


**SUSTAINABILITY
REPORT OF THE
COLOMBIAN PALM
OIL SECTOR
2018-2021**



**SUSTAINABILITY
REPORT OF THE
COLOMBIAN PALM
OIL SECTOR
2018-2021**

**This first sustainability report
of the sector presents national and
international stakeholders with the main
sustainability milestones, progress and
challenges for the 2018-2021 period**

Sustainability Report of the Colombian Palm Oil Sector 2018-2021

Publication of Federación Nacional de Cultivadores de Palma de Aceite,
Fedepalma, with the support of the Palm Promotion Fund

Nicolás Pérez Marulanda

CEO

Alexandre Patrick Cooman

Cenipalma General Manager

Andrés Felipe García Azuero

Director of Sectoral Planning and Sustainable Development

Luis Enrique Castro Zamudio

Specialist in Sectoral Planning and Sustainable Development

Consultant

Consejo Empresarial Colombiano para el Desarrollo Sostenible, CECODES

Sergio Rengifo Caicedo

Executive Director

Alejandra Cárdenas

Project Director

Sonia Sánchez

Contents

Acknowledgments

Elzbieta Bochno Hernández, Ximena Mahecha Anzola, Jhon Sebastián Castiblanco, Andrés Silva Mora, Juan Carlos Espinosa Camacho, María de la Paz Rueda Mallarino, Edwin Giovanni Girón Amaya, Mónica Cuéllar Sánchez, Jesús Alberto García, Rodrigo Ruiz Romero, Nidia Elizabeth Ramírez Contreras, Carolina Obando Mera, Anderson Eduardo Guerrero, Lina Fernanda Loaiza Gómez, Edna Carolina Hernández Tiusaba, Claudia Montoya Casadiego y Édgar Ignacio Barrera González.

Photographs

Fedepalma photographic archive and National Environmental and Social Photography Contest in Oil Palm Zones

Editorial Coordinator

Yolanda Moreno Muñoz

Design and layout

Ximena Díaz Ortiz

ISBN Ebook:

Bogotá, Colombia

August de 2022

Contents

Presentation: What Makes us Unique	9
The Palm Oil Sector: A Driver of Growth	12
Our Value Promise	14
1. The Colombian Oil Palm and its Economic Performance	16
1.1. Economic Performance	20
1.2. Products of the Sector	26
2. Governance, Ethics and Transparency	28
2.1. Governance Structure	29
2.2. Code of Ethics and Good Governance	32
2.2.1. Good Governance	33
2.1.2. Ethics and Conduct	33
2.3. Risk Management	35
2.4. Internal Control	37
2.5. Relations with Stakeholders	38
3. Our Vision of Sustainability: Roadmap to Transformation	40
3.1. Our Sustainability Process: Milestones	41
3.2. Sectorial Sustainability Strategy	46
3.2.1. Principles of Colombian Sustainable Palm Oil	47
3.2.2. Consolidating a Sustainable Origin	48
4. Material Topics	52

5. Sector's Contributions to Sustainability	55
5.1. Sector's Contributions to Achieving the Sustainable Development Goals (SDGs)	56
5.2. We Know our Origin: Contribution to Economic Development	58
5.2.1. Responsible Sourcing and Sustainability Standards	59
5.3. Innovation to Maximize the Agribusiness	62
5.3.1. Creating Knowledge and Transferring Technology	62
5.3.2. Experimental Fields	64
5.4. Value of Creating a Responsible Product with the Planet: Contribution to Environmental Development	69
5.4.1. Water Resources Management and Protection	69
5.4.2. Zero deforestation and Commitment to Biodiversity	74
5.4.3. Preventing and Mitigating Environmental Pollution	79
5.4.4. Managing Emissions and Carbon Footprint	82
5.4.5. Efficient Land Use	86
5.4.6. Clean Energy and Biomass Use	88
5.5. The Importance of Doing Things Right: Contribution to Social Development	92
5.5.1. Managing Partnerships and Participation Spaces	93
5.4.2. Human Rights and Businesses	97
5.4.3. Decent Work and Workers' Rights, and Relations with Communities and Other Actors	99
5.4.4. Inclusive Businesses	101
5.4.5. Contribution to Socio-Economic Development	102
5.4.6. Gender Equality	103
Annexes	108
Annex 1. GRI index	109
Annex 2. Acronyms	112
References	113

List of Tables and Figures

1. The Palm Oil Sector and its Economic Performance	
Figure 1. Composition of the Colombian Palm Sector	17
Figure 2. Distribution of Producers in the Palm Sector	18
Figure 3. Composition of the Colombian Palm Oil Agribusiness – 2021	19
Table 1. CPO Production 2018-2021	21
Figure 4. Production per Palm Zone	21
Figure 5. Domestic and Export Sales 2021	22
Table 2. CPO Exports 2018-2021	22
Table 3. Destination of Colombian palm oil exports (in tons)	22
Figure 6. International price of palm oil 2018-2021	23
Figure 7. Production value of the palm oil agribusiness 2018-2021	24
Figure 8. Average income of palm growers	24
Table 4. Palm Oil Sector Portfolio 2018-2021	25
Figure 9. Palm Oil Sector Portfolio Balance 2018-2021	25
Figure 10. Investment in an Oil Palm Productive Project	26
Figure 11. Products of the Palm oil agribusiness in Colombia	27
2. Governance, Ethics and Transparency	
Figure 12. Sectorial and Organizational Corporate Governance Structure	29
Figure 13. Code of Ethics and Good Governance	32
Figure 14. Ethical Model of the Federation	34
Figure 15. Keys for Managing the Code of Ethics and Good Governance	34

Figure 16. Components of the integral management of corporate risks	35
Table 5. Sectorial risks	36
Figure 17. Stakeholders with a direct impact in the sustainability strategy	39
Figure 18. Participation of palm growers as a stakeholder	39

3. Our Vision of Sustainability: Roadmap for Transformation

Table 6. Vision of a unique and distinctive agribusiness	41
Figure 19. Sustainability strategy	46
Table 7. Principles of Colombian Sustainable Palm Oil	48
Figure 20. Sustainability index tool. Axes, principles, issues and practices	49
Figure 21. Results of the palm oil crops sustainability baseline survey	49
Figure 22. Results of mills sustainability index. North Zone pilot	50

4. Material Topics

Figure 23. Materiality	54
------------------------	----

5. Sector's Contributions to Sustainability

Table 8. SDGs and APSCO Principles	56
Table 9. Sector's Contributions to the SDGs	57
Figure 24. Economic Contribution of the Palm oil sector	58
Figure 25. Evolution of the production of certified sustainable palm oil	60
Figure 26. Share of palm oil production value in the agricultural GDP	61
Figure 27. Strategic Research and Outreach Lines	62
Figure 28. Map of Experimental Fields in Colombia	65
Table 10. Advances in the Management of Experimental Fields	66
Table 11. Challenges in managing experimental fields	66
Table 12. Contribution of the experimental fields to the sector's sustainability	67
Table 13. Number of hectares related to each field	68
Figure 29. Irrigation and Drainage Management Technologies	71

Figure 30. Irrigation Systems Implemented in the North Zone	72
Table 14. Measures Against Deforestation	76
Table 15. Pollution Prevention and Mitigation Actions	81
Table 16. Riskiest Aspects	83
Figure 31. Balance of GHG emissions in 28 mills of the oil palm sector in 2017	83
Figure 32. Reduction of GHG emissions and energy generation from biogas	89
Figure 33. Use of solid biomass through composting	90
Figure 34. Circular economy in the palm oil sector	90
Figure 35. Social benefits of oil palm	93
Figure 36. Red de Sostenibilidad Palmera	100
Figure 37. Women in the Colombian Palm Sector. Resilient Communities	104
Figure 38. Keys of the Network of Women Palm Growers	105

Presentation: What Makes us Unique

[GRI C102-10, C102-14, C102-15]*

The development of the agricultural industry plays a decisive role in the future of humanity. Here, palm oil production represents a sector with high potential to grow and diversify, especially in Latin America and Colombia.

The Colombian palm sector is known for developing and executing increasingly better practices in environmental and social aspects. However, over the past three years, it has consolidated an integrated vision of sustainable development that today allows us to assume a global commitment to these issues.

Being part of one of the 17 megadiverse countries in the world, and as leaders in the production of palm in the Americas, we have understood the impact of our activity on the planet and people. For this reason, we have been developing the strategic tools necessary to conceive and consolidate the sustainable growth of the palm oil sector.

These tools are presented in the first **Sustainability Report of the Colombian Palm Oil Sector 2018-2022**, which we share with you as an invitation to join us in leading this transformation that will allow us to make increasingly reliable decisions for productivity, the well-being of the communities, and the protection of the environment.

This has not been an easy journey. In general terms, in 2018, the palm sector production value contracted by 9%, affecting the liquidity and profitability of producers; in 2019, the international price of palm oil remained low, and climate variability caused a water defi-



Nicolás Pérez Marulanda
Fedepalma CEO

* Indicators under the Global Reporting Index (GRI) methodology. For more information. See Annex 1. GRI index.

cit in crops; in 2020, oil demand decreased due to the effects of the COVID-19 pandemic. Eventually, in 2021, there was an upturn in international prices, a situation that benefited the sector, and production exceeded 1.7 million tons of FBB, generating a production value of 7.7 billion pesos.

The economic reactivation posed important challenges for companies in this agribusiness. Despite these circumstances and motivated by the need to close the gaps in the environmental, social and economic dimensions, the sector continued to work towards the sustainable development of the agribusiness. In this context, the results of the First Large National Survey of Direct Employment in the Colombian Palm Sector were obtained, and the Colombian Sustainable Palm Oil Program was created in 2018. In 2019, the Sector Sustainability Strategy was established, and advances were made in the Zero Deforestation Agreement. In 2020, the Palm Solidarity Fund and the Network of

Women Palm Growers Network was created. Finally, in 2021, the implementation of the sustainability index for crops and mills began, and Colombia's sustainable palm oil protocols were launched and Corporación de Aceite de Palma Sostenible de Colombia was established. All these achievements reflect the efforts of the sector.

These events show that, in the face of the uncertainty associated with climate variability, social instability and the current economic crisis, we are making progress and not losing ground, confirming that this report will become a decisive instrument to position our product and the develop the sector.

Guided by our value promise, we have developed a sustainability strategy adapted to the sector's needs and challenges. Accordingly, we are aware of the importance of continuing to work cohesively with our stakeholders to project future scenarios for the Colombian palm oil agribusiness.

Note that:

- ▲ Colombia is a **megadiverse country** and the **leading palm oil producer** in the Americas.
- ▲ According to the Food and Agriculture Organization of the United Nations (FAO), **Colombia is one of seven countries capable of increasing food production** within the existing agricultural frontier (39.239 million hectares) **without deforestation.**
- ▲ Oil palm cultivation in Colombia **has not been a driver of deforestation.**¹
- ▲ The palm oil agribusiness **helps mitigate climate change.** Colombian palm biodiesel reduces greenhouse gas (GHG) emissions between 83% and 108% compared to fossil diesel.

1 Conclusion based on the 2011-2017 Baseline Study on Deforestation in Areas of Cultivation of African Oil Palm (*Elaeis guineensis*) and *E. oleifera* x *E. guineensis*. Retrieved from: https://www.minambiente.gov.co/images/BosquesBiodiversidad/ServiciosEcosistemicos/pdf/Acuerto_cero_deforestacion/L%C3%ADnea_base_deforestaci%C3%B3n_PPT_rev_dic2020.pdf

- ▲ The palm sector contributes to **rural development**. For example, in the Zomac (zones most affected by the armed conflict), the income of palm-growing municipalities is 30% higher than that of municipalities without palm crops.
- ▲ The **formal employment rate of the Colombian palm oil sector is 82%**, with more than 196,000 total jobs.
- ▲ The palm oil sector excels for its **high level of organization**, facilitating the exploitation of economies of scale in the supply of consumables, production and processing.

The organization of the palm oil agribusiness in Colombia has been a key strength in translating words into actions. Based on this characteristic, we will continue to develop future **reports with our stakeholders**, aiming to learn about their needs and aspirations so that we can be increasingly assertive and effective in achieving our common goals.

We have the foundations to build sectoral sustainability. Let Colombia and the world know about the efforts of thousands of palm growers who seek to produce daily a unique and differentiated oil.

We hope you find this report useful and enjoyable.

