Individual monitors coffee cherries at shoulder height in two-tiered metal drying structure, inside of the drying dome with exhaust fans visible behind.

**COFFEE INNOVATION**

United Power Solar Dome Drying

*Renewable Energy Powered Solar Domes for High Quality Coffee Drying*
The cold weather in Shan hills makes traditional sun-drying methods time- and space-consuming, particularly with longer processing methods like honey and naturals, increasing risk of mold and fungal growth and loss of quality.

**COMPANY DESCRIPTION**

United Power is a family business working in coffee production and trading. The company is striving to develop a resource efficient standard process for the natural drying of coffee in relatively cold and humid climate.

**COST-BENEFIT ANALYSIS**

**COSTS**
- EXPERTS (AND TRAVEL TO FARM): 18,000 EUR
- EQUIPMENT AND MATERIALS: 12,200 EUR
- TOTAL: 30,200 EUR

**EFFECTS ON REVENUE**
- USD$21,000

**EFFECTS ON YIELD**
- NONE EXPECTED

**PREPARATION**

**TIMELINE**
- 7 WEEKS

**STAFFING REQUIREMENTS**
- EXPERTS AND TRAINERS ADVISED

**MATERIALS & EQUIPMENT***
- STEEL
- POLYCARBONATE SHEET
- SOLAR PANEL
- ELECTRIC FAN AND ELECTRICAL FIXTURES
- LPG BURNER

* (FOR DETAILED LIST SEE ANNEX 2 & 3)

**LESSONS LEARNED**

**CHALLENGES**
- Getting specific data in the development of SOP for drying coffee
- Training workforce on SOP and ensuring adherence
- Aligning project implementation with coffee harvest

**TAKEAWAYS**
- The dome can increase quality of coffee and also other crops for drying (chillies etc.)

**OVERVIEW: UNITED POWER SOLAR DOME DRYER**

United Power Company introduces and utilizes a Solar Drier Dome system powered by renewable energy and has developed standard practices for drying coffee beans by sunlight to achieve high quality natural dried coffee beans and maximize return to farmers.
RESULTS

As a result of United Power’s trial,

57% INCREASE IN SALES FROM MMK 40,032,000 TO 62,755,722 MMK (22,723,722 MMK)

80% INCREASE IN COFFEE PRICE FROM MMK 4,500,000 TO MMK 8,100,000 BECAUSE OF INCREASED COFFEE QUALITY

90 hectares COFFEE FARMS IMPACTED

10-20 TONS OF CAPACITY (ONE SHIPPING CONTAINER!)
IMPLEMENTATION: UNITED POWER SOLAR DOME DRYER

IMPLEMENTATION

1. **Adapt Concept Drawing to Space and Location (See Annex 1)**

2. **Site Visit by Consultant**

3. **Dome Foundation Construction at Farm**

4. **Dome Frame Construction**

5. **Installation of Dome Covering and Drying Trays**
IMPLEMENTATION: UNITED POWER SOLAR DOME DRYER

IMPLEMENTATION

6. INSTALLATION OF SOLAR PANELS TO POWER AIR CIRCULATION FANS

7. DRY COFFEE CHERRIES ON THE TRAYS

8. HULL COFFEE AND COMPLETE SECONDARY PROCESSING

9. HULL COFFEE AND COMPLETE SECONDARY PROCESSING
ANNEX - 1

Concept Drawing
ANNEX - 2

Detailed Drawing

2.a. Front View

2.a. Back View
ANNEX - 3

Detailed Drawing
## ANNEX - 4

### Bill of Quantity

<table>
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<th>No</th>
<th>Particular</th>
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<td>1</td>
<td>Cement</td>
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<td>221.44</td>
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<tr>
<td>2</td>
<td>Sand</td>
<td>sud</td>
<td>15.92</td>
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<tr>
<td>3</td>
<td>Stone (1/4&quot; to 3/4&quot;)</td>
<td>sud</td>
<td>10.92</td>
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<tr>
<td>4</td>
<td>Brick</td>
<td>nos</td>
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<tr>
<td>5</td>
<td>5/Ply wood (8' x 4')</td>
<td>Shts</td>
<td>4.13</td>
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<tr>
<td>6</td>
<td>J/wood (Scant)</td>
<td>Ton</td>
<td>0.41</td>
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<tr>
<td>7</td>
<td>W/nail</td>
<td>Lbs</td>
<td>7.20</td>
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<tr>
<td>8</td>
<td>GI Pipe (dia 1.5&quot;)</td>
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<td>50mm x 50 mm Hollow Pipe (Dome)</td>
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<td>11</td>
<td>25mm x 25 mm Hollow Pipe (1.2 m)</td>
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<tr>
<td>12</td>
<td>100 mm x 50mm Ridge Piece Hollow Pipe</td>
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<tr>
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<tr>
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<td>6mm thk UV Policarbonated Sheet</td>
<td>sheet</td>
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<td>Joint Connector</td>
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<tr>
<td>19</td>
<td>Corner End</td>
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<td>6’ x 6.5’ Door - Aluminium with Hydraulic Swing</td>
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<tr>
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<tr>
<td>23</td>
<td>Flexible ducting</td>
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</tr>
<tr>
<td>29</td>
<td>3in hinge</td>
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COFFEE INNOVATION FUND
Developed and funded by the German Federal Ministry for Economic Cooperation and Development (BMZ), and implemented by GIZ.

MISSION
The Fund’s objective is to increase profitability of small-holder coffee farmers, and foster greater, more equitable value distribution in the supply chain through promoting innovative farming systems, transparent and inclusive business models, and access to new markets.

For further information:
United Power Coffee Plantation
29th Street between 83th x 84th Street
Mandalay, Myanmar

Contact: Daw Yin Yin Sein
+9592098888
yinyinsein10aug2014@gmail.com

or U Khun Min Swe
+9595161050
khunminswe@gmail.com