

Colombia



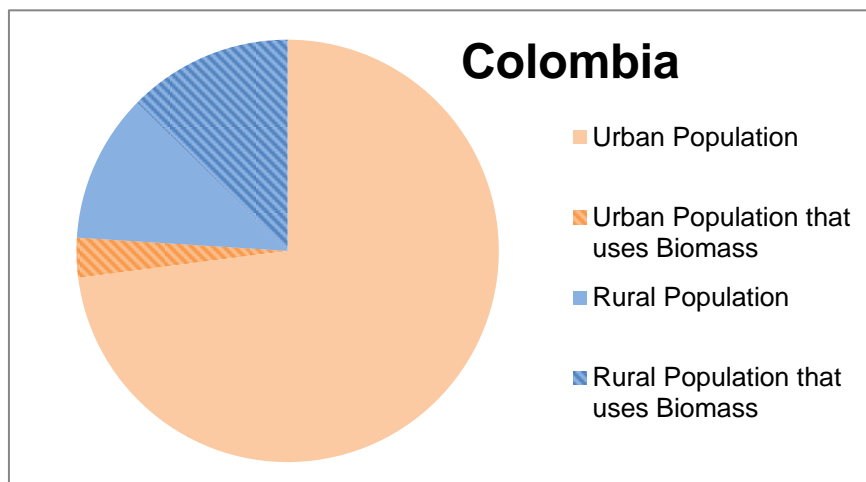
Total population*	48,321,000
Urban (%)	76
Rural (%)	24
% Population that uses biomass*	14
% rural**	52.6
% urban**	1.3
% Population with access to LPG and electricity**	82
Number of households that use biomass**	1,854,772
Number of annual deaths from HAP 2012*	5,849
Number of annual child deaths from HAP 2012*	294
Price of LPG (25 lb tank)***	12 USD
Price of electricity (Kw/h)***	0.16 USD
Price of Firewood	na

HAP: Household Air Pollution

*WHO observatory data base

**GACC (Global Alliance for Clean Cookstoves) web page

***September 2015



History of Efficient Cookstoves

Number of efficient cookstoves distributed so far	28,238
Type of technology distributed so far	Estufas leñeras eficientes, Huellas, Lorena, Dos Puestos, Rocket, Híbrido triangular, Híbrido lineal, Triangular con bloques refractarios, Riscalena, Ecoestuga Catalán, Ecoestufa, Cocinas de Fundación Natura
Cost of the technology	\$350 USD

National Program

Is there a national program?

Yes

- **1715 Law of 2012: “Promote the use and development of non-conventional energy sources, mainly renewable energy in the national energy system”**

Responsible person from the government program: **Maria Cecilia Concha Albán (Environment Ministry)**

Responsible Ministry: **Environment and Sustainable Development Ministry**

Other ministries involved:

- **Health and Social Protection Ministry**
- **Mines and Energy Ministry**
- **Agriculture and Rural Development Ministry**
- **Mining Energy Planning Unit**
- **National Health Institute, Mining Energy Planning Unit, Energy Solutions Planning and Promotion Institute for Non-connected Zones**
- **Regional Autonomous Corporations: CORNARE, CORANTIOQUIA, CORPOURABA, CORPONOR, CAR, CORPOGUAVIO, CAM, CARDER, CORPOCALDAS, CORPONARIÑO, CRC, CORPOCESAR**
- **“Del Cesar” governance**
- **Medellín public companies**

Non-governmental stakeholders

- **Fundación Natura**
- **Patrimonio Natural**
- **Fundación Mar Viva**
- **Fundación Carboandes**
- **Fundación de Investigaciones Arqueológicas y Ambientales Tairona – FIAAT**
- **Fundación Ribunduna Tairona**

How is the cookstove distribution prioritized?

The following criteria are considered to select beneficiaries:

- **Nuclear families are prioritized**
- **Rural inhabitants and farm-dependent families**
- **Families that use firewood as main energy source for cooking**
- **There must be available land for establishing a firewood crop. A minimum of 500 square meters must be owned.**
- **They must be owners of the lands where the project will be implemented**
- **Heads of households, both women and men, must be prioritized**
- **Users that are located near roads are selected, to facilitate access and technical support**
- **Roads with no access to other energy services must be prioritized**

- Firewood consumption must be demonstrated
- The type of stove and its corresponding gas flow are verified, registering where gases concentrate in the cooking area and extrapolating how the family and general population are affected
- Population affected by chronic pulmonary disease or other bronco-respiratory ailments are prioritized
- Eligible areas must be located near protected area and in catchment areas that provide water to urban areas

Are there cookstove distribution data per community?

28.238 cookstoves have been installed in:

- **Antioquia: 75%**
- **Región Oriental: 11% (Cundinamarca, Norte de Santander, Santander)**
Región Central: 7% (Caldas, Risaralda y Huila)
- **Región Pacífica: 5% (Nariño y Cauca)**
- **Región Atlántica: 2% (Cesar, La Guajira, Atlántico, Sierra Nevada de Santa Marta, Bolívar)**

Health

Is there a representative from the Health ministry?

No specific actions from the Health sector have been established for this project

PAHO Contact

Ing. Ana Quan

Location of the healthcare units. Preferably on a map.

Information pertaining healthcare units located in eligible municipalities is available in the Special Registry of Healthcare Service Providers (<http://prestadores.minsalud.gov.co/habilitacion/>).

Number of annual deaths from HAP
This information is available in the Health Situation Analysis document, 2014.

Number of annual children deaths from HAP
This information is available in the Health Situation Analysis document, 2014.

At which scale are the data available for illness and death related to HAP?

Municipality.

Is there a national registry for Chronic Obstructive Pulmonary Disease?

