

A new overview of coal mining in Antioquia from the optic of sustainable development.

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Presentation Overview

- Introduction
- Technical Overview
- Economic Overview
- Social Overview
- Role of State
- Conclusions



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Introduction

Sinifaná Basin Location





Introduction

- Region economy: Coal mining, coffee production, tourism and cattle industry.
- Population: 86,790 inhabitants
- 150 coal mines(18.7% mining titles)





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Introduction



Coltejer, fundada en 1907, en el sector de La Toma, en Medellín, se convirtió, con los años, en la principal tejedora de Colombia.

<http://histrans-1900.wikispaces.com/el+ferrocarril>

<https://medellinancesstral.wordpress.com/>

<http://www.gotasdetinta.org/8/historia.html>

Technical Overview

Coal Characteristics

		Venecia/ Fredonia	Amagá/ Angelópolis	Titiribí
Calorific value (BTU/lb)		10,426	9682	11,767
% Moisture		7.25	13.16	11.64
% Sulfur		0.48	0.55	0.72
% Ash		8.11	11.96	7.92
Lignitic	Fouling	0.8	0.43	0.12
	Slagging	0.23	0.14	0.26
Acid/Base ratio		0.41	0.22	0.33
Maximum grinding index		50	48	108

Table 1: Coal characteristic from the region
From: (Ingeominas, 2004)



Technical Overview

Main coal sizes



“Kitchen” (bigger than 5 cm)



“Granular” (between 5 and 2.5 cm)



“Almond” (between 2.5 and 1 cm)



“Rubble” (smaller than 1 cm)

Technical Overview

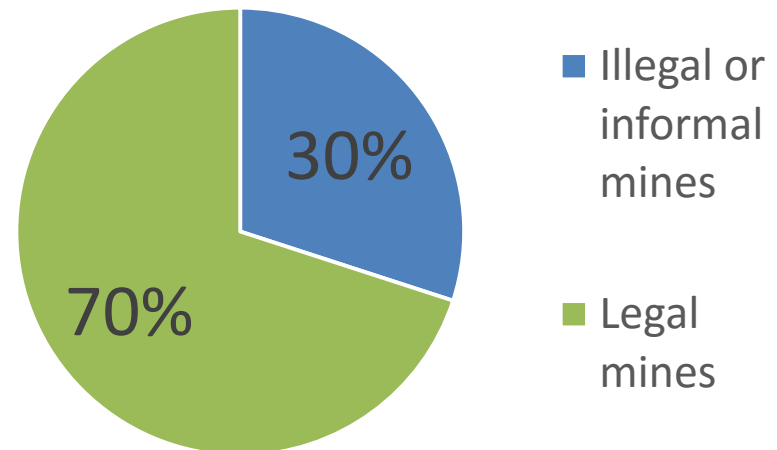
Town	Production (Tons)
Amagá	94,165.54
Angelópolis	1156.04
Fredonia	1326.00
Venecia	1475.6
Titiribí	10,535.88
Total	108,659.06

Table 2: Coal production in 2013
 From: (Ingeominas, UPME, 2014)

Mines	Productivity (tons/man shift)
Legal	1,6
Illegal or informal	0,56

Table 3: Mining units productivity
 From: (Secretaría de Minas- Gobernación de Antioquia, 2012)

Sinifaná Coal Production (Distribution)



From: (Secretaría de Minas- Gobernación de Antioquia, 2012)



Technical Overview

Town	Total Mines	Inactive	Active
Amagá	94	48	46
Angelópolis	178	98	80
Fredonia	16	11	5
Venecia	23	12	11
Titiribí	25	17	8
Total	336	186	150

Table 4: Mining units in Sinifaná Basin.
Source: (Secretaría de Minas- Gobernación de Antioquia, 2012)

Town	Active		
	No title	Title in process	Title
Amagá	36	3	7
Angelópolis	69	8	3
Fredonia	0	0	5
Venecia	6	0	5
Titiribí	0	0	8
Sub-Total	111	11	28
Total	150		

Table 5: Active mining units in the Sinifaná Basin.
Source: (Secretaría de Minas- Gobernación de Antioquia, 2012)



