement of alternative sweetener is based on the percentage of diabetics multiplied by RDI of sugar and number of days
$$[(346M \times 0.01) \times (5 \times 365)] / (1000g/Kg) / (1000Kg/MT)$$
- 4) Percentage of target diabetics : 2012-1%; 2013-2%; 2014-3%; 2015-4%; and 2016-5%



EQUIVALENT NUMBER OF COCONUT TREES

YEAR	Projected Target Production Capacity (KG)	Required Number of Trees	Share in Bearing Trees
2012	210,000	2,301	0.00068%
2013	630,000	6,904	0.00203%
2014	1,890,000	20,712	0.00609%
2015	5,670,000	62,137	0.01828%
2016	17,010,000	186,410	0.05483%

Conversion:

- 1) 1Kg of Coco Sugar = 4 trees (dwarf varieties)
- 2) 340,000,000 Bearing Trees in 2011 (PCA-BAS, 2011)



CONSTRAINTS & ISSUES

OBJECTIVES	CONSTRAINTS
<p>To increase production of alternative coconut sap sweetener by three folds from the present production capacity</p>	<p>Limited supply of raw material (sap)</p>
<p>To enhance current market status and establish stable markets</p>	<p>Unstable market demand and supply volume for export market; and Wide range of product pricing due to varying production cost.</p>
<p>To conduct medical research to support product promotion and generate innovations to lower the cost of production thru R&D</p>	<p>No in-depth medical research on the health benefits of the product and lack of comparative study with existing synthetic sugar-free sweeteners</p>

CONSTRAINTS & ISSUES

OBJECTIVES

To safeguard product quality and competitive advantage in the global market

CONSTRAINTS

- Growing numbers of processing plants with no standard processing technologies;
- Delayed issuance of PNS for product quality protection;
- Unregulated processing and product quality compliance which is prone to product adulteration; and
- Unaffordable organic certification to SMEs

STRATEGIES

1. Planting of selected varieties and mapping of areas suitable for high yield and quality sap production;
2. Comprehensive promotion of the health benefits of coconut sap sugar as a natural product;
3. Intensive medical research to support the health claims about the coconut sap sugar and other sap-based products;
4. Exhaustive R and D on coconut sap-based products and market development ; and
5. Enhanced utilization of the coconut sap and sugar thru development of coconut-sap based high-end products.



PROGRAM/PROJECTS

Strategic Approach for Promotion and Development of the Coco Sap Sugar Industry (SAPDCI) Program

Project Components:

1. Mapping of production areas and establishment of community-based processing plants;
2. Identification of coconut varieties ideal for sap sugar production;
3. Development of economically feasible processing technologies and equipment/facilities ;
4. Market promotion and development based on demand projections;
5. Formulation of accreditation and regulatory systems for quality certified coconut sap sweeteners and other sap-based products .



INDUSTRY ROAD MAP FRAMEWORK (2013-2016)

**S
A
P
D
C
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F
R
A
M
E
W
O
R
K**

Increased production by 17,010 MT and gained the rank of top exporter in 2016

Increased by 50% the community-based processing plants in 2015

Established reliable supply of quality cocosugar to comply with the market demand in 2014

**Implemented programs to increase supply and market promotion
2013**



ACTION PLANS

- 1. Identification of best varieties for coconut sap production and mapping of existing stands of dwarf varieties;**
- 2. Establishment of certification system for assured product quality standards;**
- 3. Strict implementation of PNS in conformity with the international standards ;**
- 4. Development of an “organic certification system” affordable to local producers but acceptable to international requirements ;**
- 5. Strategic R and D on medical, health benefits, product quality and packaging.**



WORK AND FINANCIAL PLAN

THRUST	TARGETS	BUDGET
1. Increase Production	<ul style="list-style-type: none">• Varietal selection and mapping of areas with high sap-yielding trees• Establishment of more sap sugar processing plants	50 M
2. Increase Market Demand	<ul style="list-style-type: none">• Intensive market promotion and positioning• Establishment of competitive advantage thru product quality development	25 M
3. Increase Product Utilization	<ul style="list-style-type: none">• develop sap sugar-based high-end products• Information dissemination of the health benefits of the sap sugar (i.e. congress, conferences and seminars)	15M
4. Quality Control	<ul style="list-style-type: none">• Strict implementation of regulatory policies• GMP-HACCP and PNS compliance	5M
5. Medical Research	<ul style="list-style-type: none">• Continuous R and D on nutritional facts and health benefits• Study on the effects of the coconut sap sugar to diabetics and dieters	20 M



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SAPDCI PROGRAM

Total Budget : 125 M



ISANG MATUWID NA LANDAS
PARA SA MAUNLAD NA
INDUSTRIYA

SALAMAT PO. . . .

