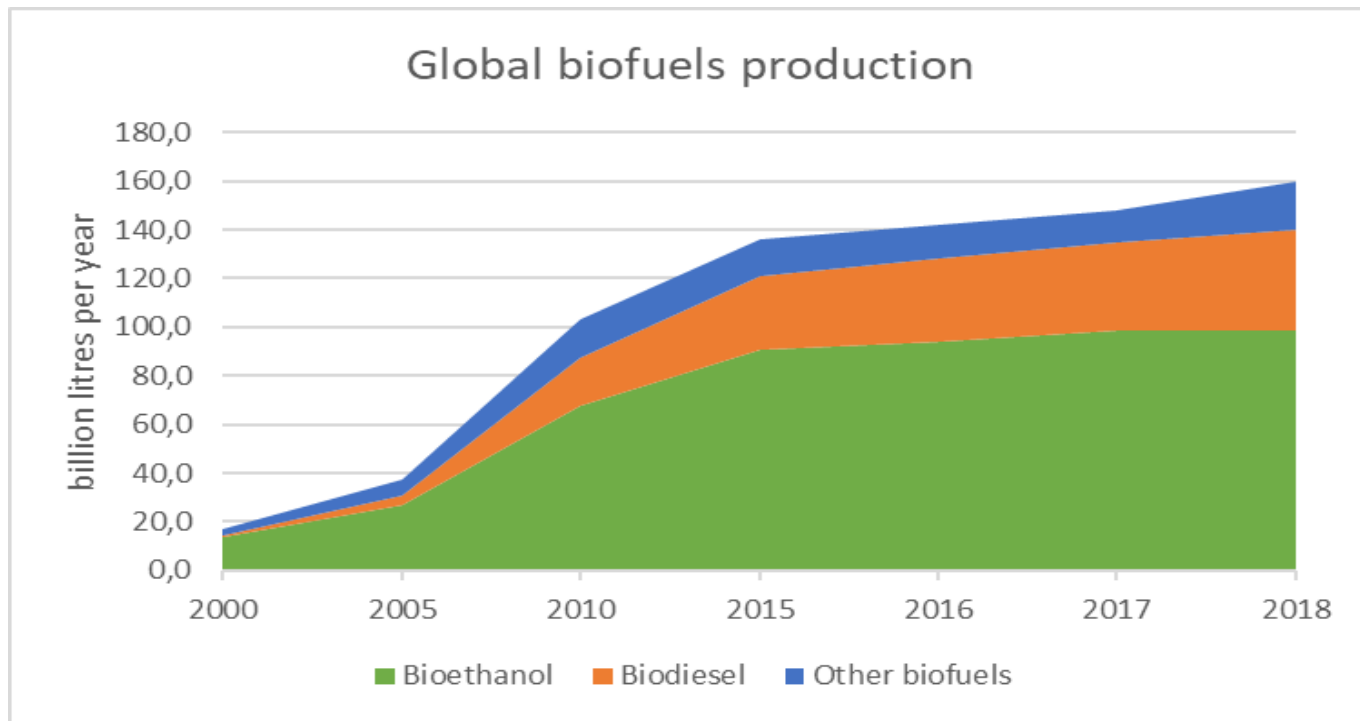


# Unlocking the Ethanol Potential: Pathway to Energy Security and Self-Reliance

