





UNLOCKING THE BIOETHANOL ECONOMY

A PATHWAY TO INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT IN DEVELOPING COUNTRIES



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A pathway to inclusive and sustainable industrial development in developing countries

This publication is based on a discussion paper entitled '*Establishing Ethanol Industries in Developing Countries – Opportunities and Challenges to achieve inclusive and sustainable industrial development*', produced for the Expert Group Meeting '*Clean Cooking: Potential for bioethanol Industries in high impact Countries*' which took place in June 2021.

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ACKNOWLEDGEMENTS: The '*Establishing Ethanol Industries in Developing Countries*' report benefited greatly from valuable interviews, comments and suggestions by Harry Stokes (Project Gaia), Wubshet T. Tsehayu (Project Gaia), Luis Augusto Horta Nogueira (Itajuba University, Brazil), Sunil Kumar (Ministry of Petroleum and Natural Gas, Government of India), Thelma Venichand (Zoe Enterprises, Mozambique), and Arunratt Wuttimongkolchai and Saranya Peng-Ont (PTT PLC, Thailand). Unless produced by the authors of the paper, the sources of figures and infographics are provided throughout the document.

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Special thanks go to Tareq Emtairah (Director, Department of Energy) and Petra Schwager (Chief, Energy Technologies and Industrial Applications Division (ETI)), for their insightful comments and valuable contributions and suggestions during the development process.

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Preface: Why bioethanol?

Bioethanol is a renewable energy source that has a crucial role to play in boosting economic and environmental sustainability in developing countries. As this publication explains, the ethanol economy has the potential to relieve rural poverty, increase agricultural productivity, boost local and national economic growth, generate employment, save lives through sustainable clean cooking for households, promote equality, and bring about meaningful reductions in greenhouse gas emissions.

As a clean-burning fuel, ethanol can replace fossil fuels in whole or in part for use in vehicles and in household cooking. It is a biofuel that is manufactured from crops including sugarcane, corn (maize), and cassava.

Developing a bioethanol industry and value chain, by leveraging a vibrant agriculture sector and agro-industries in developing, least developed, and small island countries has the potential to bring about transformational changes. This can result in greater self reliance and energy security, as well as economic empowerment, and contribute to SDGs 7, 9, and 13, as well as help countries to meet NDCs.

This publication provides a detailed overview of the potential, challenges, and benefits of implementing a bioethanol industry and markets. It features research, case studies, and lessons learned in order to offer recommendations for unlocking the bioethanol economy to help countries become energy independent, raise standards of living, and make their contributions to climate action.

List of Abbreviations

 \mathbf{bn} – billion

- CO2-eq carbon dioxide equivalent
- dLUC direct land use change
- E_5 blend of 10% ethanol with gasoline
- **E10** blend of 10% ethanol with gasoline
- E20-blend of 20% ethanol with gasoline
- E85 blend of 85% ethanol with gasoline
- E100 hydrous ethanol (approx. 96% ethanol, 4-5% water)
- **EMD** ethanol micro-distillery
- FAO Food and Agriculture Organization of the United Nations
- FFV flexible fuel (flex-fuel) vehicle
- forex foreign exchange
- **GDP** gross domestic product
- GHG greenhouse gas
- $\boldsymbol{ha}-hectares$
- IEA International Energy Agency
- iLUC-indirect land use change
- IRENA International Renewable Energy Agency

 \mathbf{l} – liters

- $\textbf{LCA}-life\text{-cycle}\ assessment$
- LPG liquefied petroleum gas
- **LUC** land use change

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