Biofuel Strategy of Ethiopia
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Presentation Layout

- Introduction
- Development Status
- Potentials & Opportunities
- Biofuel Development Strategy of Ethiopia
- Conclusion & Recommendations
Introduction

- About 87% of export earnings goes for oil purchase
- About 94% of the country’s energy demand is met by traditional energy sources
- **Biofuel:** In this Presentation biofuel emphasize only bioethanol and biodiesel
- **Bioethanol:** It is an alcohol manufactured from microbial conversion of biomass materials through fermentation.
- Ethanol production is mostly from sugar beet and sugar cane
- **Biodiesel:** Biodiesel is a renewable fuel for diesel engines derived from natural oils (from plants and animals)
Major Types of Feedstocks in Ethiopia

- Jatropha
- Sugarcane
- Palm tree
Biodiesel Production
Uses of Biofuel

- Transportation fuels (Substitution of gasoline)
- Used as cooking fuel
- Uses as pharmaceutical
- Alcoholic beverage (gin, brandy, etc)
- Feedstock for other chemical industries
- Input for biodiesel production

**Uses of biodiesel/blend/natural oil**

- Transport
- Agriculture (to run diesel engines, Sheller, grinders, Farm agro processing equipments)
- Industry (Grain, oil, coffee mills, run diesel generators)
- Households (cooking and lighting)
The Benefit Of Biofuel In Ethiopia

- Diversification of energy sources
- Lower exposure to the price volatility in international oil market
- Enhance energy security
- Rural Development
- Reduction in harmful pollutants from vehicles exhaust
- Net reduction in lifecycle GHG emissions
Development Status of Biofuel In Ethiopia

A. Ethanol

- In 1979 the Ethiopian Sugar Corporation embarked alcohol production from molasses
- In 1984 SOFRECO, the French company, conducted a feasibility study for the production of ethanol and bakers yeast
- In July 1999 a technical committee has been established to address the issues for successful commercialization of alcohol
- In April 2000 Council of Ministers of the FDRE promulgated the directives on production, distribution and control of ethanol-gasoline blended fuel with 6% (E6)
- In 2004 SOFRECO has conducted a feasibility study to expand Fincha Sugar Factory and concluded ethanol blended fuel is economical
Development ...Contd

B. Biodiesel

Foreign Companies
1. SUN BIOFUELS
2. FloraEcoPower
3. LHB CHATZ
4. BECCO Company
5. Villar Energy Co.
6. RINA International Investment
7. Kenya Bio energy Limited
8. Gento Consulting Ltd
9. Global Trinty Group
Development Status ... Contd

Local Companies

1. Ethan
2. Beta Local Companies
3. Assosa Association of Biofuels
4. Ambasel
5. Development Association (REST, TIRET, ORDA)
# Potentials & Opportunities of Biofuel Development

## Available Suitable Land for Jatropha

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<tr>
<th>No</th>
<th>Region</th>
<th>Area</th>
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<tr>
<td>1</td>
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<td>2</td>
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<td>8</td>
<td>Afar</td>
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<td><strong>Total</strong></td>
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Opportunities

- Available and suitable land
- Labor force
- Strategic location to export market in Africa
- International Support
Suitable Area for Jatropha

Key
- Suitable areas
- Non suitable areas

Conditions:
1. Annual mean rainfall of 250 - 3000 mm
2. Annual mean temperature of 18 - 28 degree Celsius
3. Altitude of 0-1650 m above mean sea level

Compiled by GIS Unit 2008

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## Potential for Ethanol in m³

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<th></th>
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<tr>
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<tr>
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4. Biofuel Development Strategy of Ethiopia

**Issues of Biofuel**

- Land Demarcation/Zoning for Feedstock Growing Sites
- Capacity Building
- Awareness of local producers (limited information)
- Research and Development (no data has compiled)
- Policy and Regulation
- Sustainable Biofuel Development (where and how to integrate with sustainable land management)
- Infrastructure (any development can’t be achieved without infrastructure)
- Financing
Biofuel Strategy …contd

1. Stimulating Feedstock Enhancement
   - Zonation of ethanol and biodiesel feedstock growing area
   - Define the best varieties of crops
   - Encourage cooperatives, farmers and out growers. And link international market with local producers
   - support local large and small scale biofuel producer
   - Focus to attract foreign investment
   - Integrate biofuel development with extension program

2. Stimulating Demand for Biofuel
   - The target for biofuel to blend fuels in the order of E5 for the year 2007, B5 and E10 for the year 2020 and B20 and E25 target will be for the year 2025
Biofuel Strategy ...contd

- Encourage to give speedy approach to adopt legislative proposal to promote public procurement of clean and efficient vehicles
- Support to import FFV
- Identification of other uses of biofuels and additional support for household use

3. Ensure Environmental Sustainability of Biofuel Production

3.1. Feedstock production
- Conserve Natural Resources
- Protect Forest Ecosystem
- Encourage Sustainable Crops Production Management Practices
- Improve the use of degraded lands
- Maximum GHG Benefits
Biofuel strategy …contd

3.2. Processing, Distribution, and End Use

- Develop Licensing Procedures
- Promote Use of Renewable Process Energy
- Encourage Rapid Transition to High-Blend Fuels
- Encourage Biofuel for Range of Uses

4. Capacity Building

- Integrate the development of biofuel with vocational and higher education schemes
- Arrange a mechanism to capacitate farmers and cooperatives on the production, process, handling, storing and use of biofuels
- Arrange a capacity building mechanisms for policy makers, regulators and other actors
Biofuel Strategy ...contd

5. Support Research and Development

Feedstock Production
- Advance alternatives to chemical inputs

Feedstock Collection and Handling
- Optimize feedstock storage and transport methods

Processing
- Maximize efficiency of input use
- Advance Biorefinery Concept

Fuel Distribution and End Use
- Biofuel distribution methods need to be integrated with the existing systems or may require some modifications
Biofuel Strategy ...contd

Conclusion

- Ethiopia have a favorable condition to use biofuels in the new millennium starting blending of ethanol 5% in the new year and increase the blend ratio in the consecutive years.
- Biodiesel will be the available clean fuel in the country and that will enhance rural development of the country.

Opportunities

- Suitable land availability which is not yet exploited
- Huge mass of labor
- Government commitment and favorable policy (ADLI) and other policies
- Market potential (export and local will be created very soon)
- CERs Opportunities
Biofuel Strategy ...contd

Challenges
¶ Limited know how in the emerging opportunity
¶ New investments required
¶ Access to infrastructure (road, power, communication)

Recommendation
¶ Encourage extensively the use of marginal land and involve farmers to benefit from this
¶ Encourage local investors and out growers to be active participants
¶ Integrate infrastructure with the potential site for biofuel development
¶ Initiate very soon a promotional activity
¶ Organize different experience sharing mechanism at different level and integrate biofuel with universities, technical schools, vocational schools and other actors
¶ Create demand at local level to use ethanol and biodiesel

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THANK YOU