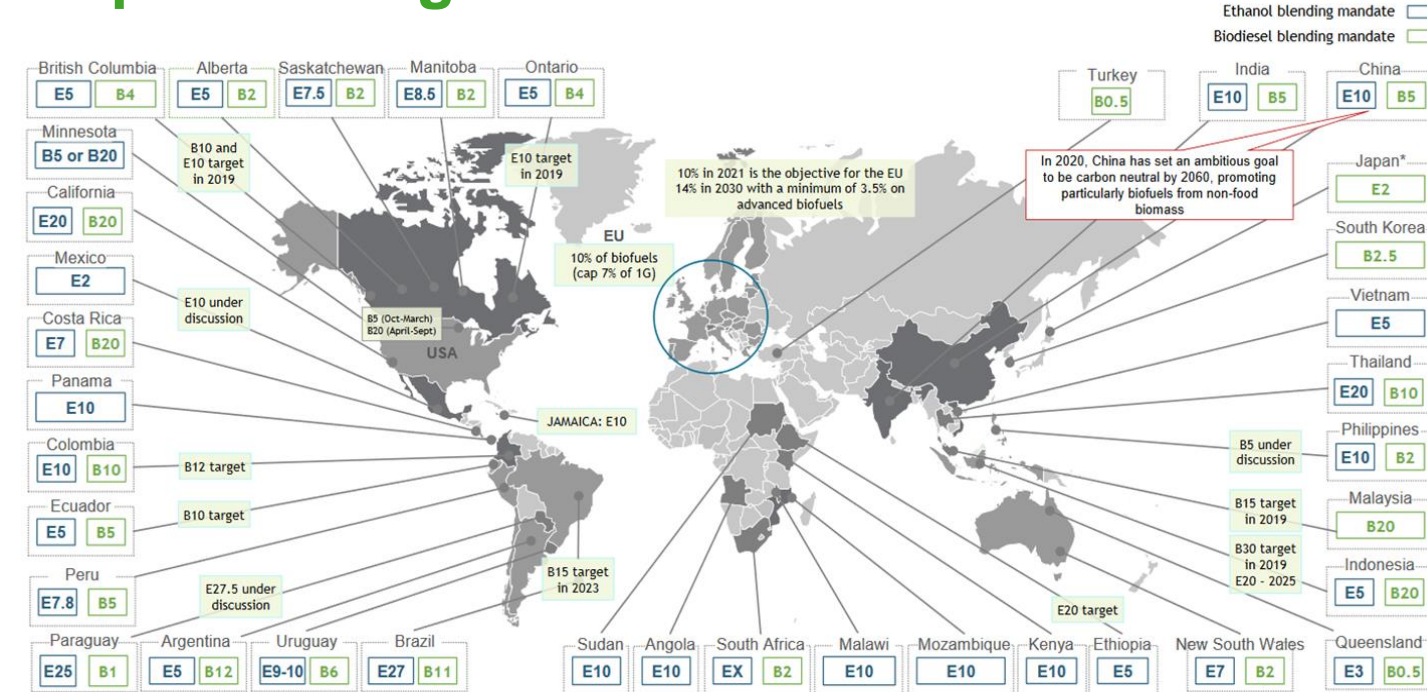
Bioenergy for Energy Access, Security and Industrialization  
*10 May 2022*