The Palm Oil Sector: A Driver of Growth

Over the years, the Colombian palm oil sector has undoubtedly made significant progress in consolidating a productive and competitive agribusiness that respects the environment and seeks positive impacts for the workforce and the communities in the areas of influence. However, biophysical and socioeconomic factors are constantly evolving in our environment, including climate change, government regulations and policy adjustments, and increasingly complex consumer demands. This means that we continue to face great challenges to advance along the road to economic, environmental and social sustainability, where Cenipalma will continue to develop and adapt new knowledge and technologies and actively promote their adoption.

A brief consideration of the situation in terms of sanity and productivity –essential to the sector’s competitiveness and sustainability– shows that, in recent years, the incidence of bud rot (BR) has intensified in the North Area of the department of Magdalena in recent years while production renovation has consolidated in Tumaco and Puerto Wilches with BR-resistant cultivars following major crises over the last decade. In this regard, we have made significant progress in developing knowledge, technologies and disease management. Management plans are better adjusted to the different environments and scenarios for bud rot. Cenipalma has developed a complete technological suite to manage OxG hybrid cultivars considering multiple aspects of the production process in cases of productive renewal.

On the other hand, lethal wilt (LW), the second most limiting disease that can risk our plantations, is expanding towards the south of the East Area. Still, annual cases have stabilized



Alexandre Patrick Cooman
Cenipalma General Manager

and even decreased. This results from a joint effort between clusters and plantations, under the coordination and management of Cenipalma. I should point out that the causative agent of LW was discovered recently, which will surely allow us to fine-tune our detection and management plans going forward.

Regarding sustainability, approximately 20% of the world's Crude Palm Oil has been produced and certified under a voluntary sustainability scheme. Remarkably, the figures for certified oil show a positive trend in Colombia, exceeding 26% of total production in 2021, which is why the country is positioning itself as a regional and world leader in the production of Sustainable Palm Oil.

To consolidate the production of sustainable palm oil, the Colombian palm sector has developed the "sustainability tool" to measure the economic, environmental and social per-

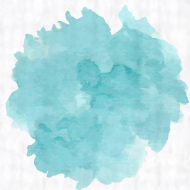
formance, and identify opportunities for improvement in the "step-by-step" route that Cenipalma proposed to direct efforts and design strategies tailored to the needs of producers. The results of this strategy show the adoption of practices and technologies developed from research, validation and technology transfer and have contributed to the production of sustainable palm oil.

Despite the efforts and positive results achieved, we must redouble our efforts and resources to increase the coverage and implementation of best sustainability practices. Therefore, I call upon the different actors in the sector to support the continuity of our commitments to improve the competitiveness of our agribusiness and, therefore, the growth of the country. The current challenge is to maintain what we have achieved in terms of the sustainability criteria that today's world demands.

Our Value Promise

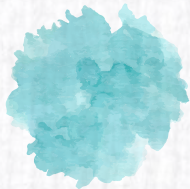
A SUSTAINABLE AND RELIABLE SOURCE THAT CREATES GREATER VALUE FOR PALM GROWERS AND POSITIVELY IMPACTS THE ENVIRONMENT AND PALM-GROWING COMMUNITIES.

Strategic Challenges of the Palm Oil Sector



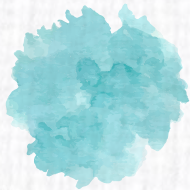
Improve the phytosanitary status

Manage technological solutions, tools, models and policies that guarantee the adoption of comprehensive pest and disease control management by all oil palm growers to prevent and mitigate phytosanitary risks.



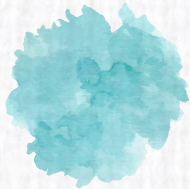
Increase productivity and optimize production costs

Close productivity gaps by striving to achieve the highest standards through technologies, processes, products and models that all growers and processors can adopt, providing efficient and effective technologies for the sustainable development of the agribusiness.



Optimize palm returns

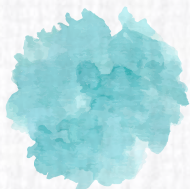
Positively impact the returns and sustainability of the Colombian palm business, promoting the best commercialization conditions and income for producers; defining and implementing a strategy to position and promote the consumption of palm oil and its derivatives; disseminating its nutritional and functional benefits, and making new businesses and added value initiatives.



Consolidate sustainable palm growing

Guide the development of sustainable palm cultivation through a sustainability model that includes the economic, environmental and social dimensions and consolidates, defends and improves the business.

Furthermore, guide the sector, the Government and other stakeholders to make decisions based on timely information to guarantee business viability and continuity.



Strengthen the institutional framework for the palm oil sector

Reinforce the institutional capacities to recognize and seize opportunities in the sector.

Furthermore, through effective management, provide solutions to the needs, interests and initiatives of palm growers vis-à-vis State entities and the main national and international stakeholders.



4th largest
producer of palm
oil in the world

First producer
in America



275,000
hectares with
best practices
adopted



13
Corporate
foundations



26.3%
Production of
CPO certified
under
international
sustainability
standards
(459 thousand t)



596 thousands
of oil palm hectares

Value of
production in 2021



USD 1.98
Billions



16%
of agricultural
GDP



196,816
Direct and indirect
jobs created in 2021



244,000
families
directly
benefited by
the sector





1. The Palm Oil Sector and its Economic Performance

[GRI C102-1, C102-3, C102-4, C102-6, C102-7, C102-9]

Nuevo Tibú.
Author: David Fayad.
National
Environmental and
Social Photography
Contest in Palm Areas
2014.

Palm growing is one of the most promising agricultural activities as a driver for national development through agriculture

The Colombian palm sector is mainly formed by:

Palm Growers or Associated Members

Small, medium and large producers, as well as palm oil mills, who operate at individual, business or associative level.

Sectorial Organization

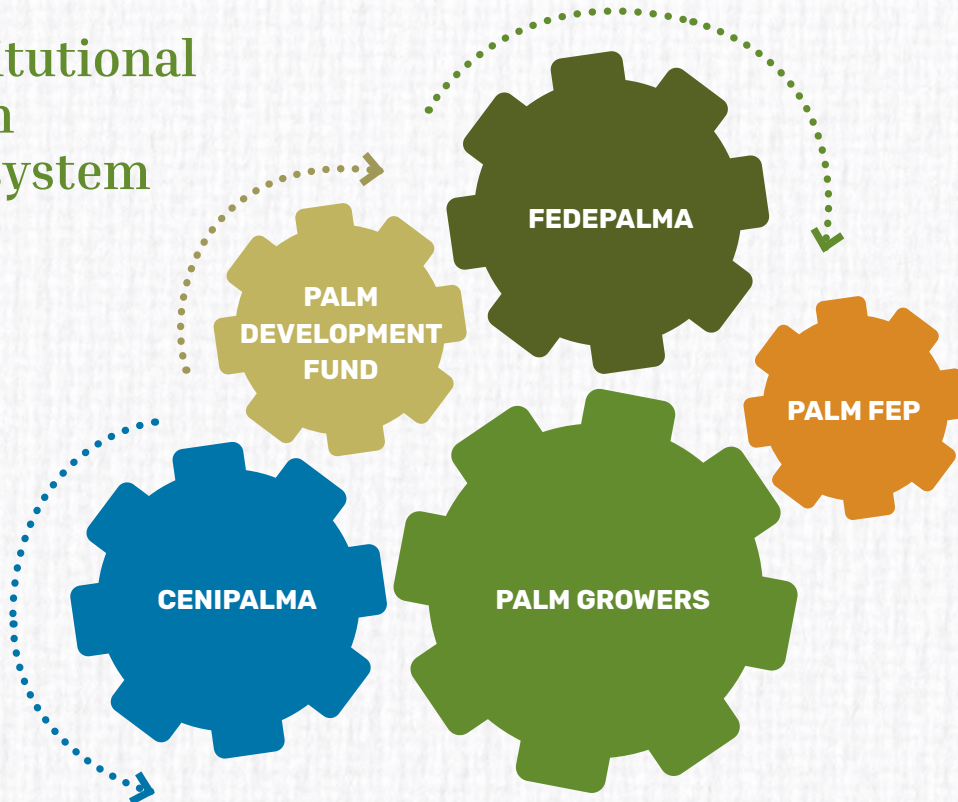
Led by the National Congress of Oil Palm Growers and comprised of the Palm Parafiscal Funds Steering Committee, including the Palm Development Fund (FFP) and the Palm Kernel, Palm Oil and Fractions Price Stabilization Fund (Palm FEP).

Sectorial Organization of the Federation

Comprised of Fedepalma General Assembly and Cenipalma General Assembly. The union of these two organizations is known as the Federation.

Federación Nacional de Cultivadores de Palma de Aceite –Fedepalma– represents the Colombian palm oil agribusiness. Fedepalma is a non-profit entity established in 1962 as the sector’s association. Its mission is to support palm growers in the defense of their interests and achieve the competitiveness of this oil agribusiness that transforms the qua-

Institutional Palm Ecosystem



WORKING TOGETHER

For a more competitive and sustainable palm growing

Figure 1. **Composition of the Colombian Palm Sector**

Source: Fedepalma

lity of life of communities by promoting progress and well-being.

The institutional ecosystem also includes Centro de Investigación en Palma de Aceite –**Cenipalma**– which develops, adapts, validates and transfers technology related to oil palm cultivation, processing and consumption.

Additionally, the **Palm Development Fund (FFP)** is a special account to collect and manage the resources from the **palm development fee**. This fund was created by Law 138 of 1994, and the national Government appointed Fedepalma as the fund’s manager. This fee is used to finance programs and projects that benefit the

agribusiness and is equal to 1.5% of the price of each kilogram of palm kernel and crude palm oil extracted. The Ministry of Agriculture and Rural Development sets the fee for each semester

The ecosystem also includes the Palm Kernel, **Palm Oil and Fractions Price Stabilization Fund (Palm FEP)**, which is a parafiscal account. To stabilize the income of domestic producers amid very volatile prices, we apply stabilization operations as **compensation** when the domestic price of the market or group of markets is lower than the reference price; or as **assignments** when the international price of the market or group of markets is higher than the reference price.

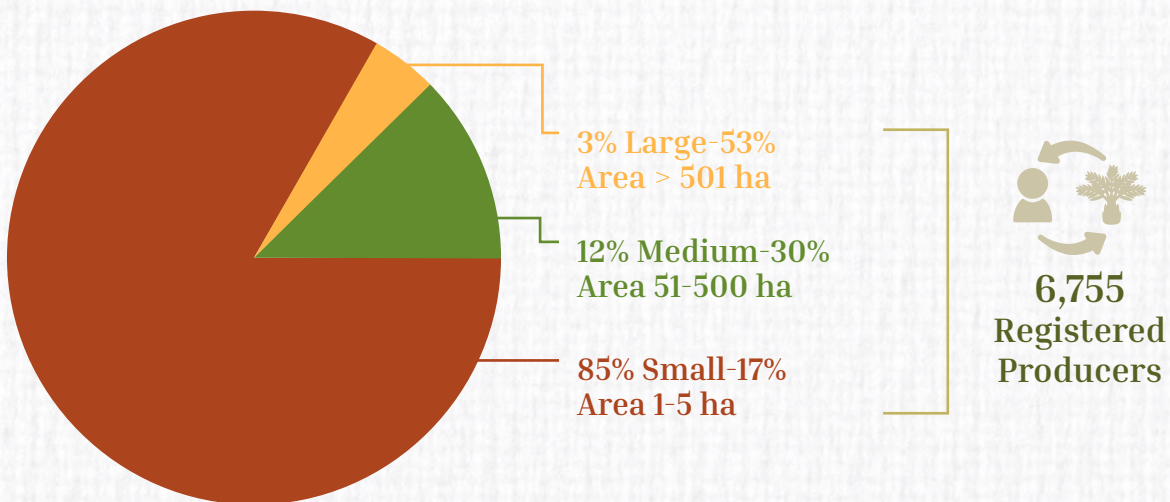


Figure 2. **Distribution of Producers in the Palm Sector**

Source: SISPA and RNP. Average size per ha: Small 12 ha; Medium 151 ha; Large 1,262 ha. Source: RNP




