Sustainable Palm Oil Production on Degraded Land

MECK Fund

Sustainable Palm Oil Production on Degraded Land

April 2014
What is the Problem?

Palm Oil Production, Indonesia
Million Metric Tons

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (MMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>0.13</td>
</tr>
<tr>
<td>2000</td>
<td>0.83</td>
</tr>
<tr>
<td>2005</td>
<td>1.56</td>
</tr>
<tr>
<td>2010</td>
<td>2.36</td>
</tr>
<tr>
<td>2013</td>
<td>3.1</td>
</tr>
</tbody>
</table>

1.17M ha Deforestation Annually, Indonesia
Extent of Deforestation in Borneo (below)

What is the Problem?

**Biodiversity Loss**
1,154 Species Threatened in 2012

**Greenhouse Gas Emissions by Source**
2.0 MT CO₂ Per Capita in 2012

- Land Use Change & Forestry: 84%
- Energy: 10%
- Agriculture: 9%
- Waste: 2%
- Deforestation: 37%
- Peat Fires: 27%

Source: Rainforest Action Network; World Resources Institute
What is the Solution?

STRATEGY

WHAT?
Shift to Degraded Land

WHY?
Current Moratorium on New Permits
Sequester 15 Metric Tons CO₂ /Hectare /Year
No Additional Land Clearing
Millions of ha Degraded Land Suitable for Oil Palm

HOW?
Provide Microfinance Loan
Best Management Practices
Risk Management
How Will the Fund Work?

Investors

$\quad$$ \quad $$$

MECK Fund

$\quad$$ \quad $$

Smallholders

Partners

Certification

Sustainable Palm Oil Production

Return on Investment $

Revenue $

Return on Investment $

Revenue $
### Considering Environmental Carbon Stocks

**Economic Agricultural Sustainability**

**Social**
- Risk of Displacement
- Risk of Loss of Cultural Identity

**Legal**
- Legal Land Status (Zoning)
- Legal Claims (Permits)

---

**Research-Based Solutions**

**Pilot Programs, Independent Studies**

---

**Due Diligence**

**Degraded Land Database Screening Criteria**

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>Carbon Stocks</td>
</tr>
<tr>
<td></td>
<td>Biodiversity</td>
</tr>
<tr>
<td></td>
<td>Forest Regeneration Potential</td>
</tr>
<tr>
<td>Economic</td>
<td>Agricultural Sustainability</td>
</tr>
<tr>
<td></td>
<td>Size</td>
</tr>
<tr>
<td>Social</td>
<td>Proximity to Infrastructure</td>
</tr>
<tr>
<td></td>
<td>Risk of Displacement</td>
</tr>
<tr>
<td></td>
<td>Risk of Loss of Cultural Identity</td>
</tr>
<tr>
<td>Legal</td>
<td>Legal Land Status (Zoning)</td>
</tr>
<tr>
<td></td>
<td>Legal Claims (Permits)</td>
</tr>
</tbody>
</table>

---

Source: World Resources Institute
How Will the Fund Be Implemented?

1. Negotiate with Commercial Partners
   - Transparency
   - Local management facilitation
   - Certification of sustainable palm oil through ISPO & RSPO

2. Locate Initial Investors & Limited Partners
   - Secure early stage investors
     - Development Agencies
     - Foundations / Family Foundations
     - Private Investors
     - Hedge Funds
     - Corporate Foundations

3. Fund Qualifying Farmers
   - Identify farmers using degraded land criteria
   - Facilitate sustainable farming practices

4. Track Sustainability & Progress
   - Use RSPO Standards
   - Global Impact Investing Network IRIS
   - Technical & financial education
   - Risk mitigation
Adding to Smallholder Value with Financial and Technical Assistance

MECK Fund

- Education, Support, Certification, Purchase Agreement
- Capital Investment
- Working Capital Investment
- Interest & Profit Sharing

Sustainable Smallholder Community
Total Affected Area of 10,000 ha, Fund Size of US$40M

**Investment Approach**

- Financing as incentive
- Target 1,000 smallholders ➔ responsible stewards
- Focus on ESG Factors
- Lay down further groundwork for BMPs

**Fund Structure**

- Microfinance loans
- Total fund size of US$40M
- 15 years term
- Competitive interest rates
- Profit-sharing
15 Years of Collaboration with the Smallholder

