COCONUT SAP SUGAR INDUSTRY
In the Philippines

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The juice of the coconut tree can be transformed into a sugar as soft as honey.

"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

Mahatma Gandhi largely experimented with food. A 40-50g of coconut blossom sugar is included in his diet.

An Inspiring Gandhi's Vision
Outline of the Presentation

- Importance of the Coconut Sap Sugar Industry (Local and Global)
- Technology Description
- Production Status
- Process Technology
- Agribusiness Opportunities
- Key Players
- Feasibility Study
- Supply Value Chain of the Industry
- Industry Projections
- Way Forward
## COCO SAP SUGAR: Its Importance

### Market Opportunities

There is an increasing demand for coco sap sugar due to rising health consciousness of consumers worldwide.

### Social
- Immediate source of farm income
- Job generation and skills development

### Financial
- Export winner in the niche market
- Economically viable for MSMEs

### Nutritional
- Natural and healthy product
- Good for diabetics (low GI 35)

### Market Opportunities

<table>
<thead>
<tr>
<th>Social</th>
<th>Financial</th>
<th>Nutritional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate source of farm income</td>
<td>Export winner in the niche market</td>
<td>Natural and healthy product</td>
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<td>Job generation and skills development</td>
<td>Economically viable for MSMEs</td>
<td>Good for diabetics (low GI 35)</td>
</tr>
</tbody>
</table>
Comparative GI's of Sugar

Glycemic Index (GI) below 55 is considered low
The technology for Rural Communities

Simple and farm-based product technology

Low-cost equipment requirement

Generates rural jobs and immediate source of income
Basic Technical Considerations

### Critical Points

<table>
<thead>
<tr>
<th>Sap Collection</th>
<th>&lt; pH 6</th>
<th>&gt; 5 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Processing</td>
<td>120 °C</td>
<td>3-5 hrs</td>
</tr>
<tr>
<td>Packaging / Shelf Life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water (0Activity 0.5-0.8%)</td>
<td></td>
<td>Film Permeability (0.0468 gH2O/day m2 mmHg)</td>
</tr>
</tbody>
</table>
The Promising Product

C - Coconut sap - based product
O - Offers health benefits
C - Competitive in the global market
O - Organic product

S - Sweetener for diabetics
A - To Z natural nutrients
P - Ure and preservative free

S - Solid form of Coco Sap
U - Unique invert sugar
G - Glycemic index is low (35)
A - Acceptable taste
R - Regulates blood sugar
A Healthy Product...

### NUTRIENT CONTENTS

<table>
<thead>
<tr>
<th>Element</th>
<th>Value</th>
<th>Element</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (N), %</td>
<td>0.292</td>
<td>Chloride (Cl), mg/100g</td>
<td>505.7</td>
</tr>
<tr>
<td>Phosphorus (P), mg/100g</td>
<td>68.7</td>
<td>Boron (B), mg/100g</td>
<td>0.625</td>
</tr>
<tr>
<td>Potassium (K), mg/100g</td>
<td>1044.6</td>
<td>Iron (Fe), mg/kg</td>
<td>9.8</td>
</tr>
<tr>
<td>Calcium (Ca), mg/100g</td>
<td>0.006</td>
<td>Zinc (Zn), mg/kg</td>
<td>2.8</td>
</tr>
<tr>
<td>Magnesium (Mg), mg/100g</td>
<td>0.027</td>
<td>Copper (Cu), mg/kg</td>
<td>3.0</td>
</tr>
<tr>
<td>Sodium (Na), mg/100g</td>
<td>0.057</td>
<td>Manganese (Mn), mg/kg</td>
<td>1.3</td>
</tr>
<tr>
<td>Sulfur (S), mg/100g</td>
<td>12.2</td>
<td>Ash (%)</td>
<td>4.752</td>
</tr>
</tbody>
</table>
Coco Sap Sugar
Natural and Organic Product for Wellness and Health Global Market
Transforming a Farm-Level Technology to its Global Potential
**BASIC REQUIREMENTS**

- **Cost of Production**
  - Tapping
  - Processing

- **Product Quality**
  - Standards
  - Regulatory

- **Marketing Strategy**
  - Packaging
  - Promotion
  - Networks

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- **Adoption of GMP - HACCP**
- **FDA Registration**
- **PNS Compliance**
Philippine National Standards (PNS)

**Physical**
- Color: light yellow
- Odor: sweet - nutty
- Taste: sweet

**Chemical**
- Water Activity: 0.5% - 0.8%
- Glucose: 2 - 3%
- Fructose: 1 - 4%
- Sucrose: 78 - 89%

**Microbial**
- Salmonella: Negative
- E. Coli: Negative
- Coliform Count: <10cfu/g
- Mold/Yeast: <10cfu/g
COCONUT SAP SUGAR INDUSTRY SCENARIO IN THE PHILIPPINES
The Supply - Value Chain