21
Departments



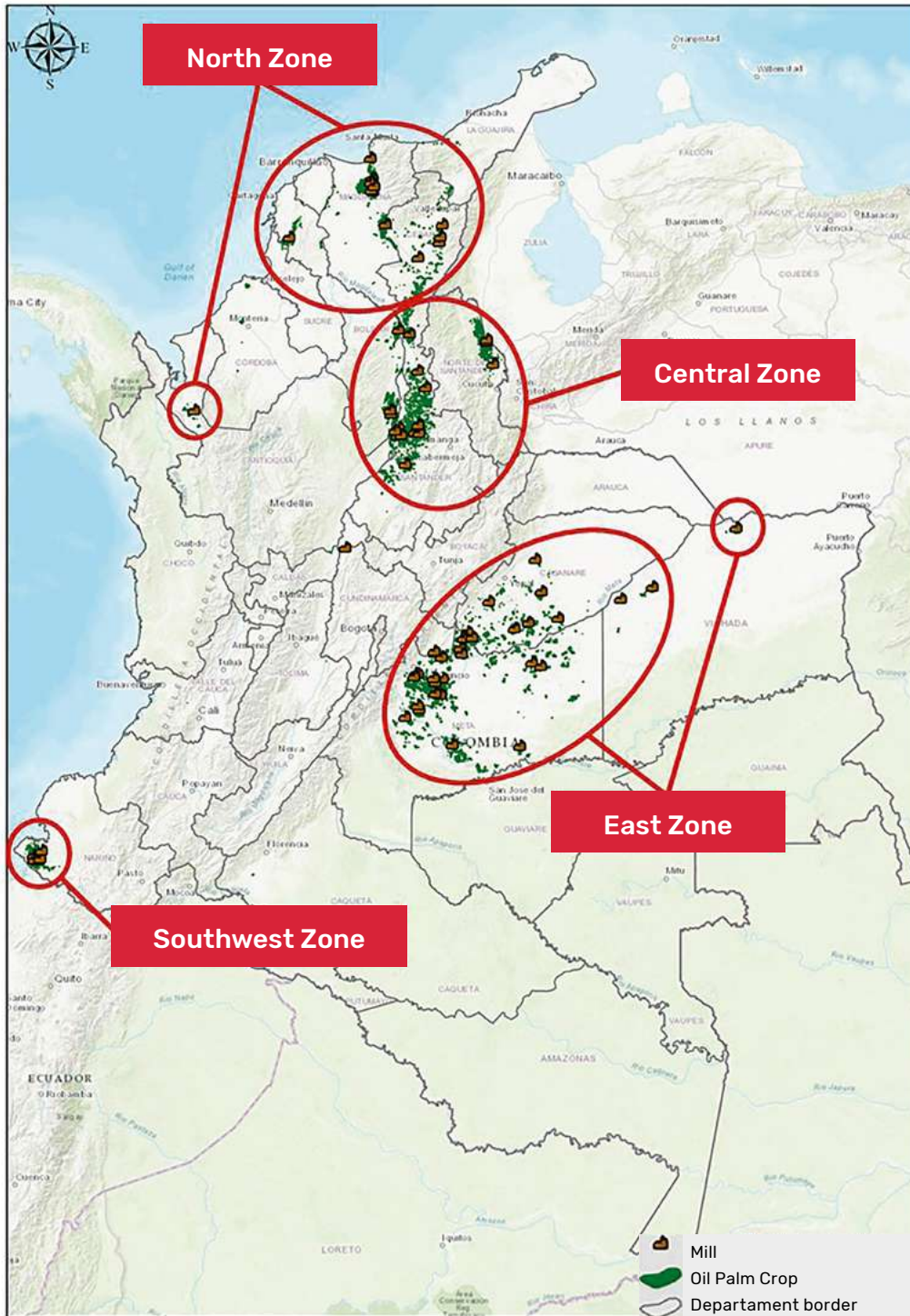
161
Municipalities



595,722
Oil palm crops
in Colombia



69
Mills




12
Biodiesel
plants



+ 6.800
Producers

85 %
Small scale
growers



121
Strategic
productive
partnerships

Figure 3. **Composition of the Colombian palm oil agribusiness - 2021**

Source: Fedepalma

1.1. Economic Performance

The Colombian palm business has been established as a leading sector within national agriculture, both because of the dynamics and versatility of its productive activity and because of its growing commitment to sustainability. Over the last ten years, **the average annual growth rate of its production has been 8.8%**, making it possible to see it as an activity with high potential to create economic prosperity, in harmony with the environment and with social responsibility.

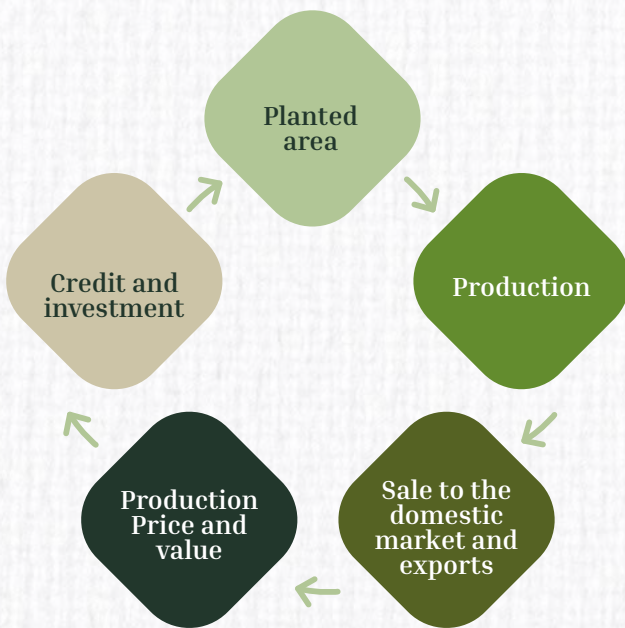
Oil Palm Planted Area

For the 2018-2021 period, the planted area grew by 8.8%, and, according to the Palm Sector Statistical Information System (SISPA), in 2021, there were **595,722 hectares** planted with oil palm, i.e., **2.7% of the country's potential area suited for agriculture**. On average, 19% of this area was in the development stage, while 81% was in the production stage.

Palm Oil Production

In 2021, the Colombian economy experienced the highest GDP growth in its history, driven by the reactivation of the productive sectors. According to DANE, in 2021, the Colombian Gross Domestic Product grew by 10.6%, i.e., 17.4 percentage points higher than the growth recorded for 2020 (-7.0%). This upturn in the national economy was also reflected in the sector's economic indicators.

During the 2018-2021 period, Palm oil production **grew by 7.1% on average**. This growth was mainly driven by good weather conditions and adequate crop management.



«One hectare planted with oil palm produces between 6 and 10 times more oil than other oilseeds (rapeseed, sunflower, soybean). This makes it the MOST PRODUCTIVE ON THE PLANET»

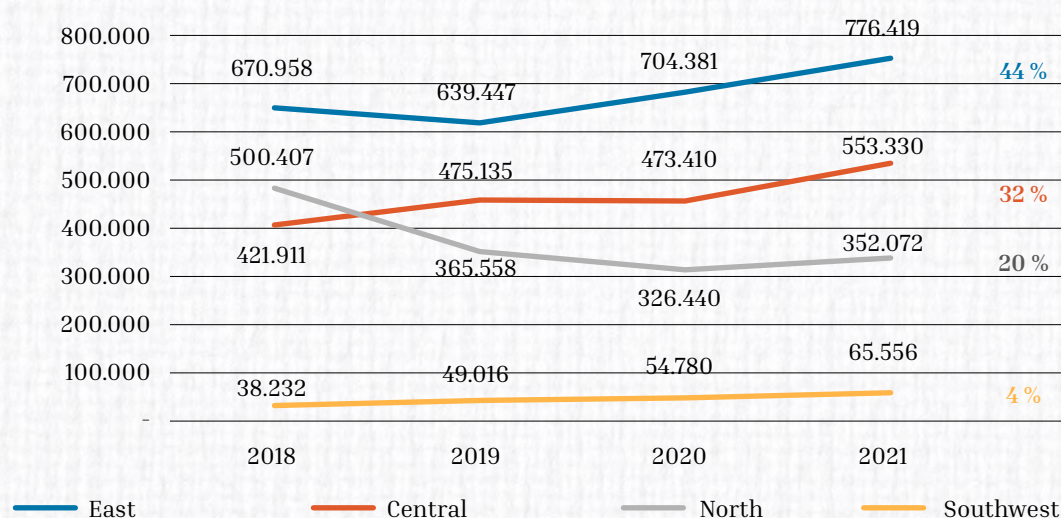
Source: Fedepalma, SISPA, FFP, DANE, DIAN.

2 Oil palm is a perennial crop with a production cycle of 25 to 30 years and is productive from the 3rd and 4th years.

Table 1. **CPO Production 2018-2021**

Source: Fedepalma, SISPA

Year	Crude palm oil (CPO) production	Share of national agricultural GDP ³
2018	1,631,506 t	8 %
2019	1,528,738 t	7.1 %
2020	1,559,011 t	9.1 %
2021	1,747,377 t	15.6 %

Figure 4. **Production per Palm Zone**

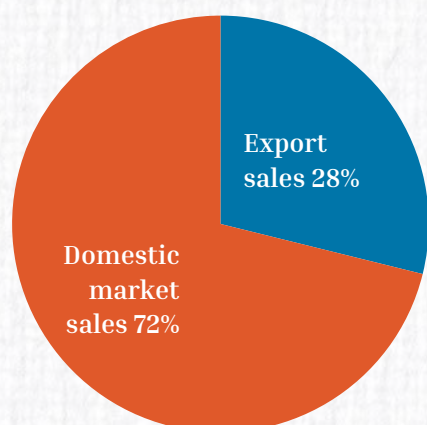
Source: Fedepalma (2021b), SISPA

Sale to the Domestic Market and Exports

The palm oil agribusiness has become a representative sector of the national economy because the production of crude palm oil (CPO) successfully caters to **traditional markets**, including the edible oils and fats, soap, and food concentrates segments, among others. It is worth mentioning that the domestic or national market is composed of both the traditional and the biodiesel markets.

Sales to the domestic market progressively increased over the 2018-2021 period, closing at **1,228,908 tons**, i.e., on average, 71% of the production was distributed domestically during the last year, and 53% was destined for traditional markets, i.e., about 650,000 tons of CPO. On the other hand, the average production for biodiesel was 45%, i.e., about 559,000 tons of CPO for the same period.

³ The purpose of this exercise is to show, based on the data provided by DANE, SISPA and Fedepalma's estimates, the national share of the production value of the palm sector concerning the agricultural sector.



In 2021, 1,28,908 tons of Colombian palm oil were sold to the domestic

Figure 5. **Domestic and Export Sales 2021**

Source: Fedepalma (2021)

Similarly, the export potential of the national palm sector has gained momentum over the last ten years. During the 2018-2021 period, **an average of 45% of production was exported**, meaning that international markets were supplied with an average of more than 700,000 tons of domestic crude palm oil per year.











Table 2. **CPO Exports 2018-2021**

Source: Fedepalma (2022), SISPA

<i>Year</i>	<i>Tons</i>
2018	857,115
2019	771,939
2020	750,809
2021	528,103

Table 3. **Destination of Colombian palm oil exports (in tons)**

Source: Fedepalma (2021a), SISPA

	<i>Country</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>
	Brazil	141,473	74,539	125,167	106,456
	Chile	22,778	19,905	10,308	9,520
	Ecuador	15,577	53,953	35,497	37,375
	Spain	193,371	136,577	123,928	62,879
	United States	21,881	13,846	11,507	13,739
	The Netherlands	306,763	252,666	208,291	73,590
	Italy	15,506	69,418	80,874	56,139
	Mexico	76,312	102,845	93,513	55,916
	Dominican Republic	12,945	10,933	20,891	31,412
	Venezuela	11,303	19,668	42,486	14,355

Price and Production Value

The international prices of CPO have shown significant oscillations, posing opportunities and challenges for the national palm oil sector. However, during 2018 and 2019, vegetable oil prices slowed sharply due to an increase in main oils and fats inventories and the trade war between China and the United States, causing lower demand for the product worldwide.

For palm oil agribusiness, the price in Bursa Malaysia (position 3) reached an all-time low

at USD 469 per ton in November 2018. However, for 2020 and 2021 the international prices showed an upsurge, up to around **USD 900 per ton**, a price that had not been recorded in the previous eight years.

The average production value for the 2018-2021 period was COP 4.6 billion. However, it should be noted that **this value grew by 85%** in 2021 versus 2020, mainly due to factors related to the exchange rate behavior.