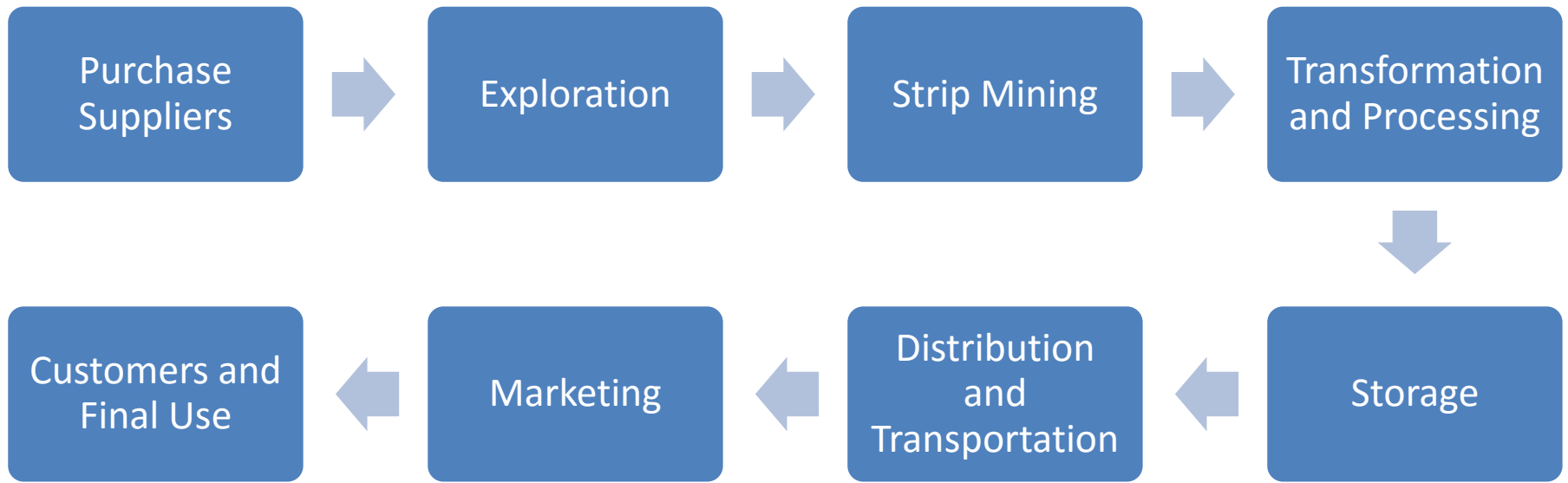
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Technical Overview

