

ETHANOL

Clean Cooking Solutions

Social ■ Health ■ Economic ■ Environment ■ Climate Impacts



Ethanol Clean Cooking Solutions in ECOWAS states:

*Social, Health, Economic, Environmental and
Climate Impacts*

UNIDO PRESENTATION



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



UNIDO's Bioenergy Strategy: Pathway to self-reliance, energy security, economic empowerment

*Jossy Thomas,
Industrial Development Officer*



UNIDO's Mandate

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



UN Specialized Agency promoting inclusive and sustainable industrial development (ISID) to create shared prosperity and advance competitiveness while safeguarding the environment



HQ: Vienna, Austria - 170 Member States

Decarbonization & Sustainable Energy Division:

Provides support to sustainable energy transition in the Industrial sector (renewable energy for productive uses, energy efficiency, low-carbon technologies and processes)

7 AFFORDABLE AND
CLEAN ENERGY

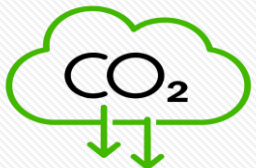




Today's Presentation

1. Context
2. UNIDO's Bioenergy Programme & Strategy
3. Global Impact Programme for clean cooking
4. Council of Ethanol Clean Cooking
5. Conclusions

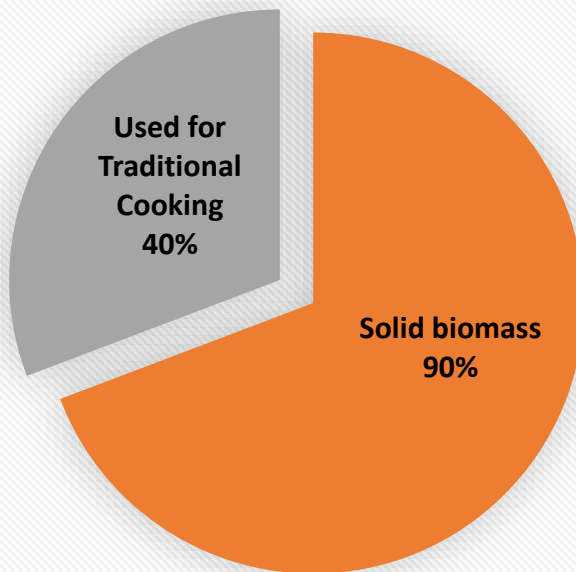
Global Primary Demand for Bioenergy 65 EJ in 2020



2% GHG emissions



2.5 mill premature deaths in 2020



Unsustainable, pollutant, inefficient

■ Solid biomass
 ■ Solid biomass for traditional cooking

Modern bioenergy will increase to around 100 EJ in 2050



Biogas digesters as a source of CC for 500 million HHs by 2030 (IEA, 2021)

Achieve UN SDG 7, solid biomass falls to zero by 2030.



Mostly in 20 High Impact Countries in Africa and Asia

A total of 2.4 Gt CO₂ is captured from bioenergy (IEA, 2021)



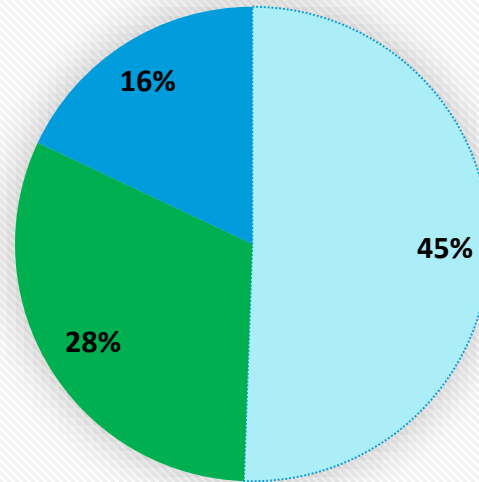
Decarbonization of the Transport Sector

- Biofuels blending reaches 15 % by 2030 in road transport
- Shift towards electric mobility
- Direct use of biofuels and hydrogen-based fuels
- Biofuels used for aviation and shipping
- The global transport sector emitted over 7 Gt CO₂ in 2020 → expected reduced emissions → 0.7 Gt of CO₂ by 2050—90% drop relative to 2020 levels