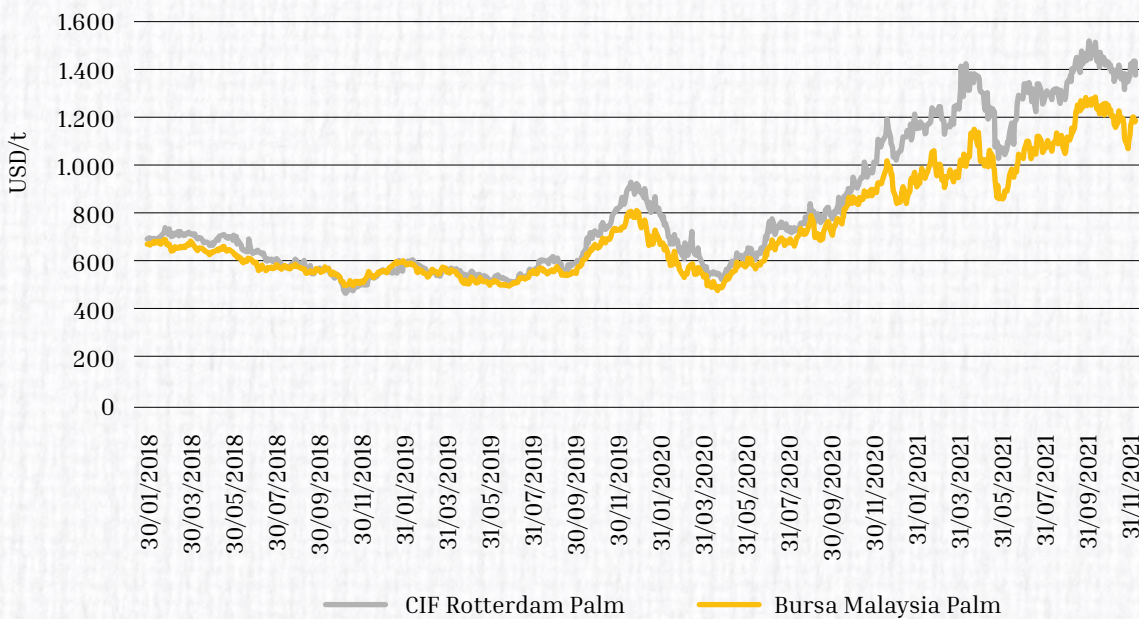


Figure 6. **International price of palm oil 2018-2021**

Source: Reuters, Fedepalma (2022)

Colombia is a leader in the production of palm oil in the Americas. It is the 4th producer in the world, with 2.1% of total global production

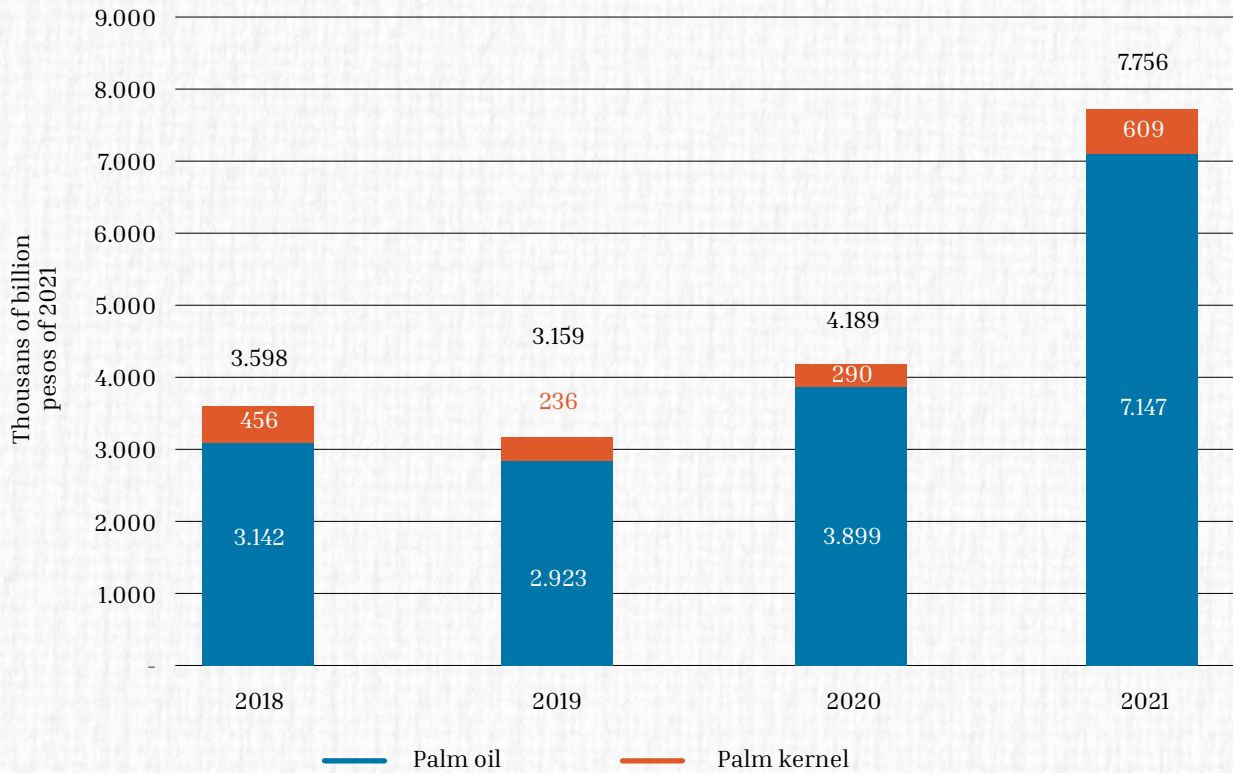


Figure 7. **Production value of the palm oil agribusiness 2018-2021**

Source: Fedepalma, SISPA

On the other hand, **the average income of palm growers during the 2018-2021 period was COP 2,581,676**, which is a positive variation of 132%, mainly due to the conditions affecting international prices, such as

exchange rates and tariffs, and internal conditions, such as adjustment to the Palm FEP methodology and the unification of the price signal for the biodiesel and food markets.

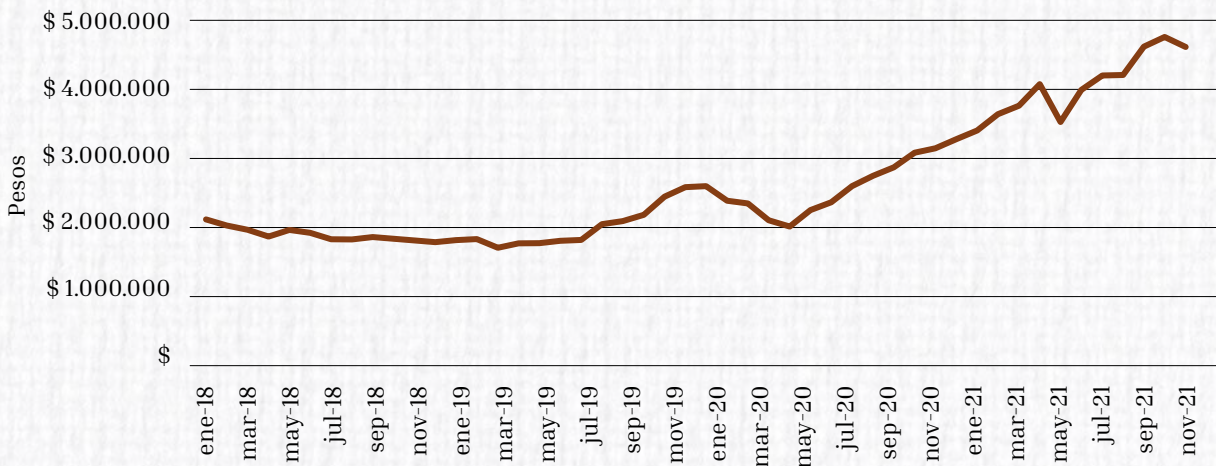


Figure 8. **Average income of palm growers**

Source: Fedepalma, Palm FEP

Sectorial Credit

The financing priorities for the palm agribusiness are currently aimed at access to small and medium producers, certifications and adoption of best sustainability practices, and credits corresponding to the business life cycle (credit terms of at least 15 years and a 5-year grace period).

Table 4. **Palm oil sector Portfolio 2018-2021**
Source: Fedepalma based on historical information available from Finagro

Year	Palm oil sector Portfolio 2018-2021
2018	COP 2 billion
2019	COP 1.8 billion
2020	COP 1.8 billion
2021	COP 1.9 billion

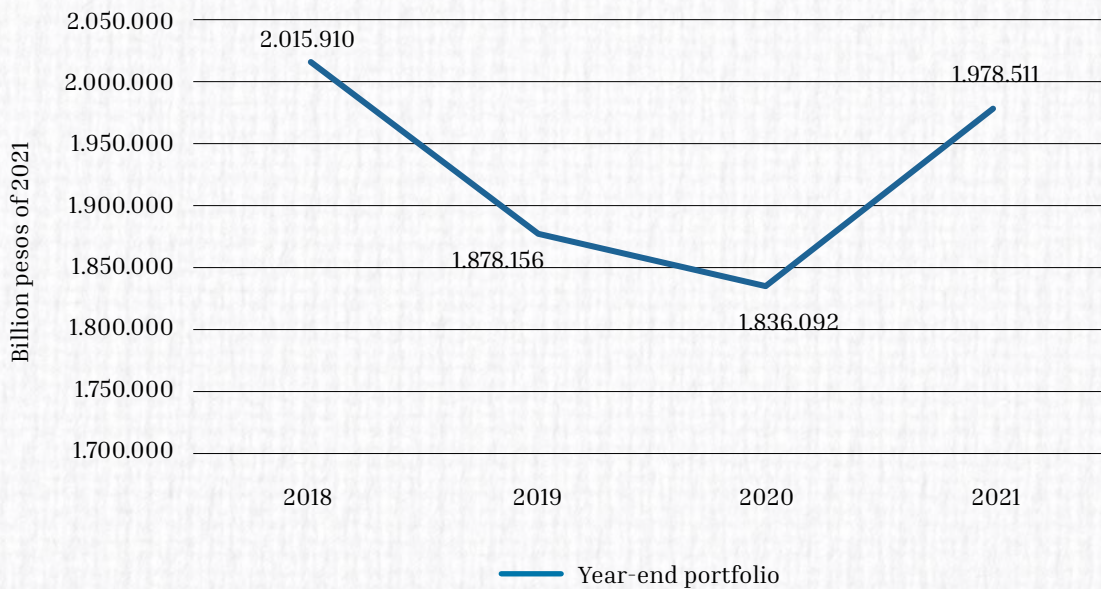


Figure 9. **Palm oil sector Portfolio Balance 2018-2021**
Source: Fedepalma

The items with the largest share of the total resources financed for each year were:

- ▲ **2018:** Commercialization and (CT) (77%) and sustaining (21%).

- ▲ **2019:** Commercialization and (CT) (88 %) and sustaining (8%).

- ▲ **2020:** Commercialization and (CT) (65%) and support services (CT) (25%).

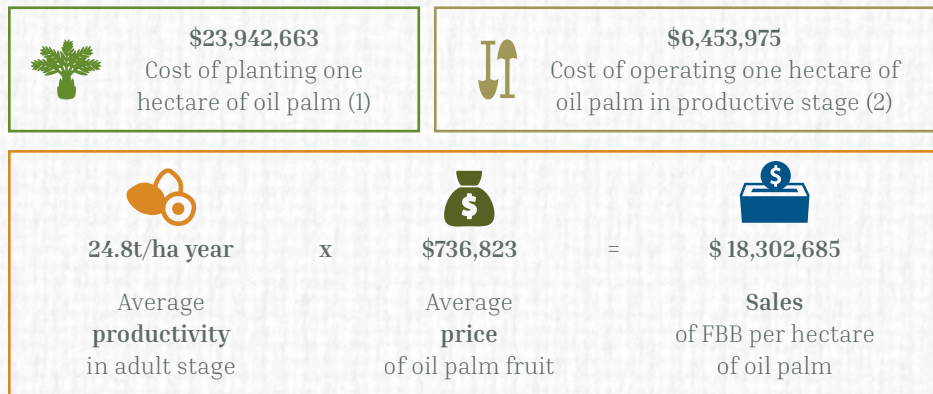
- ▲ **2021:** Commercialization and (CT) (36 %) and support services (CT) (55%).

CT: Working capital portfolio.

To continue supporting the sector, one of **the challenges** regarding sectorial credit is **to increase access to credit and financing** to increase productivity and consolidate the sustainability of palm growing by relaxing guarantees and considering mechanisms associated to commercialization contracts. This, given that this agribusiness is considered one of the most important **to promote the agricultural and livestock exports** of Colombia, and is one of the key sectors for **the creation of formal employment and legal develop-**

ment in the rural and conflict-affected areas of the country.

It is worth mentioning that, regarding the credit situation in Colombia, the 2020-2021 report by Banco de la República indicates that banks, financing companies and cooperatives consider the agricultural sector as the one that suffered the most credit restrictions in that period. However, investment in palm oil continues to be profitable.



(1) Establishment and maintenance in unproductive stage.
 (2) Average maintenance, harvesting and transportation costs in productive stage. Source.