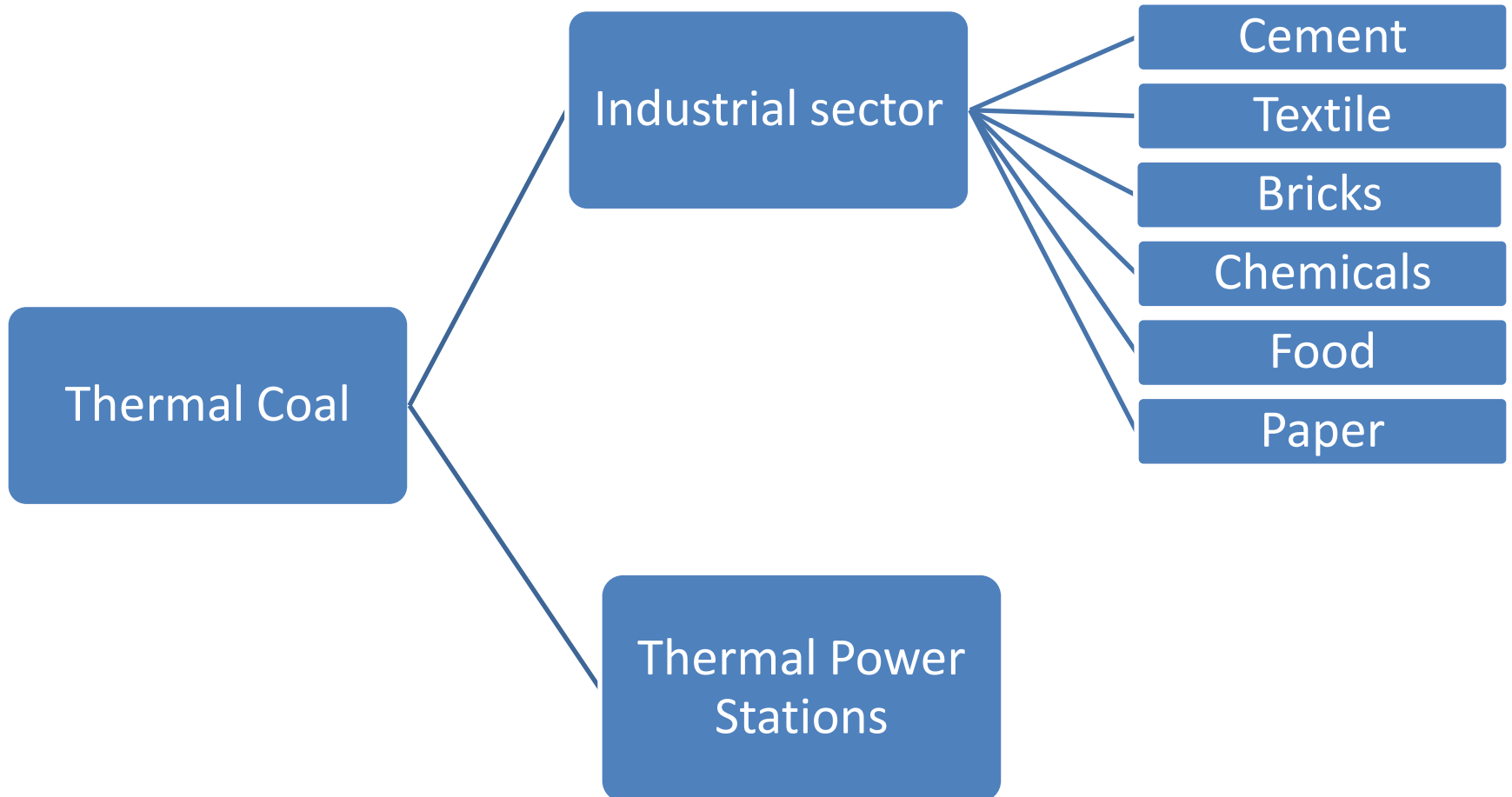
Supplying Chain of the Basin



Economic Overview

- Antioquia coal proved reserves: 87.1 millions of tons (2011)
- Mining contribution in Colombia's GDP: 2,1% (2014)
- Colombia's coal production: 88,6 million tons (2014)

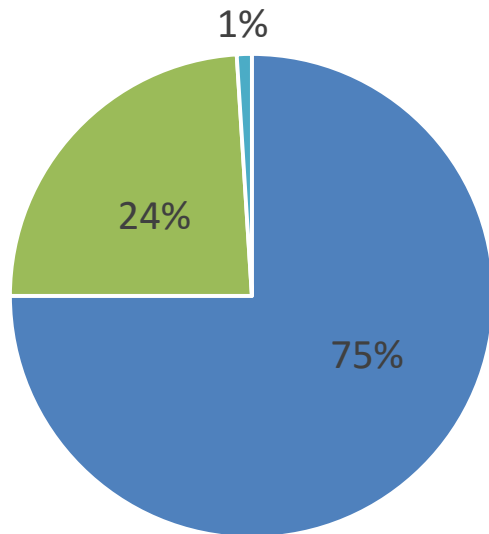
Economic Overview



Economic Overview

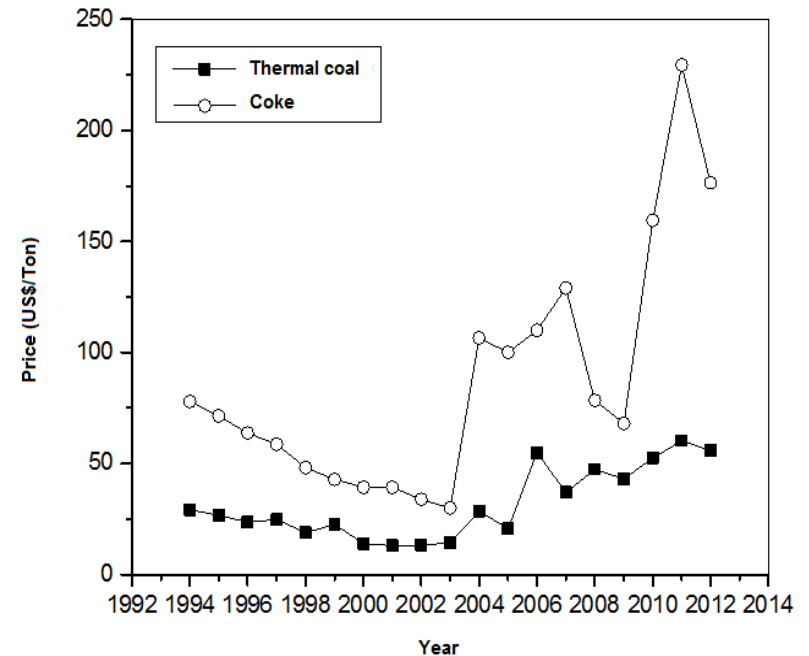
Final destination of coal from Sinifaná Basin