Dina Bacovsky, BEST

# Ethanol is a global commodity



# Ethanol is widely used as a blending component in gasoline



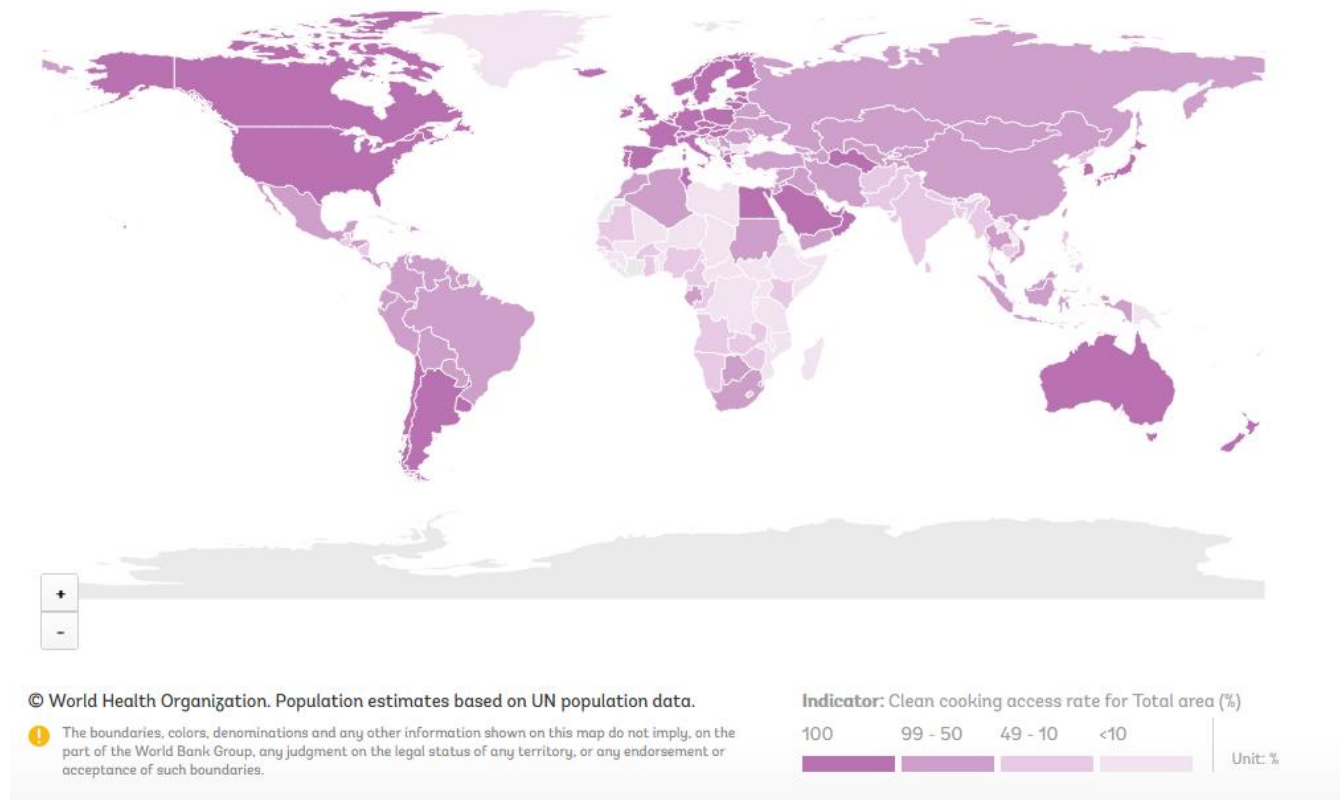
Source: Greenpeace Analysis, Governments websites

Note:

It is noticeable that most of the oil-producing - particularly from OPEC - have not implemented a biofuel mandate.

1. Turkey only has a mandate of 0.5% of biodiesel

# Ethanol is also a clean cooking fuel

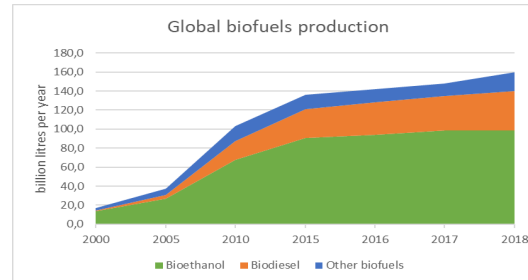


## Ethanol as blending component

- Octane improver → clean combustion
- E5, E10 compatible with almost all cars
- Higher blends in dedicated vehicles

## Ethanol in cook stoves

- Easy temperature regulation
- Quick on/off
- Easy and safe operation
- Very clean combustion
- Ethanol stoves are available