Figure 10. **Investment in an Oil Palm Productive Project**
 Source: Fedepalma (2020)

1.2. Products of the Sector

The multiple products derived from oil palm are obtained through an agro-industrial process in which oil palm fruits go through different stages: collection, fruit extraction, sterilization, digestion and pressing, clarification, palm oil recovery and kernel recovery. The latter undergoes a pressing and palm kernel oil extraction process. At the end of the process, both the palm oil and the palm kernel oil are stored for subsequent shipping.

The palm kernel cake is a byproduct of palm kernel oil extraction. It has a significant nutritional value and is used in the industry to prepare concentrates for animal feed.

The versatility of the palm oil allows multiple uses in the food, oleochemical, renewable energy and biomass-derived products industries, as shown in Figure 11.



Figure 11. **The palm oil sector and its products**

Source: Fedepalma (2020)

As for palm biodiesel, its production and use in recent years in the country have allowed it to grow in the local market. On average, over 450,000 tons of crude palm oil were destined for this important segment every year during the 2018-2021 period.

In Colombia, **gasoline has a 10% mixture of ethanol (B10) and diesel has 12% of bio-diesel (B12)**. Therefore, the market for this biofuel and its benefits are highly important both for the palm sector and the development of the country in the energy, economic, environmental and social spheres.

The palm sector has faced major changes in its economic performance, resulting from complex social, economic and environmental contexts. However, the sector has been able to reaffirm that, despite the circumstances, it remains highly competitive globally and relevant for developing the areas in which it operates.

Of course, we still face countless challenges that we seek to turn into opportunities so that they translate into value for all our stakeholders. These include:

- ▲ Develop research to reduce the loss of fruit due to diseases and pests.
- ▲ Improve the traceability process to ensure that Colombian palm oil is produced following sustainability practices.
- ▲ Increase the value of the local market to promote the reduction of palm oil imports in the country.
- ▲ Implement financing solutions that address the agribusiness needs to increase the capacities of crops and mills regardless of their size.



2. Governance, Ethics and Transparency

[GRI C102-16, C102-18; APSCO 10]

Sustainable Reflection
Author: Javier Gámez
Rodríguez.
National
Environmental and
Social Photography
Contest in Palm Areas
2019.

Our ethical principles are respect, honesty and transparency, and our core values are responsibility, loyalty, dedication and solidarity

2.1. Governance Structure

Governance is key **to ensuring the sustainability** of the palm oil sector, as it implies a **transversal behavior model** that influences its organizations’ strategic and operational direction. In this sense, Fedepalma has worked to document and organize its pillars to esta-

lish the voluntary self-regulation provisions for those in charge of the Federation’s governance and the expected behavior of its members. These are aimed at ensuring efficient, comprehensive, transparent and sustainable management.

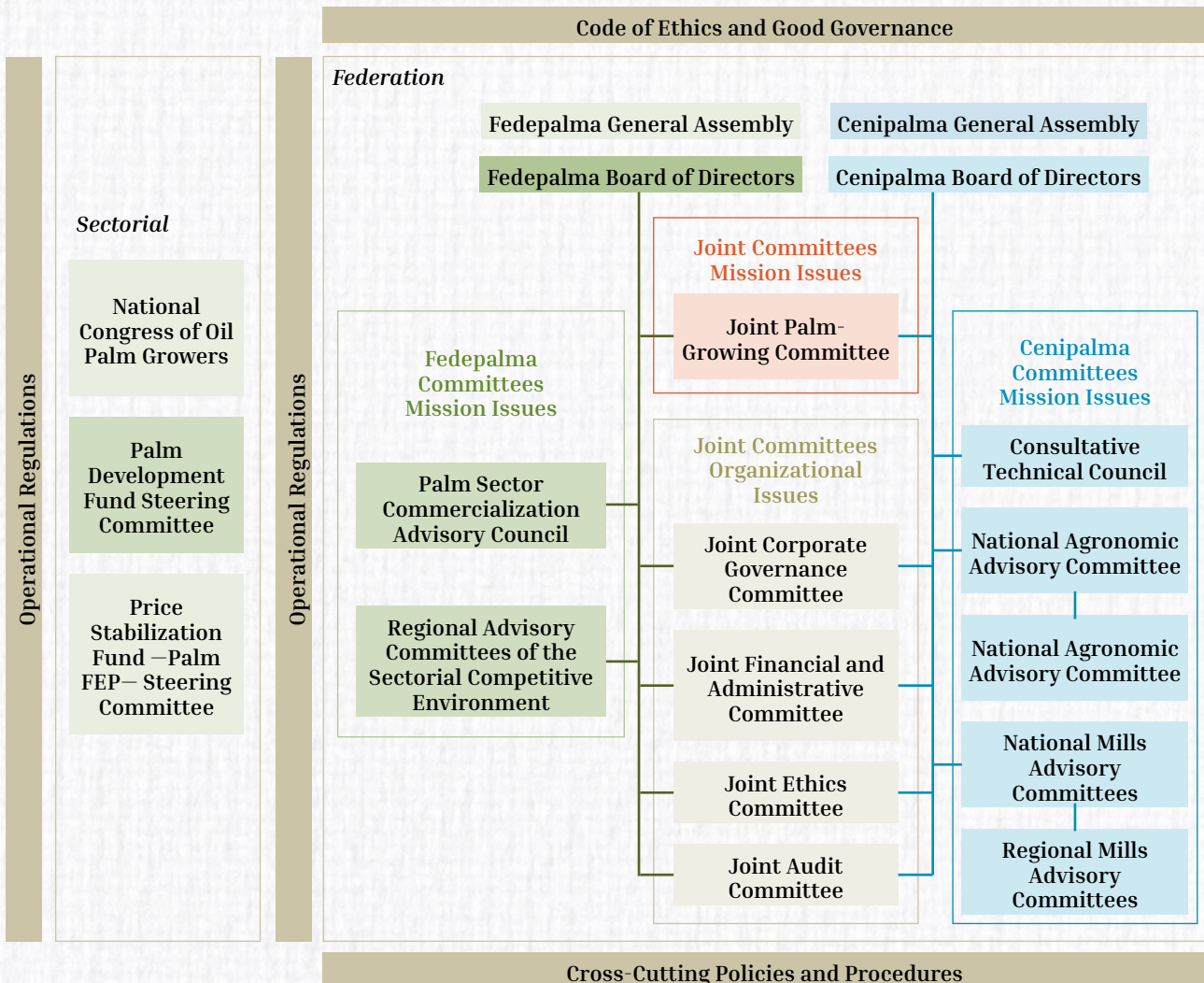


Figure 12. **Sectorial and Organizational Corporate Governance Structure**
Source: Fedepalma

Sectorial

National Congress of Oil Palm Growers

The highest sectorial governance body. It is responsible for the Palm Development Fund (FFP) and Price Stabilization Fund (FEP) committees. All registered palm growers are involved in this Congress. Its duties include:

1. Study all issues that affect palm growers and make the appropriate decisions or make recommendations as it deems appropriate.
2. Define the guidelines of programs and projects to be included in the investment and expenditure plan of the Palm Parafiscal Funds.
3. Elect the representatives of the palm growers registered in the Palm Parafiscal Funds Steering Committees per the legal regulations on the matter.

Palm Development Fund Steering Committee (FFP)

Sectorial governance body responsible for ensuring the fund's adequate and efficient management. It is comprised of two representatives of the National Government and four representatives of the registered oil palm growers. The duties of the FFP Steering Committee include:

- ▲ Approving the annual budget of income and expenditures of the funds submitted by Fedepalma with the prior approval of the Ministry of Agriculture and Rural Development.
- ▲ Approve the investments that Fedepalma and other association entities must make to provide services to palm growers.
- ▲ Ensuring the correct and efficient management of the funds by Fedepalma and other association entities at the service of palm growers.

Price Stabilization Fund Steering Committee (Palm FEP)

This body operates as a special account attached to the Palm Development Fund. The Palm FEP was created to provide a remunerative income to producers, regulate national production, and increase exports through stabilization mechanisms based on compensation, assignment and coverage operations. The duties of this committee were established in Decree 2354 of 1996 and include:

- ▲ Determining the fund's policies and guidelines by which the administrative entity may issue the administrative acts and measures and sign the contracts or special agreements necessary for full compliance with the objectives set for the Fund.
- ▲ Establishing the methodology to calculate the reference price based on the most representative price on the international market for palm kernel oil, palm oil or its fractions.
- ▲ Establishing the reference price or reference price range for the products subject to stabilization operations; the relevant source quotation for the international market price and the percentage of difference between both prices to be transferred to the Fund or compensated to producers, sellers or exporters, in the latter case, subject to the availability of the Fund's resources.
- ▲ Establish the price stabilization programs to be implemented in the different markets.

Federación

Comprised of Fedepalma and Cenipalma, two organizations with independent legal status that operate in accordance with the guidelines provided at the National Congress of Oil Palm

Growers. **Fedepalma** works to represent, promote and defend the sector, while **Cenipalma** does so to develop science, technology and innovation in the sector.

Fedepalma General Assembly

Fedepalma highest governance body. It is comprised of its active members, as provided in its bylaws.

Fedepalma Board of Directors

It is comprised of 18 members affiliated to Fedepalma, as elected by the General Assembly. Each palm zone has a representative on the Board of Directors, elected by the regional constituency; the national constituency elects the remaining members.

Cenipalma General Assembly

Highest governance body of Centro de Investigación en Palma de Aceite –Cenipalma–.

Cenipalma Board of Directors

It is comprised of thirteen members, elected as follows:

1. Eight main members, four representing each of the country's four palm zones, elected by the General Assembly. They must be natural persons or representatives of legal persons, palm growers, and active members of Cenipalma.
2. Two natural persons with an outstanding career in research and outreach, elected by Cenipalma Board of Directors, prior presentation of the candidates to Fedepalma Board of Directors for their approval.
3. Fedepalma CEO.
4. Two natural persons with an outstanding career and extensive experience as independent entrepreneurs, without connections or interests in the palm oil agribusiness, appointed by Fedepalma Board of Directors.

Board of Directors Advisory Committees

The Boards of Directors have formed Advisory Committees to act as review and advisory bodies on specific matters. They have the capacity to present proposals and, eventually, exercise certain duties by delegation.

The Advisory Committees have been classified into those that deal with professional matters and those that have been called joint committees because they address organizational issues that require the strategic vision of both Boards of Directors.

Joint Committees on Organizational Issues

Responsible for addressing the Federation's purely operational issues. They are formed by members of Fedepalma and Cenipalma's Board of Directors.

Based on the need to strengthen governance and transparency at the association, and to reflect it in sectorial management, we have been working on strengthening the governance structure and the self-regulation guidelines.

2.2. Code of Ethics and Good Governance

The association's management recognizes the importance of acting with transparency, integrity and sustainability, to:

Ensure the proper management of relations between palm growers, the Boards of Directors and their Advisory Committees, Senior Management and its collaborators, and other stakeholders.