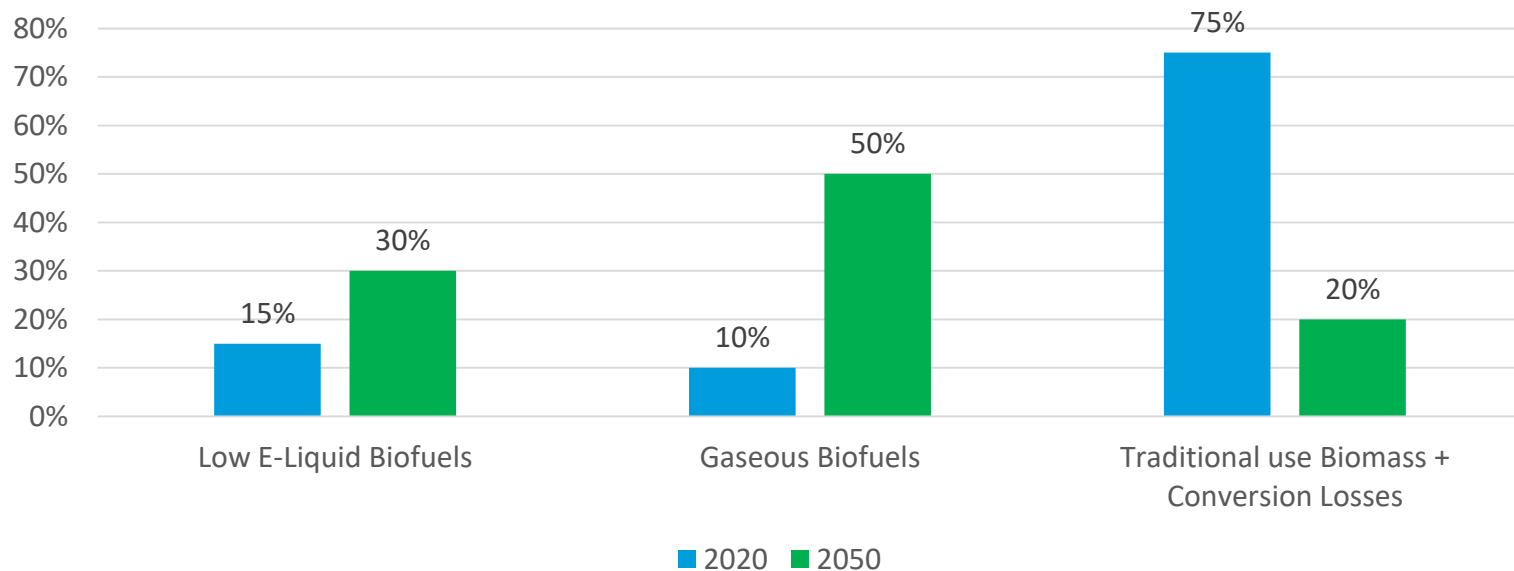


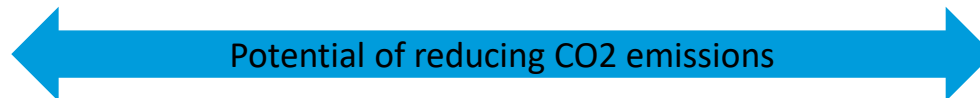
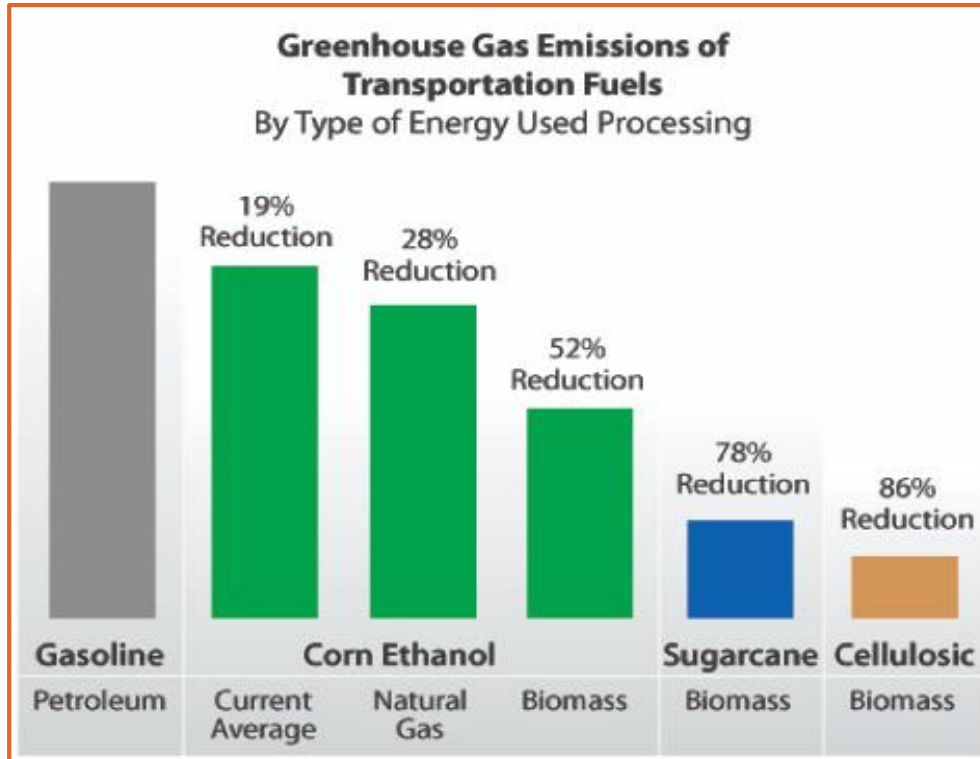
Biofuel is a relevant fuel for the transport sector in 2040



Electricity Hydrogen-based fuels Bionergy

Trend of biofuels contribution on the Total Bioenergy 2020-2050







Potential impacts of introducing E10 in selected countries in Africa (rough estimations)

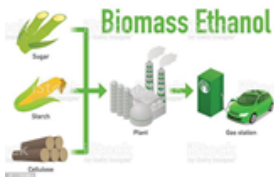
Selected Countries Africa	Gasoline Demand(mill/)	Ethanol demand for E10 (mill/l)	Gasoline price (USD/l)	Forex savings (million USD)	GDP (million USD)	Forex savings as share of GDP (%)	Capital Investment, greenfield sugarcane (million USD)	GHG emissions savings net (tCO2-eq)	Agriculture area total (million ha)	Agriculture area needed for E10 (ha)
DR Congo	425	43	1.00	43	37,642	0.1	80	110,000	32	9,000
Ethiopia	522	52	0.51	26	80,561	0.0	100	135,000	38	11,000
Ghana	1,567	157	0.98	153	58,997	0.3	290	405,000	15	34,000
Ivory Coast	741	74	1.13	84	37,353	0.2	140	192,500	21	16,000
Kenya	1,741	174	1.16	202	79,263	0.3	320	450,000	28	38,000
Madagascar	160	16	1.08	17	11,500	0.1	30	41,000	41	4,000
Mozambique	580	58	1.09	63	12,646	0.5	110	150,000	41	13,000
Nigeria	17,409	1,741	0.45	790	375,745	0.2	3,240	4,499,000	69	383,000
Sudan	1,509	151	0.54	81	117,488	0.1	280	390,000	68	33,000
Tanzania	1,469	147	0.92	135	53,321	0.3	270	380,000	40	32,000
Uganda	790	79	1.17	93	25,995	0.4	150	204,000	14	17,000



Pillars of the Bioenergy Programme



Promote **decarbonisation** in the agro-industry, transport, and household sectors.



Support the **development** of bioenergy industries and value chains.



Promote universal **energy access**
(for electricity, transport and clean cooking)



Agro-Industry
Transport
Households



Bioenergy Strategy

(WtE) Waste to Energy in Industries

- ❖ WtE Programme is focus on selected agroindustry's sectors. (Sugar industry, Cassava, Sisal, etc.)
- ❖ Projects located in 15 countries.