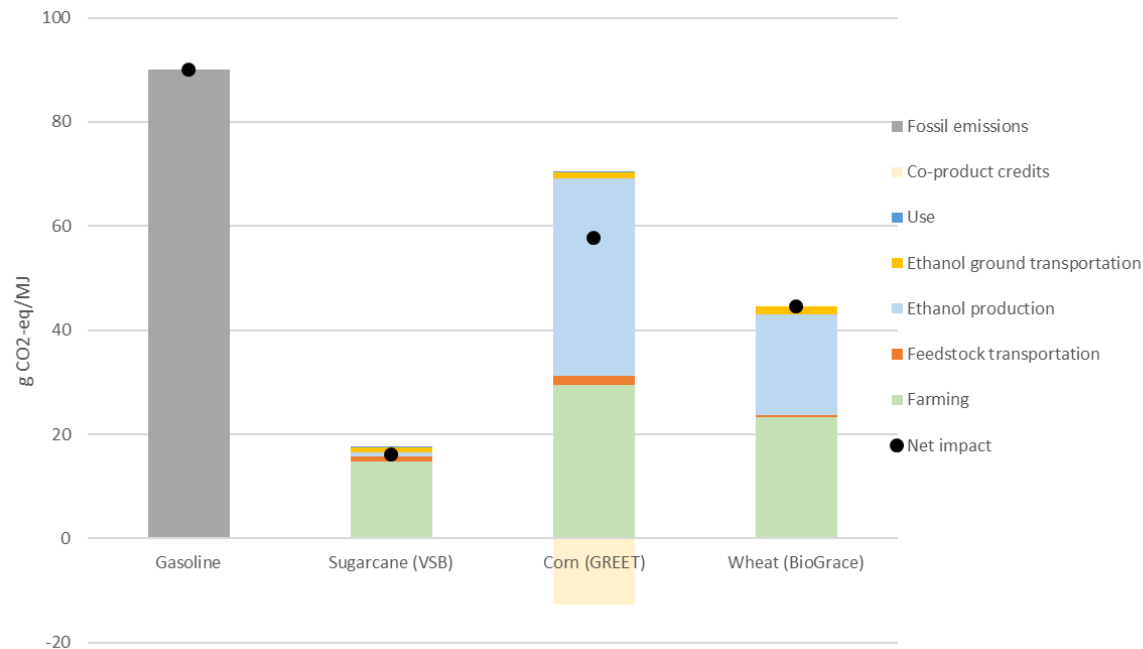


# Benefits of introducing ethanol

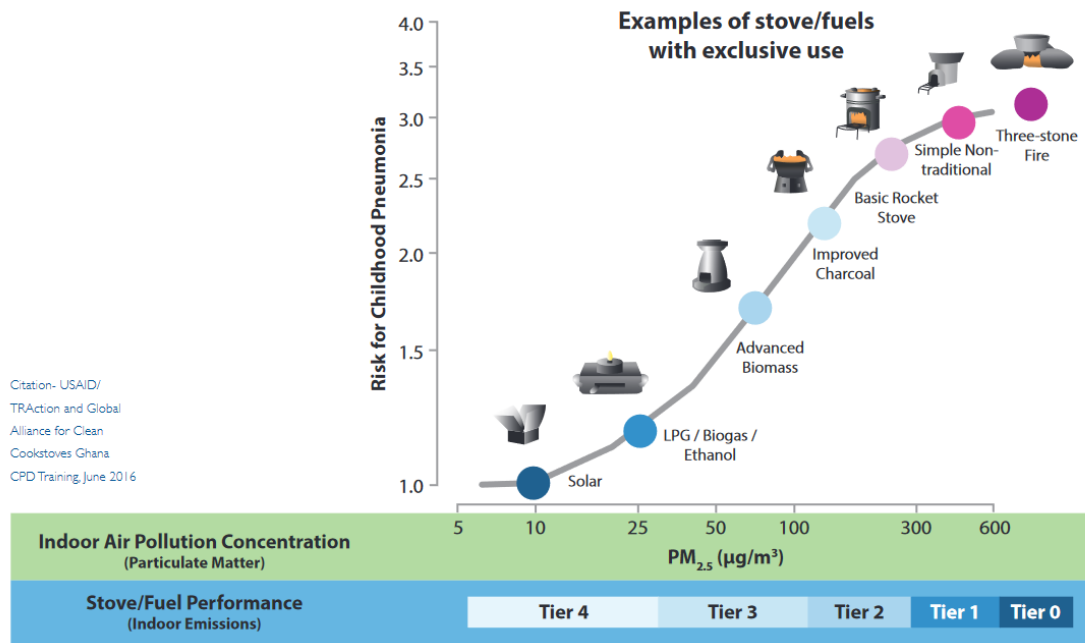
- Substitution of fossil transport fuel
  - GHG emission reductions
  - FOREX savings
- Clean cooking fuel
  - Avoids indoor air pollution
  - Avoids deforestation
- Jobs and income along the value chain
  - Feedstock production and handling
  - Ethanol production and distribution



