

POST HARVEST PRE COOLING AND COLD STORAGE FOR SUSTAINABLE AGRICULTURAL METHODS IN REMOTE PNG

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OUTLINE OF THE PRESENTATION

- Background
- Problems of PNG Agriculture
- Need for supply Cold Chain
- Need for Pre-cooling
- Solar Ice Makers
- Solar Chillers
- Current practices- Tininga Fresh
- Realisation of Project
- Cost Structure
- Financials : Ice Cooling
- Financials : Room Cooling

BACKGROUND

- 80% of population practice subsistence agriculture.
- 25% of landmass suitable for agriculture.
- Agricultural products : 18% of country's exports.
- Accounts for 25% of nation's GDP.
- Major Crops grown are yam, taro, sweet potatoes, coffee and so on.



Inconsistent volume and quality



Absence of a consistent supply cold chain



No current pre-cooling practices

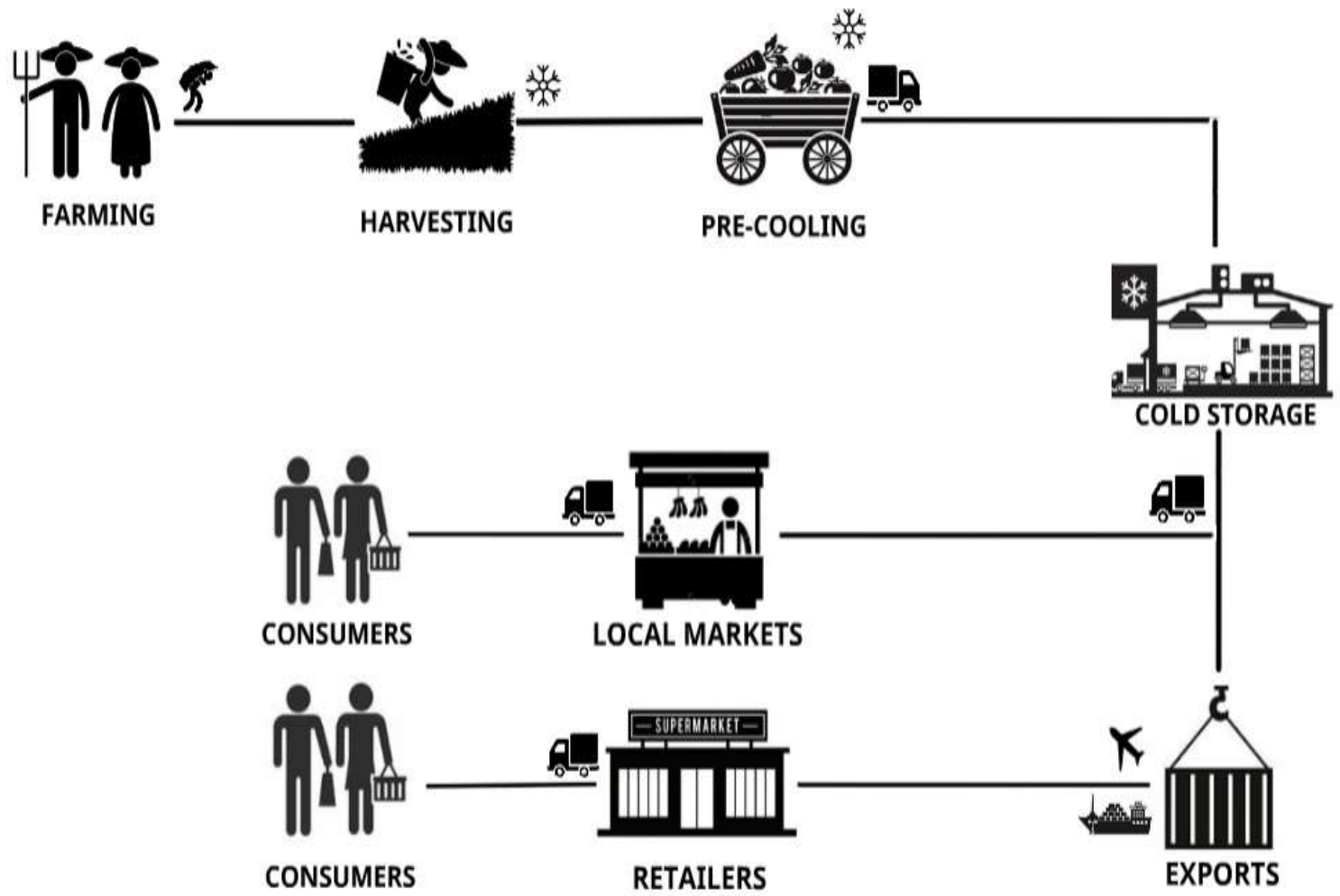


Absence of energy efficient cold storage techniques



Only quarter of the land in PNG available for cultivation

PROBLEMS OF PNG AGRICULTURE



NEED FOR SUPPLY COLD CHAIN

- Temperature controlled supply chain
- Uninterrupted series of refrigerated production, storage and distribution activities
- Maintain low temperature range
- Maintain high quality of agricultural produce
- Efficiency and Customer satisfaction is its end goal

NEED FOR PRE-COOLING

- Rapid removal of heat after harvest
- Benefits of pre-cooling:
 - Lowering the required workload of a cold storage
 - Preventing softening, water loss and wilting of fresh produce
 - Preventing microbial growth and decreasing the rate of decay
 - Increasing the daily intake into storage facilities
- Types of Pre-cooling
 - Room Cooling → Forced-air Cooling → Vacuum Cooling
 - Hydrocooling → Iced Cooling





SOLAR ICE MAKERS

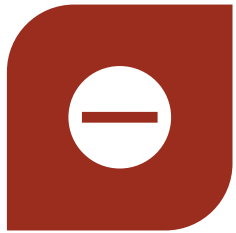
- Easy transportation world wide – ISO 20' Hi-Cube standard shipping container chassis
- 100% solar powered – no diesel or grid connection required
- Operate in any environment, 365 days a year
- No operating costs and low maintenance
- Quiet & non-polluting
- Remote operation & monitoring available
- Optional refrigerated “Ice Bank”
- Models available:
 - 300kg Ice daily average
 - 500kg Ice daily average
 - 1,000kg Ice daily average



SOLAR CHILLERS

- Operational temperature range : +2°C to +15 °C
- Solar array secured and transported in a standard ISO Hi-Cube shipping container
- Operations from ground level
- Requires no special tools or training
- Independent power: no diesel or grid connection required
- No operating costs and low maintenance
- Remote operation & Monitoring friendly
- Models Available:
 - Air Transportable 463L
 - 20ft ISO shipping container
 - 40ft ISO shipping container

OPPORTUNITIES



EXISTING SOLUTION –
LIMITED, EXPORTS ?
FARTHER MARKETS?



REPLACE DIESEL
REEFER



REPLACE EXISTING ICE
SOURCE - SOLAR ICE
MAKERS



GUARANTEES LONGER
SHELF LIFE



CHANCE OF
GENERATING REVENUE
FROM EXPORTS