1-4 years
- Processing of degraded land & plantation of seedlings
- No yield for 4 years
- US$37,000 capital investment loan provided (11% interest)
- Land/crop collateral

5-7 years
- Fruit yield starts
- Low productivity
- Working capital loan of US$2,000-3,000 (10% interest)
- Loan payment starts in year 6 (max 50% of income)

8-10 years
- Fruit yield reaches 100% productivity
- Annual revenues of US$35,000-US$47,000
- Loan payment finalized in year 10

10-15 years
- Yield at maximum
- Revenues of c.US$50,000
- 10% profit sharing until 15 years of fund term
Business Model – Loan Balance and Proceeds

Loan Balance and Interest over Years:

- Smallholder Fund
- Interest

Year 1 to 15, Loan Balance and Proceeds.
Business Model – Smallholder Revenue and Cost Development

![Graph showing revenue and cost development over years.](image)
MECK Fund Will Generate 7% IRR for Investors, US$180M Value for Community & Sequester 3.15MMT CO₂

* Upside potential to 9-10% IRR
Questions?
## Smallholder Forecasted Income Statement

<table>
<thead>
<tr>
<th></th>
<th>Year 1-4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
<th>Year 11</th>
<th>Year 12</th>
<th>Year 13</th>
<th>Year 14</th>
<th>Year 15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Investment capital</strong> US$</td>
<td>(37,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working capital loan</strong> US$</td>
<td>(2,550)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Revenue</strong> US$</td>
<td>7,450</td>
<td>15,806</td>
<td>25,662</td>
<td>35,420</td>
<td>45,876</td>
<td>47,380</td>
<td>48,981</td>
<td>50,600</td>
<td>50,600</td>
<td>50,600</td>
<td>50,600</td>
<td>50,600</td>
</tr>
<tr>
<td><strong>Yield</strong> tons</td>
<td>46.0</td>
<td>92.0</td>
<td>138.0</td>
<td>184.0</td>
<td>230.0</td>
<td>230.0</td>
<td>230.0</td>
<td>230.0</td>
<td>230.0</td>
<td>230.0</td>
<td>230.0</td>
<td>230.0</td>
</tr>
<tr>
<td><strong>% productivity</strong></td>
<td>20%</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Price of CPO / ton</strong> US$</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td><strong>Price of KPO / ton</strong> US$</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td><strong>CPO fruit conversion</strong> %</td>
<td>15.6%</td>
<td>16.9%</td>
<td>18.1%</td>
<td>18.8%</td>
<td>19.4%</td>
<td>20.0%</td>
<td>20.6%</td>
<td>21.3%</td>
<td>21.3%</td>
<td>21.3%</td>
<td>21.3%</td>
<td>21.3%</td>
</tr>
<tr>
<td><strong>KPO fruit conversion</strong> %</td>
<td>3.7%</td>
<td>3.7%</td>
<td>4.1%</td>
<td>4.3%</td>
<td>4.5%</td>
<td>4.6%</td>
<td>4.8%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td><strong>Revenue from CPO</strong> US$</td>
<td>5,748</td>
<td>12,402</td>
<td>20,004</td>
<td>27,600</td>
<td>35,641</td>
<td>36,800</td>
<td>37,941</td>
<td>39,100</td>
<td>39,100</td>
<td>39,100</td>
<td>39,100</td>
<td>39,100</td>
</tr>
<tr>
<td><strong>Revenue from KPO</strong> US$</td>
<td>1,702</td>
<td>3,404</td>
<td>5,658</td>
<td>7,820</td>
<td>10,235</td>
<td>10,580</td>
<td>11,040</td>
<td>11,500</td>
<td>11,500</td>
<td>11,500</td>
<td>11,500</td>
<td>11,500</td>
</tr>
<tr>
<td><strong>Operational expenses</strong> US$</td>
<td>(10,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
<td>(12,000)</td>
</tr>
<tr>
<td><strong>Profit</strong> US$</td>
<td>(2,550)</td>
<td>3,806</td>
<td>13,662</td>
<td>23,420</td>
<td>33,876</td>
<td>35,380</td>
<td>36,981</td>
<td>38,600</td>
<td>38,600</td>
<td>38,600</td>
<td>38,600</td>
<td>38,600</td>
</tr>
</tbody>
</table>