- **Tappers**
  - Sap Collection
  - Sap = P7.50/Liter

- **Cooperative/Producers**
  - Heat Evaporation
  - Granulation
  - Drying and Packaging
  - P175/Kg

- **Exporter**
  - Foreign-based Consolidator
  - US$ 4.50 - 6.50/pound
  - Export Market

- **Consolidator/Integrator**
  - P200/Kg

- **Distributor/Retailer**
  - P300/Kg
  - Domestic Market
<table>
<thead>
<tr>
<th>COST BENEFIT ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Investment</strong></td>
</tr>
<tr>
<td>PhP 110,000</td>
</tr>
<tr>
<td><strong>Net Present Value</strong></td>
</tr>
<tr>
<td>PhP 1,279,337</td>
</tr>
</tbody>
</table>

Source of raw data: PCA -ARC, 2020
Brands in the Market

- Azucar Organics
- Benevita
- Donabel
- Coco Glow
- Coco Natura
- Coco Wonder
- Aroman's Bounty
- Coco Princess
- Suchero
- Sweet Life
- Quezon's Best
- Alabat Island Delights
# AVE. MONTHLY PRODUCTION AND EXPORT DESTINATION

<table>
<thead>
<tr>
<th>PRODUCERS</th>
<th>QUANTITY (TONS)</th>
<th>DESTINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEES ORGANIC COCO SUGAR</td>
<td>12-15</td>
<td>USA</td>
</tr>
<tr>
<td>TREE LIFE</td>
<td>8-10</td>
<td>GERMANY, CANADA, EUROPE</td>
</tr>
<tr>
<td>SUCHERO</td>
<td>8-10</td>
<td>EUROPE</td>
</tr>
<tr>
<td>SPYTHE GLOBAL</td>
<td>8-10</td>
<td>USA</td>
</tr>
<tr>
<td>AROMAN WOMEN’S COCO SUGAR PROD</td>
<td>2-5</td>
<td>USA</td>
</tr>
<tr>
<td>BENIVELLE</td>
<td>2-5</td>
<td>JAPAN</td>
</tr>
<tr>
<td>SWEET PAL</td>
<td>2-5</td>
<td>GERMANY</td>
</tr>
<tr>
<td>PCA-ZRC</td>
<td>2-5</td>
<td>USA</td>
</tr>
<tr>
<td>LAO INTEGR. FARM</td>
<td>2-5</td>
<td>CANADA</td>
</tr>
<tr>
<td>ALABAT ISLAND</td>
<td>0.5</td>
<td>JAPAN</td>
</tr>
<tr>
<td>QUEZON’S BEST</td>
<td>4</td>
<td>JAPAN, MIDDLE EAST</td>
</tr>
</tbody>
</table>
Prospects

- Increasing number of diabetic people as possible users of the product
- Growing interests of consumers on natural and healthy products in the local and global market
- Shift of consumers' interest on organic and natural product
- Development of quality and competitive product
- Increasing demand and growing interest of the business sectors in the export and domestic scenario
# Statistics of Diabetes

<table>
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<tr>
<th>PREVALENCE</th>
<th>UNDIAGNOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2018, 34.2 million Americans or 10.5% of the population, had diabetes.</td>
<td>Out of the 34.2 million, 26.8M (79%) were diagnosed and 7.3M (21%) were undiagnosed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NEW CASES</th>
<th>PREDIABETES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 million Americans are diagnosed with diabetes every year.</td>
<td>In 2015, 88 million Americans age 18 and older had prediabetes.</td>
</tr>
</tbody>
</table>

Source of raw data: American Diabetes Association, 2018
Projected Requirement for Alternative Sweetener

Assumptions:

- 500M diabetics worldwide (WHO, 2019)
- Computation of daily sugar intake is based on the Recommended Daily Intake (RDI) for diabetic which is 5g daily
- Computation of annual requirement of alternative sweetener is based on the percentage of diabetics multiplied by RDI of sugar and number of days
- Percentage of target diabetics: 2018-1%, 2019-2%, 2020-3%, 2021-4%, 2022-5%...
A Promising Projection

Assumptions:

- Target production is based on current production which is 14,765 MMT and increases threefold every year
- 500M diabetics worldwide (WHO, 2019)
- Computation of daily sugar intake is based on the Recommended Daily Intake (RDI) for diabetic which is 5g daily
- Computation of annual requirement of alternative sweetener is based on the percentage of diabetics multiplied by RDI of sugar and number of days
- Percentage of target diabetics: 2018-1%, 2019-2%, 2020-3%, 2021-4%, 2022-5%...
Recommendations

1. Adopt the coco sap-based diversified processing model to have the maximum gains from this enterprise.
2. Multiply the rural-based coco sap sugar production with the provision of technical and financial assistance to SMEs.
3. Expand the COCO-SAP sugar agro-industrial hub of PCA in rural areas as community based enterprise.
4. Invest on clinical and nutritional studies of the coco-sap based products
5. Domestic and Global promotion of this product
6. Craft the International Standards for strict compliance of the manufacturers
END OF PRESENTATION