# Meaningful GHG emission reductions



# Significant improvement of indoor air pollution / health



Citation- USAID/  
 TRAction and Global  
 Alliance for Clean  
 Cookstoves Ghana  
 CPD Training June 2016



# Brazil - best practice example

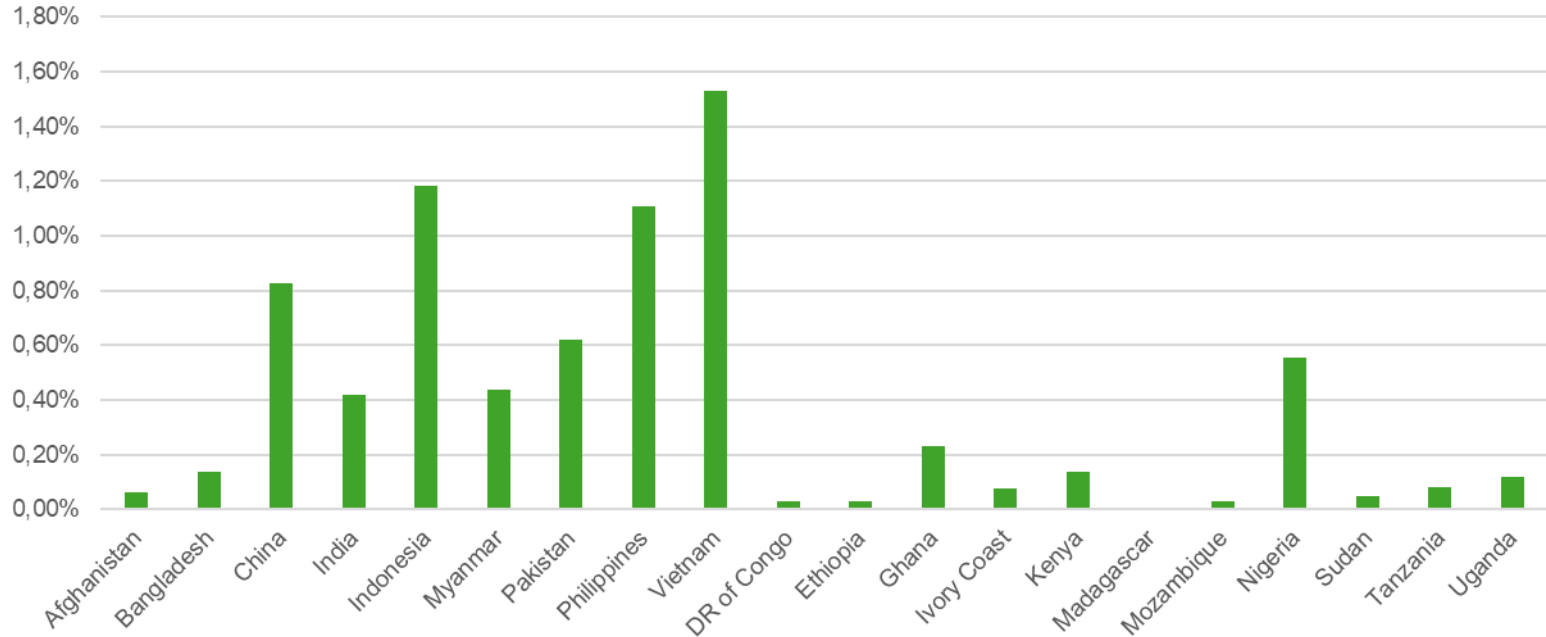
Ethanol fuel production (2019)	36.0 billion liters
Ethanol fuel consumption (2019)	33.8 billion liters
GHG emissions avoided (2019)	~ 53 million tons of CO <sub>2</sub> -eq
Total GHG emissions in transport sector (2019)	~ 190 million tons of CO <sub>2</sub> -eq
Dependency on petroleum imports (2019)	Below zero (Brazil is net exporter of ethanol)
GDP value of sugarcane energy sector (2018)	43 billion US\$
Contribution to national GDP (2018)	2.4%
Investments in sugarcane production (2019/2020)	~ 10 billion US\$
Jobs attributed to sugarcane, sugar and ethanol production (2019/2020)	2.3 million (direct and indirect jobs)