Advisory Services and Capacity Building (AS & CB)

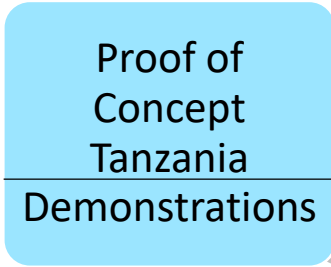
- ❖ Policy Advice, normative services;
- ❖ Capacity building, Institution strengthening;
- ❖ Partnership development

Bioenergy Industries and value chain development



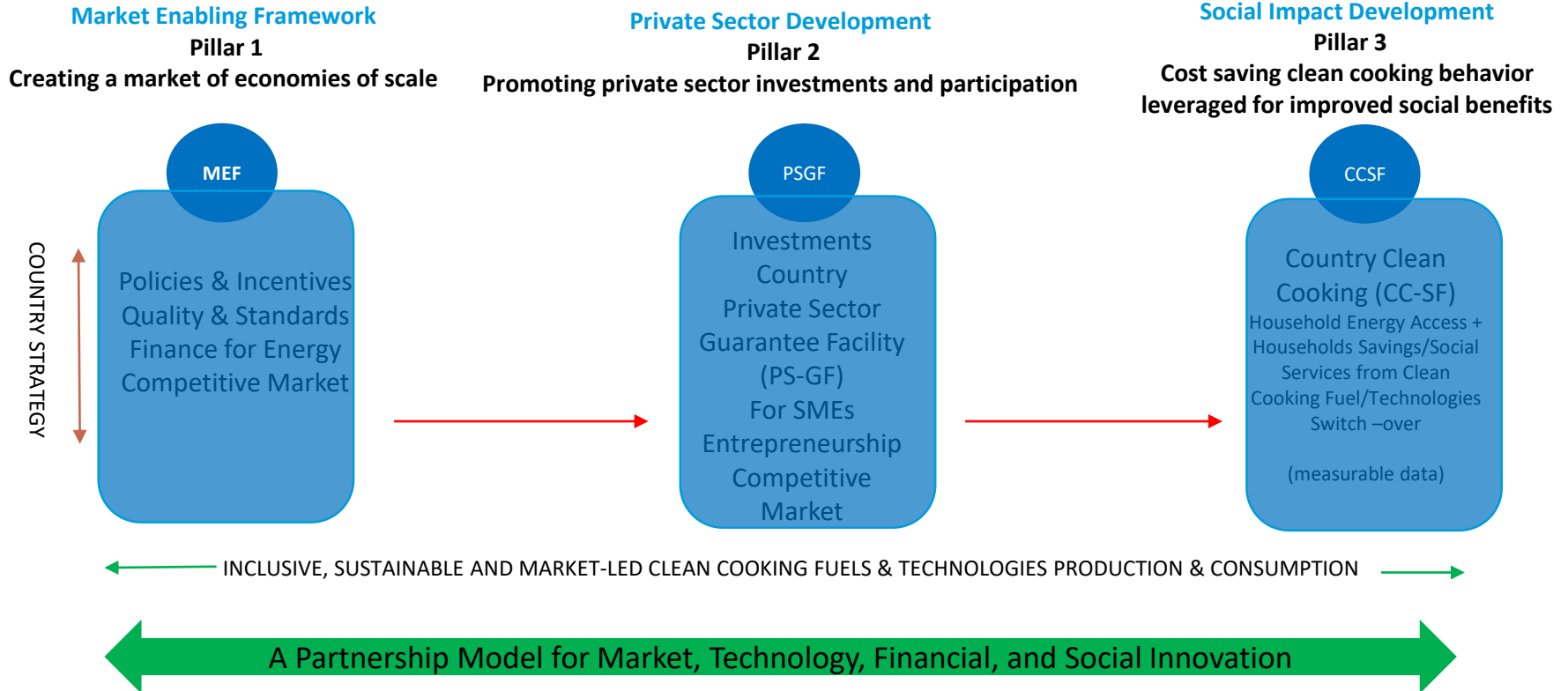


- Networking
- Technical Assistance
- Information exchange
- Sharing experiences and lessons