■ Antioquia
 ■ Valle del Cauca
 ■ Exportation



From: (UPME , 2004)

Thermal coal and Coke prices variation



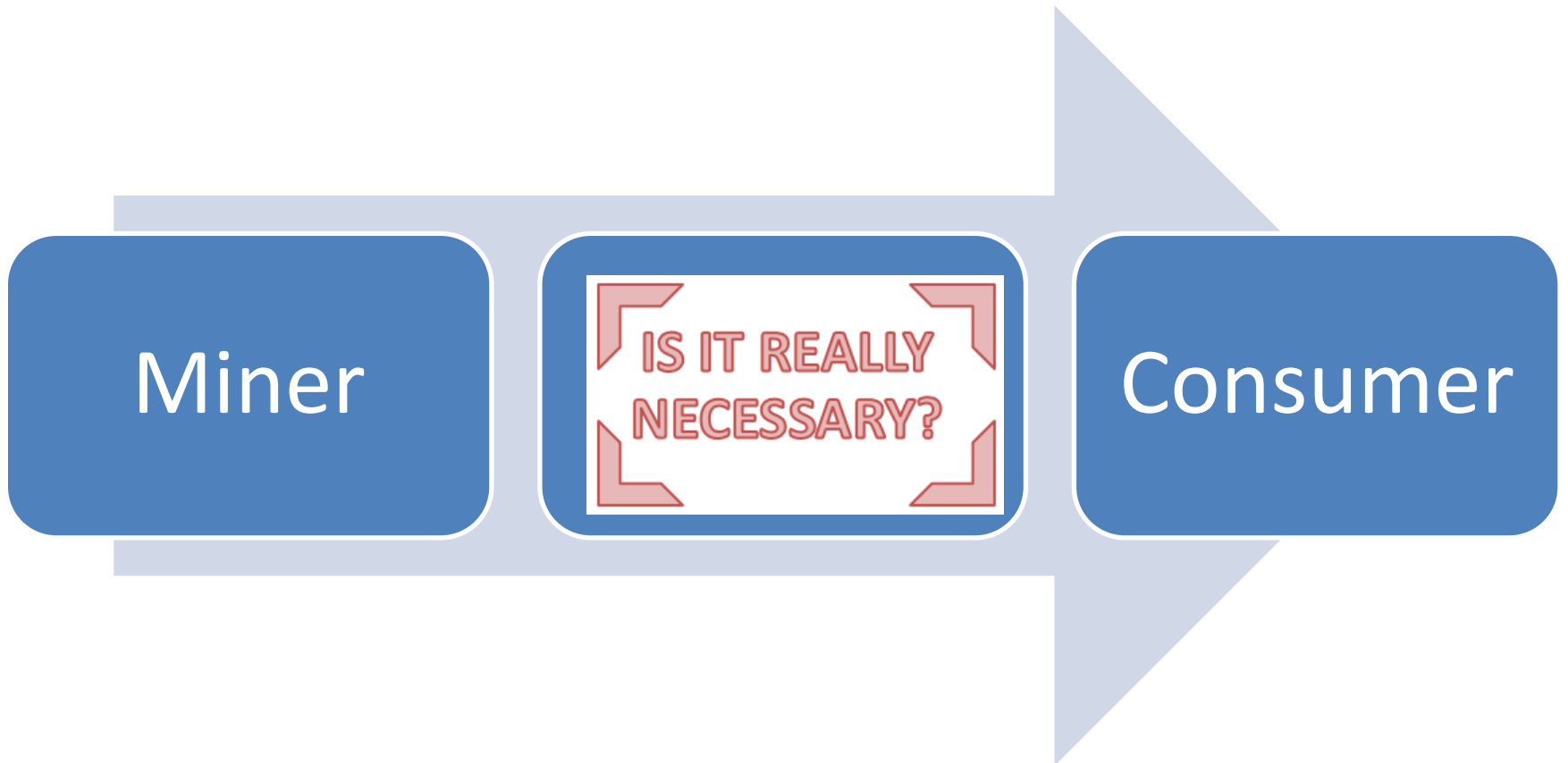
From: (Ingeominas, UPME, 2014)