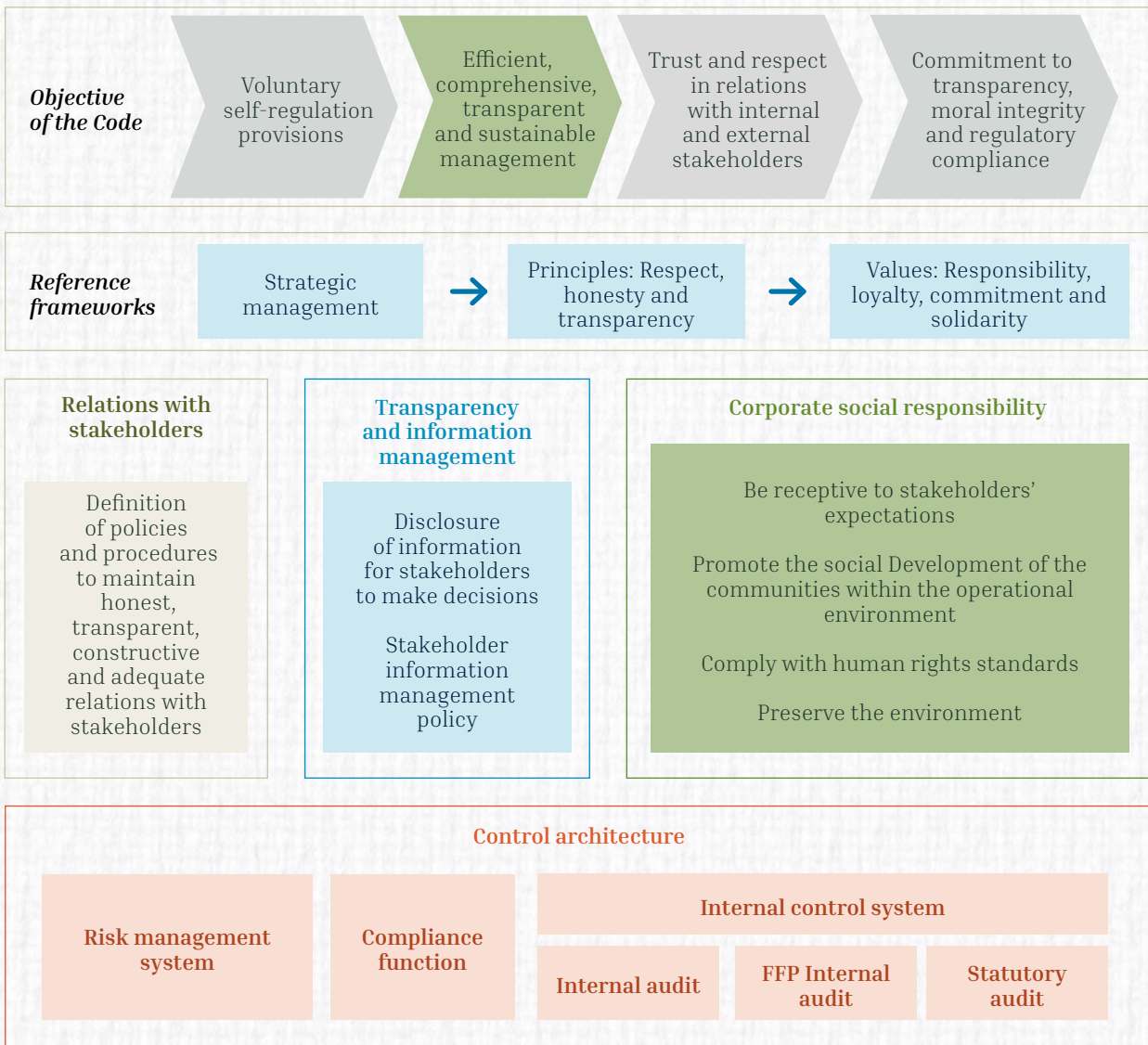


Figure 13. **Code of Ethics and Good Governance**
Source: Fedepalma

Living the organizational principles and values has become an essential factor in the growth and success of the Federation and its organizations

Build trust bonds based on honest, transparent, constructive and adequate relations.

Determine the guidelines so that decisions are made considering the good management of the information and resources available.

Build and maintain the benefits obtained for all stakeholders.

Under these principles, the Code of Ethics and Good Governance seeks to ensure efficient, comprehensive, transparent and sustainable management, considering the rules of conduct, elements, rules, mechanisms, instruments and commitments that the direction, administration and management bodies must adopt to build confidence in internal and external stakeholders.

Likewise, this Code complies with the Colombian Regulations. Furthermore, it adopts best practices, such as the sustainable development principles and criteria, and those established by the United Nations Global Compact and other initiatives in the field of fundamental values in human rights, labor practices and standards, respect for the environment, and the fight against corruption.

Take a look at the Code of Ethics and Good Governance

2.2.1. Good Governance

Regarding good governance, the Federation's organizations should define and develop their higher purpose and value offer according to their nature and corporate purpose, based on the common sectorial objectives. Likewise, the actions of these organizations can affect their reputation and the fulfillment of their objective; therefore, each organization is responsible for ensuring their development according

to the objectives established, exercising their autonomy and respecting and leveraging mutual interests or those of other organizations, based on the following organizational principles and values.

Organizational Principles

Respect: Refers to recognizing the rights of others and considering the difference in others.

Honesty and transparency: The virtue of sincerity is related to candor and acting frankly, openly and ethically to face situations.

Organizational Values

Responsibility: Refers to the exemplary, the virtue of responding, recognizing and facing situations with accountability for one's actions when appropriate.

Loyalty and commitment: Refer to taking ownership, living the organization from the inside and being faithful to its principles, passion and determination required to act in favor of its growth and development.

Solidarity: Refers to social awareness and sensitivity and the willingness to collaborate and improve the situation of others.

2.1.2. Ethics and Conduct [GRI C102-16]

Fedepalma seeks to guarantee the rights of each of our stakeholders; therefore, we ensure their respect, with integrity and transparency, high ethical and moral standards and following the provisions of the Code of Ethics and Good Governance, the ethical principles, the association and technical commitments, and the legal provisions in the exercise of palm-growing activities.

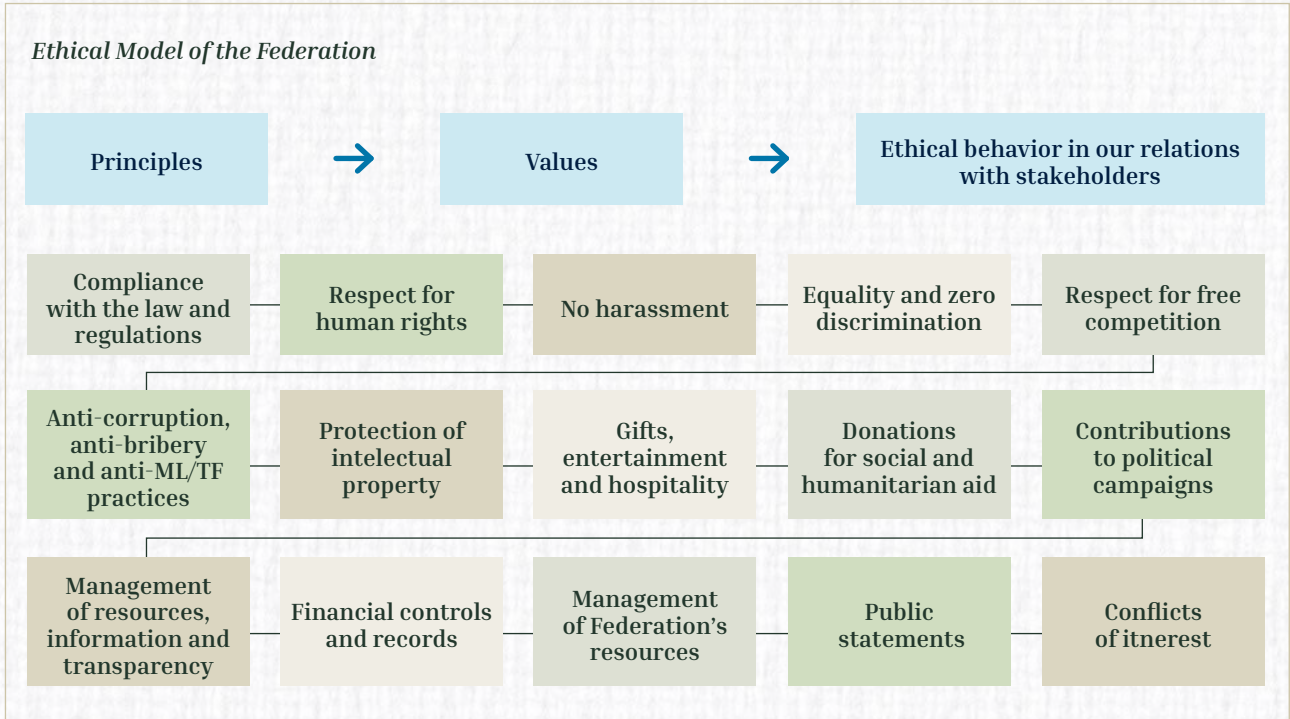


Figure 14. **Ethical Model of the Federation**
Source: Fedepalma

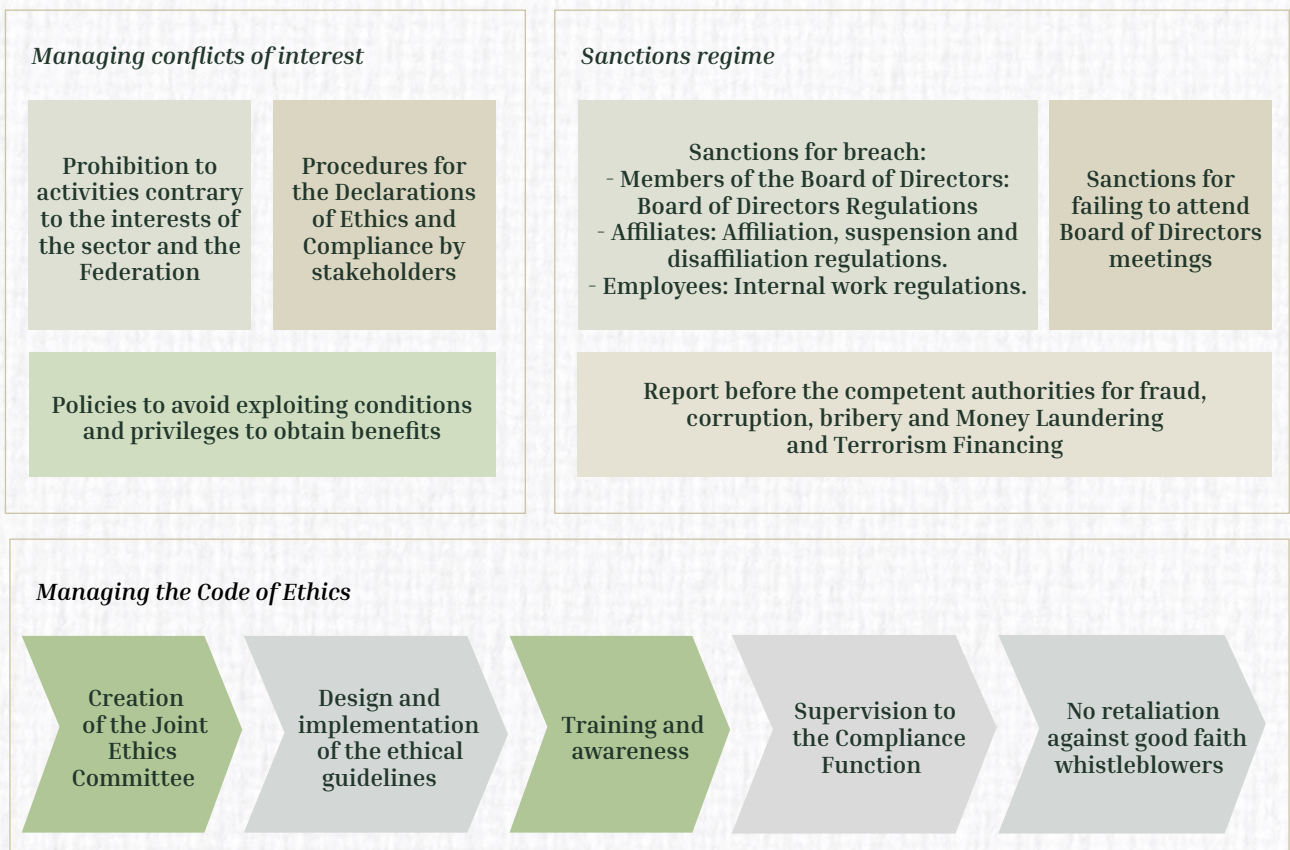


Figure 15. **Keys for Managing the Code of Ethics and Good Governance**
Source: Fedepalma

2.3. Risk Management

The Federation has adopted the Risk Management System, which is coordinated by a centralized risk management unit that reports to Fedepalma CEO, the General Director of Cenipalma, and the Joint Auditing and Risk Committee of the Federation. This way, it is possible to have sufficient and timely information related to risk mitigation and exposure, which contributes to decision-making and is aimed at creating or preserving value.

The Risk Management System focuses on identifying strategically relevant risks, which leads to managing financial and non-financial risks related to the Federation’s processes, operations and projects.

The Federation has implemented policies, procedures and methodologies to identify, measure, control and monitor risks by adopting best risk management practices, complemented by strategies to strengthen the risk culture at all levels of the organizations.

The methodologies and guidelines defined by the Risk Management System developed as part of the Integrated Management System model leverage the risk-based thinking approach. This allows adequate support for the successful performance of the Federation’s strategy and achieving the objectives, as its organizations and all workers are responsible for risk management.

