



## What questions would we like to answer?

### What will be the impacts of the NDC on



#### Social and Labour Market

- Direct, indirect and induced employment
- Underemployment and informal
- Skills, gender, age

#### Economy

- GDP and GDP by sector
- Poverty, inequality
- Income tax, profits, salaries

#### Environment

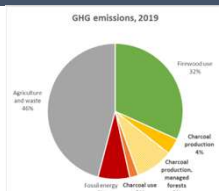
- CO2 emissions by sector
- Forest, waste, energy, water



## NDC plans for augmented charcoal production and improved cooking equipment in Madagascar

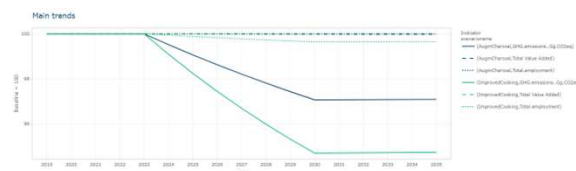
### Current situation

- Charcoal production and use are ~15% of GHG emissions in 2019
- 4% of GHG emissions in 2019 occurred in the production of charcoal from natural forests
- Charcoal production from natural forests is unsustainable and contribute to deforestation and forest degradation
- > 70% of wood for charcoal comes from managed forestry in 2012 (peasants' plantations of eucalyptus and pines)
- Around 175 000 people employed in charcoal production
- 17% of households use charcoal for cooking



### Results

- Greening of the charcoal value chain has considerable potential for reducing carbon emissions in Madagascar
- Changing from traditional to augmented charcoal production results in a significant decrease in carbon emissions, without impacting charcoal workers
- Lower charcoal demand from efficient cookstoves will impact informal labour in traditional charcoal production, with opportunity for the workers to tend to productive economic activities



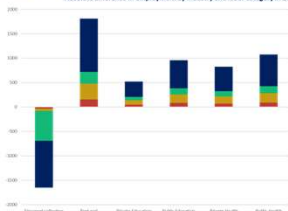
### Augmented charcoal production

- Improved carbonization techniques in charcoal production process require 30% less wood
- Sustainable sourcing of wood from managed forests
- 25% augmented charcoal by 2030

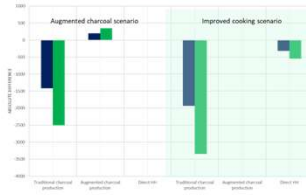
### Improved cooking equipment

- Energy-efficient cooking equipment, known locally as "fatana mitsitsy" (economic stoves), requiring 50% less charcoal
- Increase access to improved cooking stoves, especially by urban households, to 70%

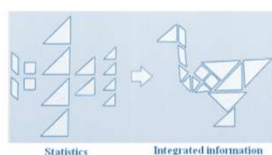
Absolute difference in employment by industry and labor category in 2030



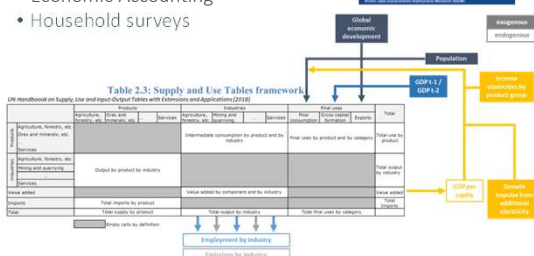
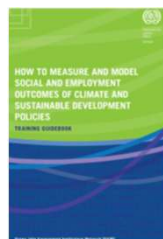
GHG emissions (CO2 equivalent)



## GJAM methodology



- System of National Accounts
- System of Environmental Economic Accounting
- Household surveys



Green Jobs Assessment Models (GJAMs) are not economic forecasting models. Rather, these models are a tool to inform about possible effects of "what-if" scenarios on emissions and labour demand by industries, given that the remaining structure of the economy remains as it is. The results should be assessed relative to a baseline scenario. They indicate the direction and possible size of the effects but should not be taken exact estimates. For example, the actual labour market outcomes also depend on other factors as well as dynamic labour market adjustments, that are not considered here. These models give an indication on how to design measures and policy goals in order to maximize the positive and minimize the negative implications of climate policies. The merit of input-output and supply-and-use based model is their ability to indirect effects on the entire economy of measures aimed which will change production technology, consumer behaviour, or investments, among others.

<https://www.sintef.no/en/software/sut-core/>