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Economic Overview



Economic Overview

Where is the statistic from
a reliable resource?

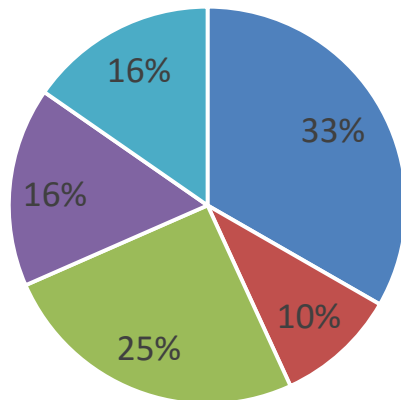


Social Overview

Inhabitants

Population Distribution in the Sinifaná Basin

■ Amagá ■ Angelópolis ■ Fredonia
■ Titiribí ■ Venecia

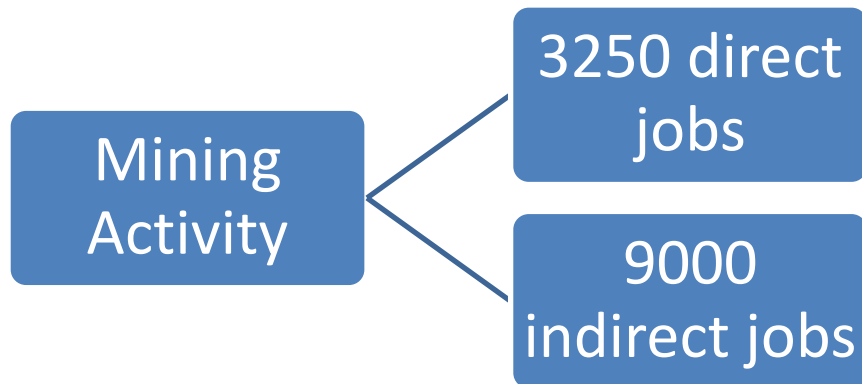


From: (Gobernación de Antioquia, 2013)

- 50,79 % are men, 56,4% of them are within the mining work market.
- 49,21% are women, 40,3% are in the work market

Social Overview

Employment



- 71.9% of the mining jobs come from small legal and illegal mining.
- Nearly 30% of the jobs in the Sinifaná Basin come from mining.

The Role of State

Regional

- Formalization and legalization of mining units.
- Improvement of the conditions of productivity of the Basin.
- Determining the level of risk in feasible production units to legalize and formalize.
- Determination of coal dust explosiveness.
- Among others

National

- The prosperity Highway.
- The Generation Expansion Plan-Transmission 2010-2024.
- Among others.



Conclusions

- There is a lack of statistical information in the Sinifaná Basin. Equally the same with the cases where information is outdated, fragmented, or even not available for everyone or not reliable sources.
- It should be implemented a regulation or mechanism in order to regulate prices for buying and selling coal, price of supplies, transportation costs, among other factors; consequently all mining units will have equal conditions and improvement of competitiveness.



Conclusions

- The government must play an important role in the management of sustainable development in the Sinifaná Basin.
- Government should improve the controls and monitoring of mining operations and the fulfillment of its duties, this by taking advantage of the proximity of the coalfield to Medellín.



Conclusions

- Private, public and academic sectors are unaware or do not take advantage of the energy potential the Basin has, wasting a lot of added value.
- Coal mining is the basis of the region economy, research is necessary to focus all efforts in making it sustainable by stating and identifying the current circumstances and what is generating them to move forward with the appropriate solutions.

Acknowledgments

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Thank You!