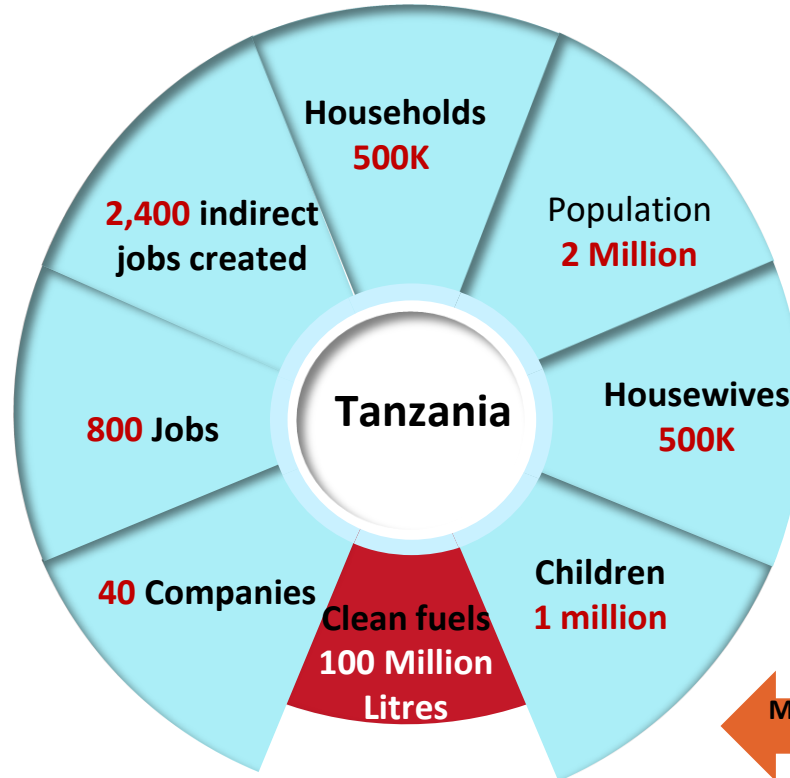


Global Impact Program-Clean Cooking UNIDO Approach





Proof of Concept - Dar es Salaam, Tanzania



Private sector
investment
300 m USD

3 m t CO₂
reduction

Market Demand-Social Impact-Social Innovation
Transformation



Council on Ethanol-Based Clean Cooking (CECC)

- Expert Groups Meeting on Clean Cooking took place on June 2021
- As a outcome a “Call for Action was adopted”

“Call for Action was adopted”



- The Council Framework was developed by the WG
- Côte d’Ivoire, Kenya, India, Philippines & Dv partners (GBEP, SEforAll, CCA among others)



Council on Ethanol Based-Clean Cooking Framework



- The Council was launched on **November 11, 2022 at COP27** in Egypt for the Ministers & Gov repre of:

- Mali
- Côte d’Ivoire
- Madagascar
- Kenya



“Official Launch of the Council on Ethanol-based Clean Cooking”