Risk management



Corporate risk management

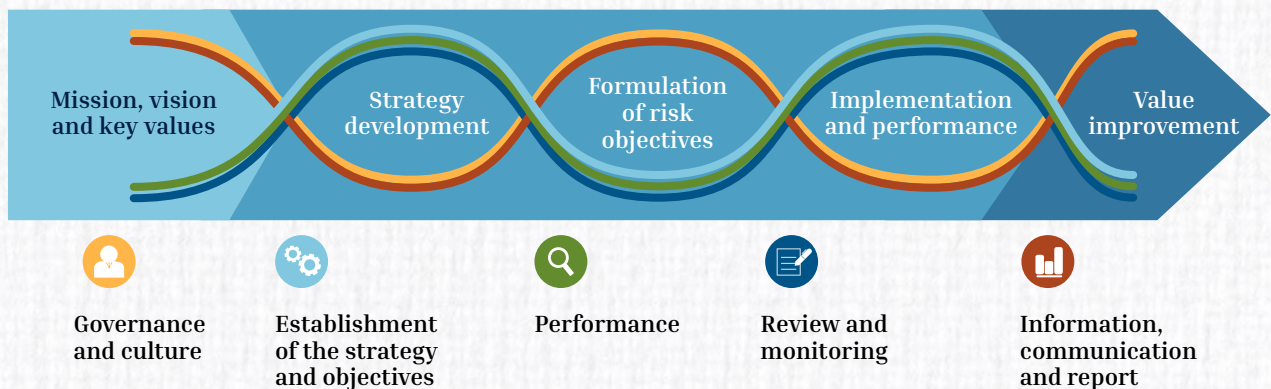


Figure 16. **Components of the integral management of corporate risks**

Source: Committee of Sponsoring Organizations of the Tradeway Commission. COSO ERM 2017 (Enterprise Risk Management)

Based on various appropriate tools for risk management, we have identified the ten most relevant sectorial risks for sustainable development:

Table 5. **Sectorial risks**

Source: Fedepalma

	<i>Name</i>	<i>Response</i>	<i>Relation to Material Matters</i>
1	Changes in the administration policies and allocation of resources of the Palm Development Fund.	Strengthen the management of the Federation's resources.	Ethical commitment, legality and anti-corruption laws.
2	Bad reputation of oil palm crops, their products and byproducts at national and international level.	Management to improve sectoral competitiveness.	Responsible sourcing and sustainability standards.
			Deforestation and biodiversity.
3	Palm-growing areas located in rural territories are influenced by drug trafficking and illegal groups.	Security system for the palm oil value chain.	Ethical commitment, legality and anti-corruption laws.
			Contribution to socio-economic development.
4	Limited availability of skilled labor in the palm sector.	Promotion and management for sustainable palm growing.	Inclusive businesses.
		The attraction of talent encompasses all those actions that aim to find the best candidates for the offered jobs.	Decent labor and workers' rights.
5	Unstable national and regional policy and legal framework applicable to the agricultural sector.	Actions to improve sectoral competitiveness.	Economic performance of the agribusiness.
6	New market and consumer requirements for palm oil products and byproducts.	Strategic marketing.	Innovation for sustainability.
		Promotion and management for sustainable palm growing.	Responsible sourcing and sustainability standards.
7	Illegal commercialization of palm oil products.	Commercial management and defense.	Responsible sourcing and sustainability standards.

	<i>Name</i>	<i>Response</i>	<i>Relation to Material Matters</i>
8	Unfair competition from sectors producing palm oil substitutes.	Commercial management and defense.	Economic performance of the agribusiness.
9	Resistance of some palm-growers to adopt best practices that promote the sustainable production of palm oil.	Promotion and management for sustainable palm growing.	Contribution to socio-economic development.
10	The association's and technical contributions to social responsibility by the Federation to the palm oil sector do not have a concerted strategy.	Promotion and management for sustainable palm growing.	Relations with the communities and other actors.

Exercises have been carried out to **determine the levels of responsibility** that individuals have for the risks identified to relate the sector's

strategic objectives with the Federation's strategic objectives, thus identifying the risks relevant to each process.

2.4. Internal Control

The Internal Control System adopted by the Federation seeks to provide reasonable security in achieving the strategic and operational objectives through timely risk management and effective controls. Therefore, it includes the organizational policies, principles, standards, procedures and verification and evaluation mechanisms to procure efficient and effective operations, manage risks, mitigate fraud, protect assets and provide reasonable information developed by the Federation and the compliance with the applicable regulations.

The Federation's internal control system is evaluated through the Audit Function exercised by the Corporate Risk Management Office, the Internal Audit of Palm Parafiscal Funds and the Statutory Audit.

Fedepalma manages parafiscal resources as **special accounts, separate from those of its resources**. The association ensures transparency in the execution of the funds' resources. For this reason, every year, it presents its internal accounts to the Palm Parafiscal Funds Steering Committee and the National Congress of Oil Palm Growers.

Likewise, in compliance with its obligations as the administrator of the Palm Development Fund (FFP), Fedepalma prepares and presents the annual reports requested by the oversight and control entities, such as the Ministry of Agriculture and Rural Development, the Comptroller General of the Republic (CGR) and the General Accounting Office of the Nation.

2.5. Relations with Stakeholders

[GRI C102-40, C102-42, C102-43]

The transformation that calls us to sustainability can only be achieved thanks to the multiple efforts made by the people who, through their work, improve their environments daily. For this reason, the relations with each of our stakeholders are very important to build sustainability and fulfill our **value promise**:

A sustainable and reliable origin that creates greater value for palm growers and positively impacts the environment and palm-growing communities

The Federation has identified a broad, diverse and committed ecosystem comprised of **235 stakeholders**, classified into **38 categories**, which also apply to the palm sector.

For this report, we present the stakeholders that directly impact the sustainability strategy (Figure 17), and some characteristics of their relation. The above, according to the **Stakeholders Matrix**, where we identify the level of influence of each group in the sector, thus facilitating their **monitoring and impact management** (Figure 18).

The Federation has established objectives under the relations and management strategy with each stakeholder, guaranteeing that the Federation will:

- ▲ Recognize their rights.
- ▲ Integrate their expectations and needs into the Federation's strategy and contribute to achieving sectoral and organizational objectives.
- ▲ Build trust to contribute to collaborative work and be more effective by anticipating possible threats and opportunities for the future.
- ▲ Encourage active participation and cooperation to create value.
- ▲ Establish partnerships between the Federation and stakeholders to contribute to the resolution of organizational and sectorial challenges.
- ▲ Develop mechanisms to improve the performance of the relevant activities and projects.
- ▲ Share the necessary information on the topics in which they participate, according to the applicable laws and regulations.
- ▲ Seek mutual benefit and ensure that the actions taken by the Federation are aimed at improving the palm oil sector.

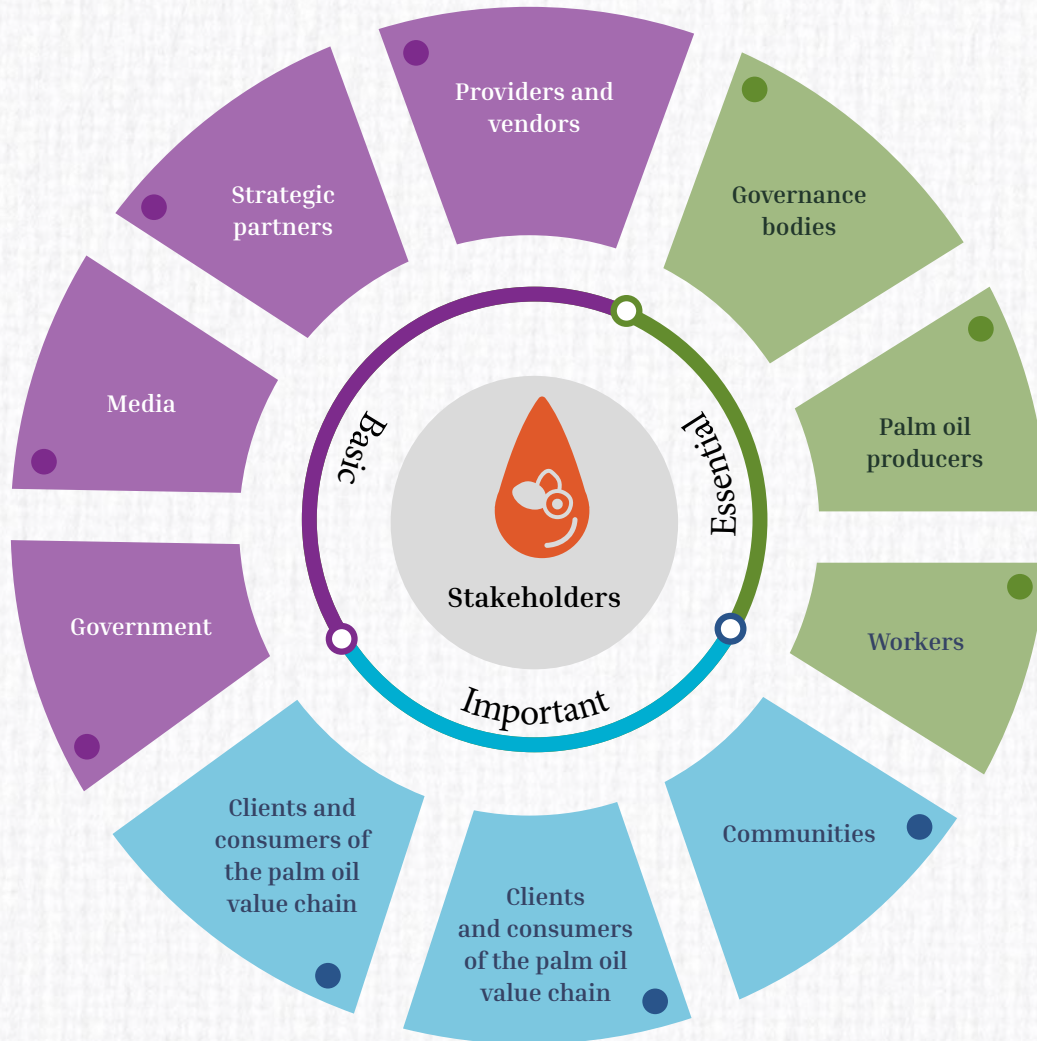


Figure 17. **Stakeholders with a direct impact in the sustainability strategy**
 Source: Fedepalma

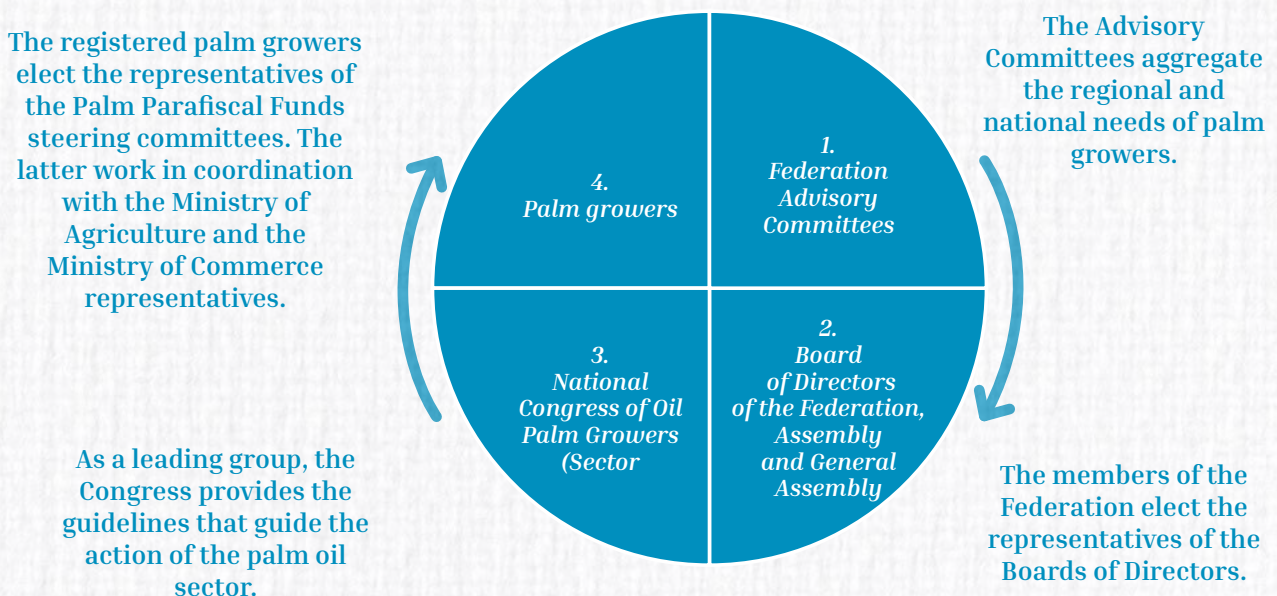


Figure 18. **Participation of palm growers as a stakeholder**
 Source: Fedepalma



3. Our Vision of Sustainability: Roadmap for Transformation

Every effort bears fruit. Series 1.
Author: Angie Carolina Rodríguez Roldán. National Environmental and Social Photography Contest in Palm Areas 2020.