### Assumptions

- **Yield per ha** tons: 23
- **CPO price / ton** US$: 800
- **KPO price / ton** US$: 1,000
- **Cost per ha** US$: 1,200
- **Interest rate on investment capital** %: 11%
- **Interest rate on working capital** %: 10%
- **Maximum payment from income** %: 50%
- **Profit sharing** %: 10%

Source: WWF, Fakultas Pertanian Universitas Sriwijaya
## Cash Flow of the Fund

<table>
<thead>
<tr>
<th>Year</th>
<th>Proceeds to fund US$'000</th>
<th>Proceeds to smallholders US$'000</th>
<th>Cash flow of the fund from loans US$'000</th>
<th>IRR to fund %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>1,903</td>
<td>1,903</td>
<td>(8,500)</td>
<td>11%</td>
</tr>
<tr>
<td>Year 2</td>
<td>6,831</td>
<td>12,000</td>
<td>(7,500)</td>
<td></td>
</tr>
<tr>
<td>Year 3</td>
<td>11,710</td>
<td>(9,000)</td>
<td>(2,550)</td>
<td></td>
</tr>
<tr>
<td>Year 4</td>
<td>16,938</td>
<td>1903</td>
<td>1,903</td>
<td></td>
</tr>
<tr>
<td>Year 5</td>
<td>17,690</td>
<td>6,831</td>
<td>11,710</td>
<td></td>
</tr>
<tr>
<td>Year 6</td>
<td>12,614</td>
<td>16,938</td>
<td>17,690</td>
<td></td>
</tr>
<tr>
<td>Year 7</td>
<td>3,860</td>
<td>24,367</td>
<td>34,740</td>
<td></td>
</tr>
<tr>
<td>Year 8</td>
<td>3,860</td>
<td>34,740</td>
<td>34,740</td>
<td></td>
</tr>
<tr>
<td>Year 9</td>
<td>3,860</td>
<td>34,740</td>
<td>34,740</td>
<td></td>
</tr>
<tr>
<td>Year 10</td>
<td>3,860</td>
<td>34,740</td>
<td>34,740</td>
<td></td>
</tr>
<tr>
<td>Year 11</td>
<td>3,860</td>
<td>34,740</td>
<td>34,740</td>
<td></td>
</tr>
<tr>
<td>Year 12</td>
<td>3,860</td>
<td>34,740</td>
<td>34,740</td>
<td></td>
</tr>
<tr>
<td>Year 13</td>
<td>3,860</td>
<td>34,740</td>
<td>34,740</td>
<td></td>
</tr>
<tr>
<td>Year 14</td>
<td>3,860</td>
<td>34,740</td>
<td>34,740</td>
<td></td>
</tr>
<tr>
<td>Year 15</td>
<td>3,860</td>
<td>34,740</td>
<td>34,740</td>
<td></td>
</tr>
</tbody>
</table>

**Due diligence costs US$'000**  
- (1,000)  
- (1,000)

**2% management fee US$'000**  
- (791)  
- (791)  
- (791)  
- (791)  
- (791)  
- (791)  
- (791)  
- (791)  
- (791)  
- (791)  

**Total cash flow to fund US$'000**  
- (10,291)  
- (13,791)  
- (8,291)  
- (9,791)  
- (3,341)  

**IRR to investor %**  
- 7%
Appendix – Mitigation of Risk Factors

### Financial

**Moral Hazard**
- Frequent contract is needed: Lending to farmers who do not have a culture of borrowing and repaying further increases operating costs: focus to close proximity areas
- Engagement of local partners to facilitate repayment and sustainability
- Organization of financial education

**Price and market risk**
- Volatility in CPO/KPO prices

### Operational & Environmental

**Production and Yield Risk**
- Crop insecurity
- Climate risk
- Insurance will be utilized

**Environmental**
- Continued sustainability of operations
- Degraded land database

### Political & Social

**Political Risk**
- Country and foreign exchange risk

**Farmer Social-Economical Status Change Problems**
- Repercussions of change in the wealth of local farmers and maintenance of future flow the investment to sustainable farming practices

Source: IFC, IFAD, FAO
Appendix – Impacts of RSPO Certification on Smallholders

Source: Roundtable for Sustainable Palm Oil
Appendix – Potential Partners

- WWF
- RSPO
- ISPO
- IFAD
- FAO
- UNDP
- UN
- Cargill
- Walmart
- Unilever