# Macro-economic benefits

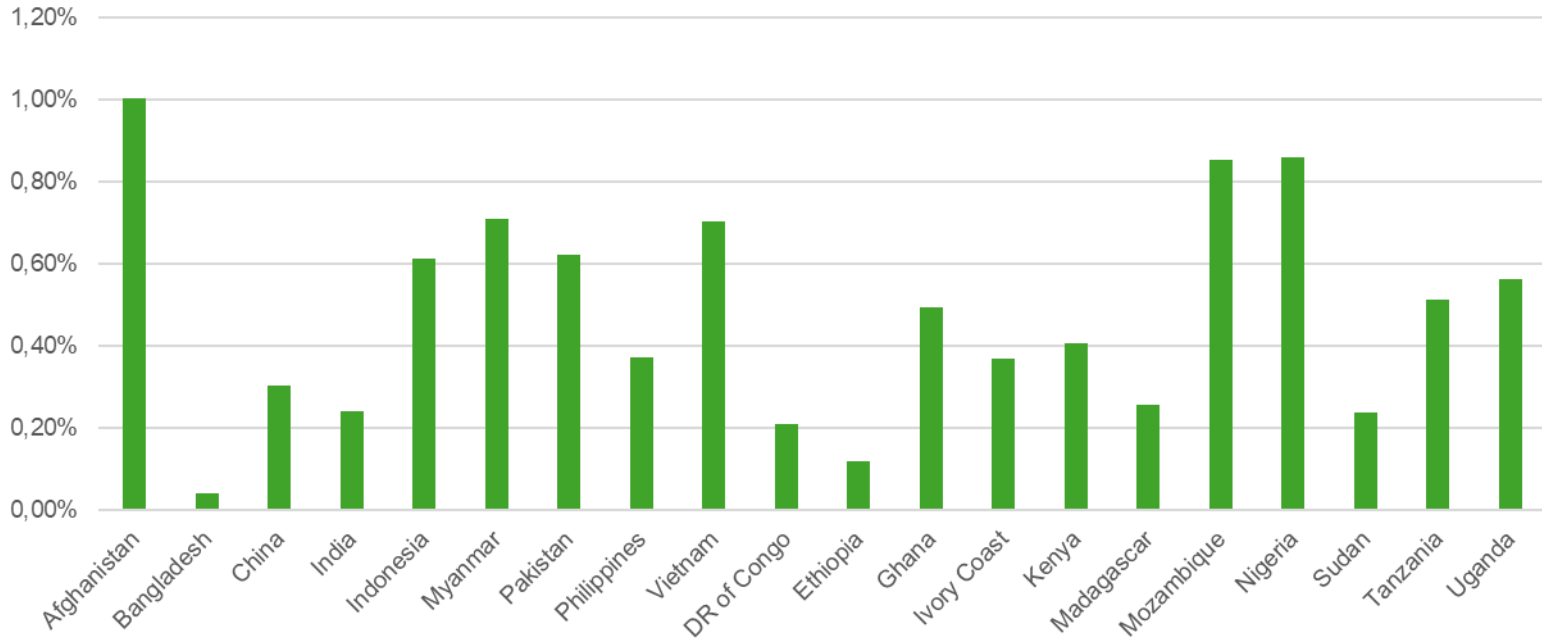
Assumptions for calculation of ballpark figures when introducing E10