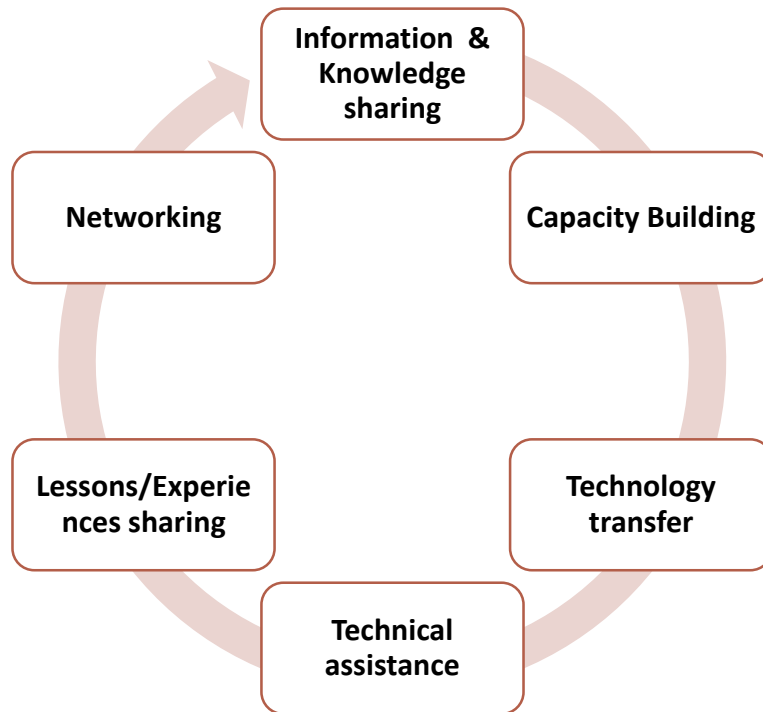




Council : What we do?



DCs, LDCs and
SIDs Countries



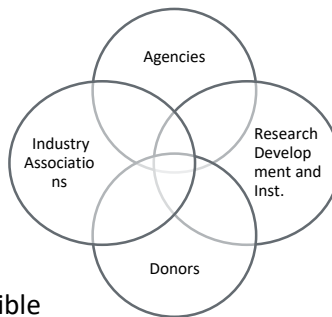
CECC Potential Members

Countries-Votes right

- Developing Countries
 - Least Developed countries
 - Small Island Development States
- Delegates of the Board

Ministry's responsible for bioenergy nominate a policy officer

Development Partners



Provide finance for projects

Multilateral Initiatives

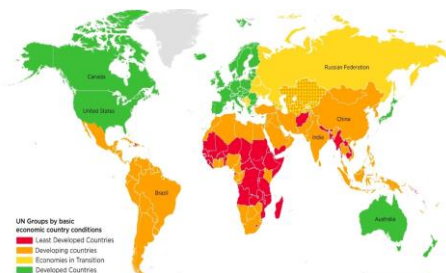
- FAO (Food and Agriculture Organization)
- GBEP (Global Bioenergy Partnership)
- SEforALL (Sustainable Energy for All)
- IRENA (International Renewable Energy Agency)
- IEA Bioenergy
- Biofuture Platform
- The Clean Cooking Alliance

Facilitate the information exchange

Industry Associations

- European Biomass Industry Association
- The Advanced Biofuels Associations
- Renewables Fuels Association