Yes, in the Individual Registry of Service Providers

At which level? **Rural and urban municipalities, type of affiliation, age, occupation, gender, type of user**

Is there a registry for Acute Respiratory Infection?

Yes, the National Surveillance of Public Health System

At which level? **Rural and urban municipalities, type of affiliation, age, occupation, gender, type of user**

Is there a registry for Pneumonia?

Yes, in the Individual Registry of Service Providers

At which level? **Municipality, partial address**

Is there a registry for children deaths?

Yes. Vital Statistics – National Department of Statistics, Individual Registry of Service Providers

At which level? **Municipality**

Is there a registry for low birth weight? Yes, National Department of Statistics, Individual Registry of Service Providers	At which level? Municipality
Is there a registry for Lung Cancer? Yes	At which level? Municipality

The Ministry of Environment of Colombia has been in charge of the distribution of around 30,000 efficient wood stoves built in situ. From 2014, the government has created an inter-agency working table to address the use of solid fuels.

The overall objective of the working table¹: Design and implement a comprehensive national program of efficient stoves for cooking with firewood in rural and peri-urban areas, oriented in the sustainable and rational use of firewood, which contributes to improving the quality of life of the population, alleviating energy poverty, while reducing negative impacts on health and the environment.

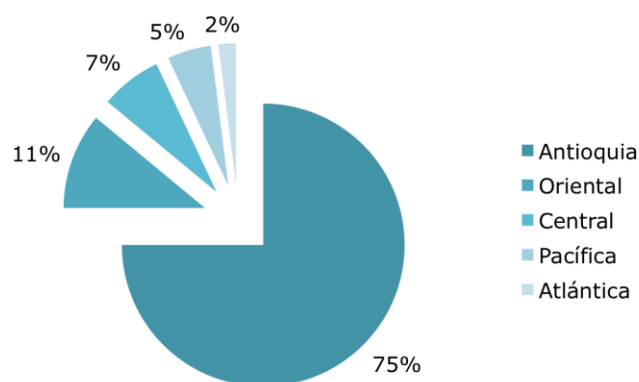
Specific objectives: To coordinate interagency efforts between Government agencies, private sector, NGOs, universities and other sectors of society, to facilitate dialogue between different actors, to promote and ensure that beneficiary families have access to stoves truly durable and good quality.

Design a financial sustainability strategy to promote and expand the use of more efficient stoves nationwide, aimed at strengthening local capacity for the creation of markets for these technologies.

Disseminate the use of efficient wood cooking stoves, through the implementation of pilot projects, consistent with the pattern of use of firewood, taking into account economic, social, cultural and environmental aspects.

Promote training and technology transfer in the construction and maintenance of efficient stoves, from the exchange of successful experiences with different technologies already implemented.

Percentage of stoves by region:



¹ Source: http://www.si3ea.gov.co/Lena/2014/1A/1_Estufas_Eficientes_Coccion.pdf

Some Biomass stoves models²:



Foto 1. Corantioquia



Foto 2. FN (Fundación Natura)



Foto 3. Ecoestufa Catalana(Empresas Públicas Medellín-EPM)



Foto 4. Ecoestufa (EPM)



Foto 5. Patrimonio Natural en PNN las Orquídeas



Foto 6. Dos Puestos (Patrimonio Natural) .

² Source: Lineamientos para un Programa Nacional de Estufas Mejoradas para cocción con leña – Ministerio de Ambiente y Desarrollo Sostenible. 2015



Papers with studies in Colombia

1. Gonzalez-Garcia M., Caballero A., Jaramillo C., Maldonado D., Torres-Duque C.A. 2015. Prevalence, risk factors and under diagnosis of asthma and wheezing in adults 40 years and older: A population based study. *J Asthma*, 2015; 52(8): 823–830.

Available at: <http://www.tandfonline.com/doi/abs/10.3109/02770903.2015.1010733>

Abstract: Objective: There are differences in the prevalence and risk factors of asthma around the world. The epidemiological situation of adults 40 years and older is not well established. Our aim was to determine the prevalence, under diagnosis and risk factors of asthma and wheezing in adults in Colombia. Methods: A cross-sectional, population-based study including 5539 subjects from 40 to 93 years selected by a probabilistic sampling technique in five cities was conducted.

Measurements: respiratory symptoms and risk factors questionnaire and spirometry.

Definitions: (a) Wheezing: Affirmative answer to the question “have you ever had two or more attacks of “wheezes” causing you to feel short of breath?” (b) Asthma: Wheezing definition and FEV1/FVC post-bronchodilator_70%. (c) Under diagnosis: Asthma definition without a physician-diagnosis. Logistic

regression was used for exploring risk factors. Results: Prevalence of asthma was 9.0% (95% CI: 8.3-9.8) and wheezing 11.9% (95% CI: 11.0-12.8). Asthma under diagnosis was 69.9% and increased to 79.0% in subjects 64 years or older. The risk factors related to asthma and/or wheezing were: living in Bogota or Medellin, female gender, first degree relative with asthma, respiratory disease before 16 years of age, obesity, no education, indoor wood smoke exposure and occupational exposure to dust particles, gases or fumes.

Conclusion: We described the epidemiologic situation of asthma in adults 40 years and older in Colombia. In addition to some recognized risk factors, our data supports the association of indoor wood smoke and occupational exposures with asthma and wheezing. Under diagnosis of asthma in adults was high, particularly in older subjects.

2. Lineamientos para un programa nacional de estufas eficientes para cocción con leña. Ministerio de Ambiente y Desarrollo Sostenible. Colombia

http://www.si3ea.gov.co/Lena/2014/1A/1_Estufas_Eficientes_Coccion.pdf