- Ethanol demand = 10% of 2017 national gasoline demand
- Production based on sugarcane, global average sugarcane-to-ethanol yield = 4,550 l/ha
- Investment for greenfield sugarcane processing plants = 1.86 USD/liter ethanol
- FOREX saving = 10% gasoline replaced \* average national gasoline price (May 2021)
- National GDP figures from 2017

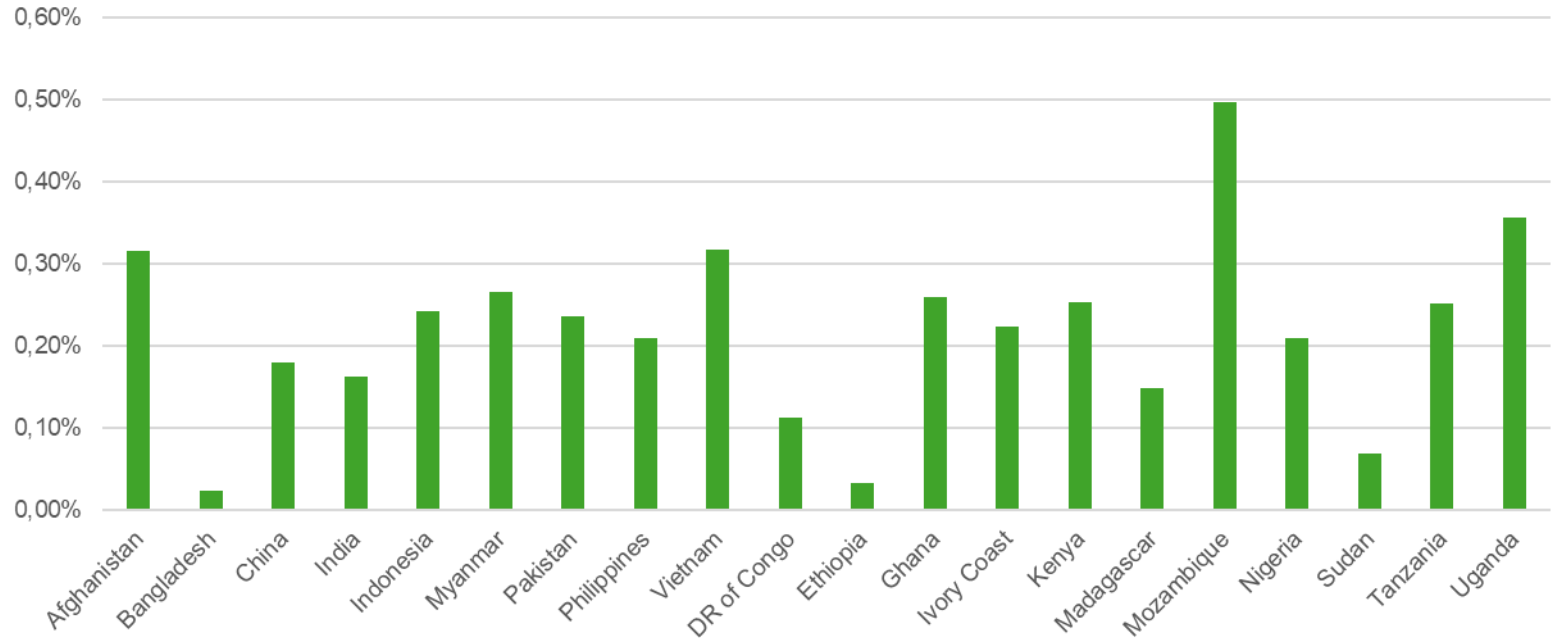
# Percentage of total national agricultural area needed for E10 production