Provide technical expertise and successful implementation examples

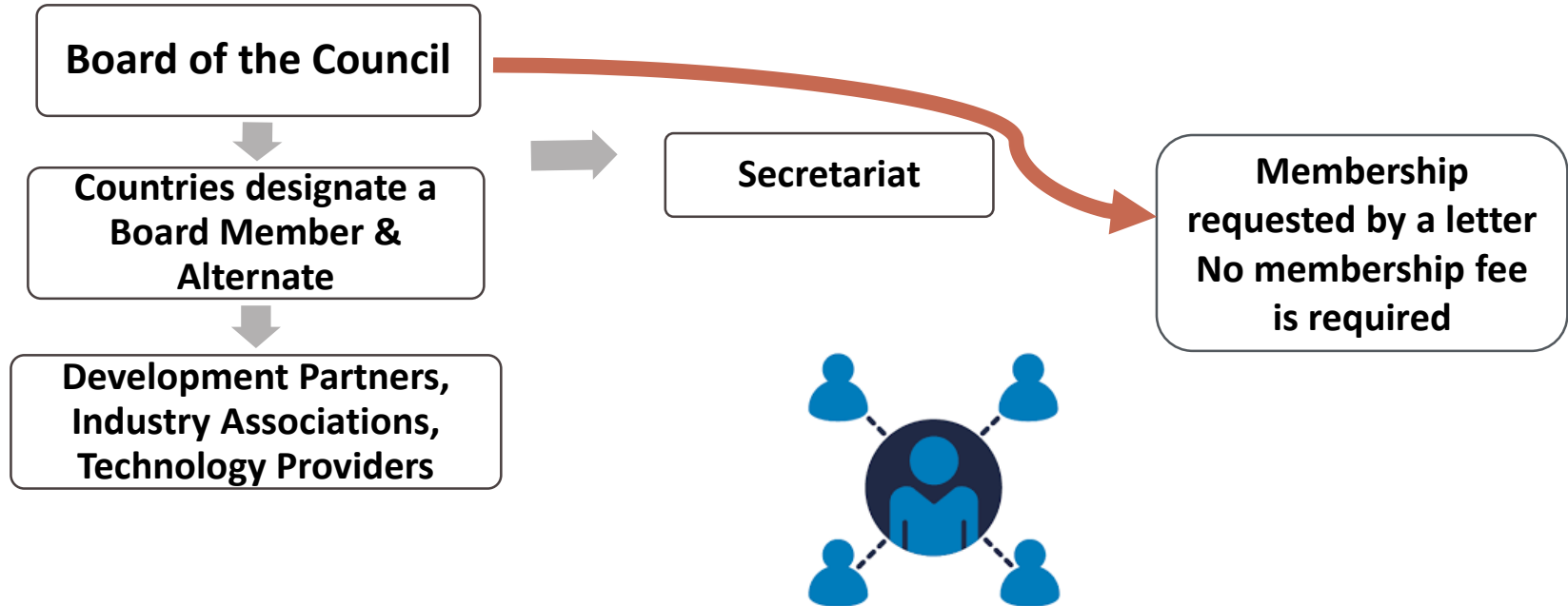


UN Groups by basic economic country conditions
 ■ Least Developed Countries
 ■ Economies in Transition
 ■ Developed Countries

<https://howmuch.net/articles/countries-by-united-nations>



Governance



CONCLUSIONS:

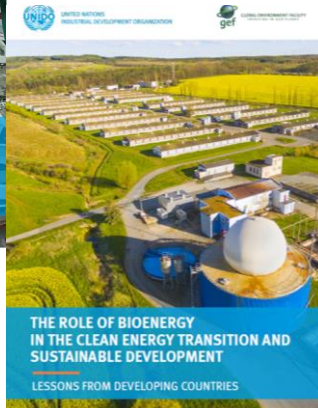
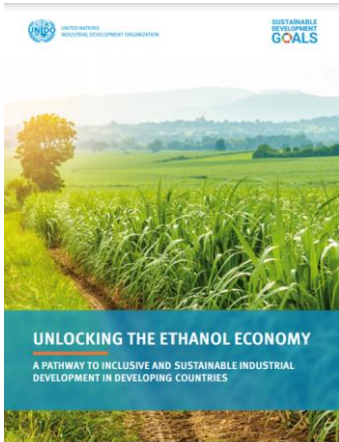
UNIDO's **Bioenergy Strategy** supports the development of bioenergy industries in DC, LDC and SIDS and help transition to a **sustainable bioenergy-based electricity, transportation and cooking solutions**, strengthening their **agriculture and industrial sectors**.

- Replacing a percentage of gasoline with ethanol;
- Switching to a clean cooking fuel options;
- Reducing deforestation & encouraging reforestation;
- Cutting GHG emissions in several sectors;
- Applying circular economy & resource efficiency principles;
- Contributing to overall economic prosperity and well-being.

Contribute to
SDGs and NDC
commitments



UNIDO Publications



Bionergy Programme



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



THANK YOU!

Duration	5 years
Global Program Budget	USD 40 mill.
Expect funds leveraged by	
MEF Grants and Subsidy	100 mill.
PS-GF	300 mill.
Private Sector Inv	2 bill.
CC-SF	600 mill.
Counterpart Agency and Implementing Partners	National Govt and Sub-national, private sector, financial institutions, national development banks, NGOs, development partners

Target Countries for Child Projects (tentative)

Asia →

Afghanistan, Bangladesh, China, India, Indonesia, Pakistan, Philippines, Myanmar, Vietnam, Lao PDR

Africa →

Cote d'Ivoire, DR Congo, Ethiopia, Ghana, Kenya, Madagascar, Mozambique, Nigeria, Sudan, Mali, Tanzania, Uganda



Beneficiaries