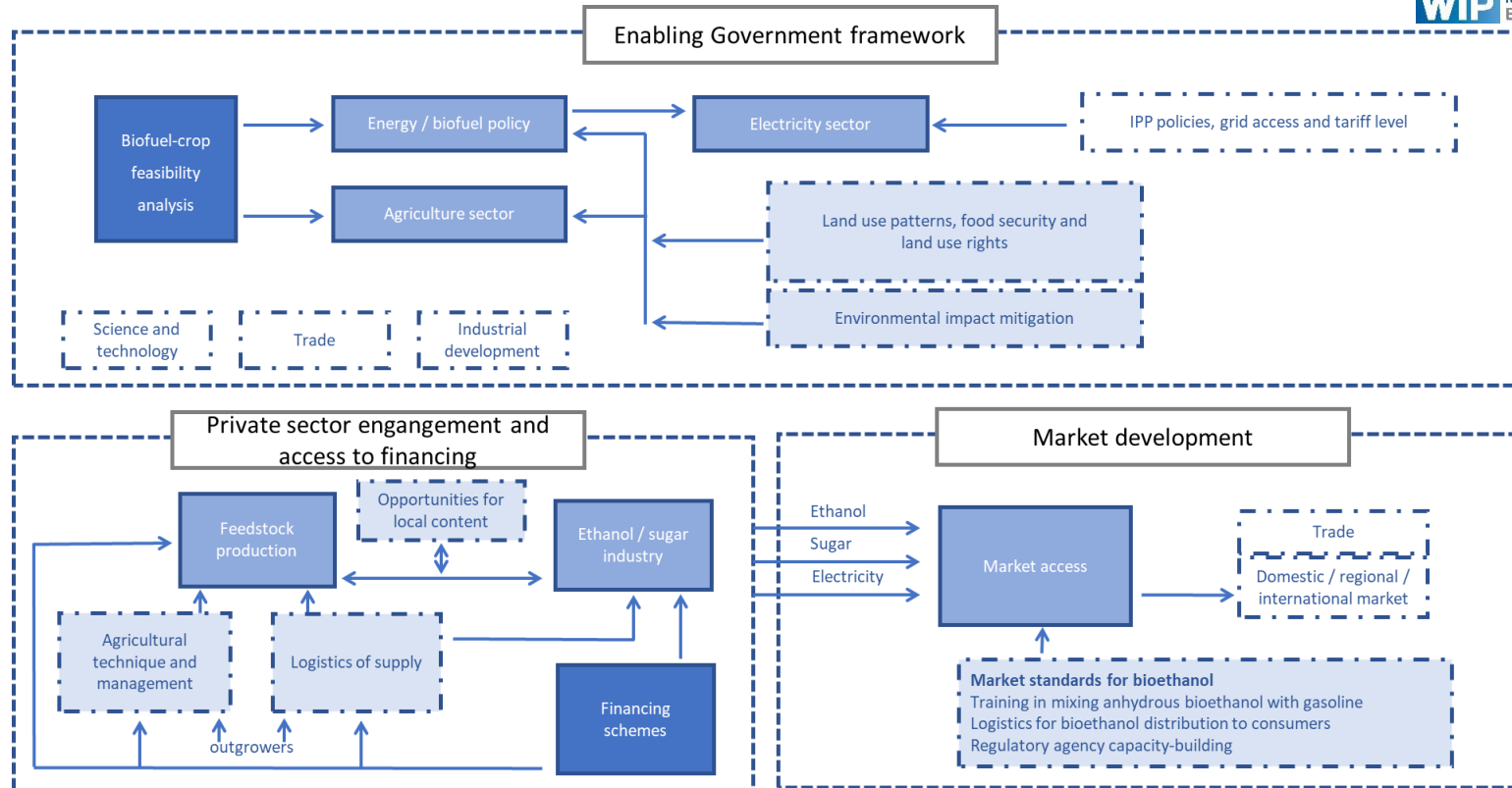
# Investment cost for greenfield sugarcane facilities for E10 as % of GDP



# FOREX saved per year as % of GDP



# How to develop an ethanol industry





Looking forward to your questions!

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