Due to its structure and functionality similar to that of a planted forest, a well-managed oil palm crop can constitute one of the most favorable productive systems for biodiversity in Colombia

3.1. Our Sustainability Process: Milestones

The palm oil sector in Colombia has implemented sustainability practices since its beginnings. These were consolidated with the creation of Cenipalma, the Palm Development Fund, and Fedepalma's Environmental Management Project, among others. These and other initiatives demonstrate **its commitment to sustainability** as a practice through which it consolidates an agribusiness that contributes to the country's economic, environmental and social development through a continuous commitment to the sustainable progress of the different actors in the sector.

The 2018–2021 period has been critical to designing the reality of sustainable practices by the sector so that their scope and limit have been consolidated with greater clarity. After carrying out various research, analysis, measurement and tool creation exercises, we have integrated sustainability into the DNA of the association's management. This allows us to expand this initiative towards sectorial activity, **strengthen each action from the local level** and advance in coordination with the global efforts for sustainability.

Table 6. **Vision of a unique and distinctive agribusiness**

Source: Fedepalma



Milestones in the sectorial sustainability

1962

Establishment of Fedepalma

An organization that works to represent, promote and defend a sector in constant development.

1991

Establishment of Cenipalma

Entity that seeks to develop, transfer, train, and assist in implementing and adopting specialized, viable and innovative technologies to meet the opportunities and challenges of sustainable Colombian palm cultivation.

2004

Fedepalma joins the RSPO

2018

Sectorial sustainability strategy

The development of a roadmap to guide the sector to achieve high economic, social and environmental standards at the national and international levels is underway.



2019

Members of the RSPO Working Group on Living Wages

The sector participates in this group on behalf of Latin America, thanks to the inclusion of Fedepalma as a member.

10 Principles of Colombian Sustainable Palm Oil

The ten commandments for producing sustainable palm oil are developed. These frame the best sustainability practices Fedepalma and Cenipalma promote as the basis for a unique and distinctive Colombian palm oil production in terms of sustainability.

Cenipalma recognized as a research center

Colciencias awarded Cenipalma the recognition as a research center for five years through resolution 1538 of October 2.

2021

Colombian Sustainable Palm Oil Protocol and Corporación APSColombia.



Commitment to the environment

1992

Creation of the Effluent Management Program-Cenipalma

1994

Establishment of Cenipalma Environmental Unit

2002

1st Environmental Guide for the palm oil sector

This document sought to offer recommendations to the sector in environmental practices. It describes processes and treatment of chemicals used, waste, atmospheric emissions and management of special areas and includes regulations and procedures required before environmental authorities.

2004

Environmental performance evaluation

A document that examined the main challenges of the palm oil agribusiness to consolidate itself as a business sector characterized by its environmental sustainability.

2010

Model of the Technical, Social and Environmental Assistance and Auditing Units (UAATAS)

A tool aimed at members of palm *clusters* interested in creating or strengthening their respective UAATAS, including reference elements that provide conceptual guidance on aspects related to organizational structure, services to offer, roles and interaction, among others.



2012

GEF Proyecto Paisaje Palmero Biodiverso (PPB)

Project that generated tools and lessons on how to make better environmental management following and respecting biodiversity, creating value and profitability for the palm oil business. This project was implemented in 2018.

2015

Environmental Value Management Project

Created guidelines for the mills to adopt a more strategic environmental management aimed at reducing risks, creating greater value for the agribusiness, and enhancing the commitment of the mills beyond compliance with environmental standards.

2018

UPRA suitability map

It provided detailed information on the areas suitable for developing oil palm crops within the country's agricultural frontier, differentiating us from other sectors that do not know where they can develop their productive projects.



Commitment to society

1994

Creation of the Palm Development Fund (FFP)

An "all hands on deck" strategy to finance the development of programs and services of interest to the sector. Since then, Fedepalma has been the entity responsible for managing these resources.

1996

Creation of the Price Stabilization Fund (FEP)

An "all hands on deck" strategy to finance the export of surpluses and an orderly transition of the sector into a future of more open markets.

1999

Strategic Productive Partnerships Model

A fundamental tool in national palm growing, a benchmark for the other agricultural sectors in Colombia and worldwide by including suppliers and small producers in the production model.

2001

Development of Cenipalma Experimental Fields: CE Palmar de la Vizcaína (2001), CE Palmar de la Sierra (2010), CE Palmar de las Corocoras (2012), Estación Experimental en Tumaco: Finca La Providencia / El Mira (2016).

Strengthen research and presence in the regions.



2004

Adhesion to the Roundtable on Sustainable Palm Oil (RSPO)

Commitment to the globally recognized sustainable global market in sustainable oil certifications.

2008

National Biofuels Program

Sectorial economic growth and development are fundamental for the national palm oil agribusiness.

2009

National Environmental and Social Photography Contest in Palm Zones

This contest is an opportunity to show how the palm oil agribusiness in Colombia is developed with environmental and social sustainability criteria.

Palm Oil-Grower Woman Contest

An initiative that seeks to exalt women's work in the national palm oil agribusiness and highlight their leadership and self-improvement qualities, as well as the transformation of their environment through their work as women leaders.

2016

Labor Practice Guidelines, Social Responsibility and Land Acquisition

Tools that sought to provide guidance to producers on the development of appropriate labor relations and to provide those interested in accessing land in rural areas with the knowledge and tools necessary to carry out a legally adequate business.

2018

Colombian Sustainable Palm Oil Program (APSCO)

Sectorial platform to consolidate competitive distinction in sustainability.

2019

Best Practices Guide and Carbon Calculator for GHG Reduction

2020

Colombian Sustainable Palm Oil Standard - Crop

Development of the business standard in partnership with ICONTEC.

Sponsorship of the Colombian Native Palms Collection of the Botanical Garden of Quindio, JBQ

The initiative with which Fedepalma, Cenipalma and JBQ began a process to sponsor the Colombian Native Palms Collection (CPNC) for three years.

Launch of Regional Environmental Committees

In coordination with Cenipalma, these spaces for dialogue between the different environmental teams of the companies of each palm zone were established to discuss different environmental problems.

Palm activity impact measurements

2005

The first study on the social impact of palm oil.

2010

On productive partnerships for inclusive businesses

The Best Practices Guide to Implement Inclusive Businesses in Oil Palm is developed.

2011

Sector's Job Characterization (5,300 producers)

It provided an insight into the dynamics and diversification of the sector and its importance in terms of job creation in rural areas and small municipalities in Colombia.

2016

First Great National Survey of Direct Jobs in the Colombian Palm Sector

A pioneering survey showed that 82% of Colombia's palm oil sector jobs are formal. Made with DANE in 2016 and consolidated in 2017.

2018

Palm Social Impact Analysis

This analysis showed a positive multiplier effect of palm cultivation by measuring its impact on the social conditions of the territories.

2019

National Management Report - Palm Sustainability Network

Deforestation baseline

The information gathered shows that palm activities did not significantly contribute to deforestation in the country between 2007 and 2011.

2020

Consolidation of the Sustainability Index (SI)

The thematic structure of the SI in cultivation was consolidated and began to be applied in several palm *clusters*. Furthermore, this tool migrated to an application accessible from mobile devices, called Extension Solution, facilitating its current use in the field.

Sustainability Index for mills

The first version of this index is based on the practices included in the Technological Base Index that Cenipalma's Outreach and Processing areas have been developing, adding a set of environmental and social practices.

3.2. Sector's sustainability strategy

[C103-1, C103-2, 103-3]

Strategic Challenges of the palm oil sector

-  Improve the phytosanitary status
-  Increase productivity and optimize production costs
-  Optimize oil palm returns
-  Consolidate a sustainable palm growing
-  Strengthen the institutions for the palm oil sector

Based on the lessons learned and following the sector's strategic objectives, in 2018 we defined the **Sectorial Sustainability Strategy for the palm oil agribusiness** as a guide to achieve high national and international sustainability standards. This strategy combines multiple agribusiness practices of the sector as part of the vision of a unique and distinctive Colombian palm growing that seeks to strengthen the global competitiveness of the sector hand in hand with stakeholders, with whom we join forces to contribute to the well-being, prosperity and resilience as part of the palm environments and the achievement of the Sustainable Development Goals as a higher purpose.

Unique and Distinctive Palm Growing

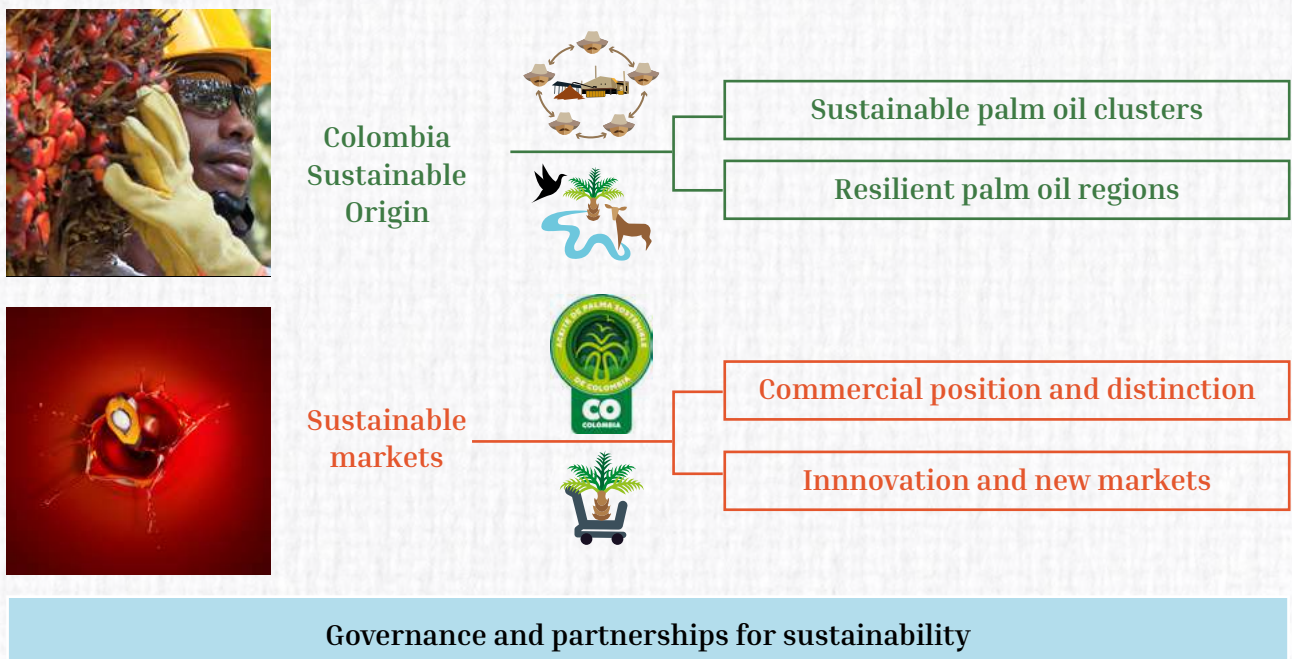


Figure 19. **Sector's sustainability strategy**
Source: Fedepalma

Colombia Sustainable Origin

More efficient and sustainable palm growing that creates profitability for producers and improves the quality of life of palm-growing communities

Sustainable markets

More profitable agribusiness, recognized for its distinctive palm oil and with new opportunities to create value.

Governance for sustainability

We support palm growers efforts through concrete actions by public and private actors, facilitating their transition into sustainability.

Sustainable palm clusters

Responsible palm growing activities “from the fence in”

This first strategic line seeks to define the principles, conditions and instruments that ensure the sustainable production of palm oil while closing gaps in best economic, social and environmental practices, and provide comprehensive technical assistance with emphasis on better productivity and alignment with the environment.

Resilient Palm-growing regions

Responsible palm growing activities “from the fence out”

This second line seeks to develop tools that integrate oil palm environments and biodiversity at landscape levels into the activity of the different actors of the agribusiness.

Commercial positioning and distinction

This strategic line seeks to consolidate the **Colombian palm oil brand**, which is based on the ten principles of sustainability that are presented in the following section.

Innovation and new markets

This line focuses on **maximizing palm growing activities**, considering the concepts of **circular economy and bioeconomy**.

Governance for sustainability

This pillar seeks to support the two previous pillars, considering the **co-responsibility of the various public and private actors** with the everyday efforts of producers and the association, as well as the need to coordinate and develop synergies for the sustainable development of the palm oil agribusiness.

3.2.1. Principles of Colombian Sustainable Palm Oil

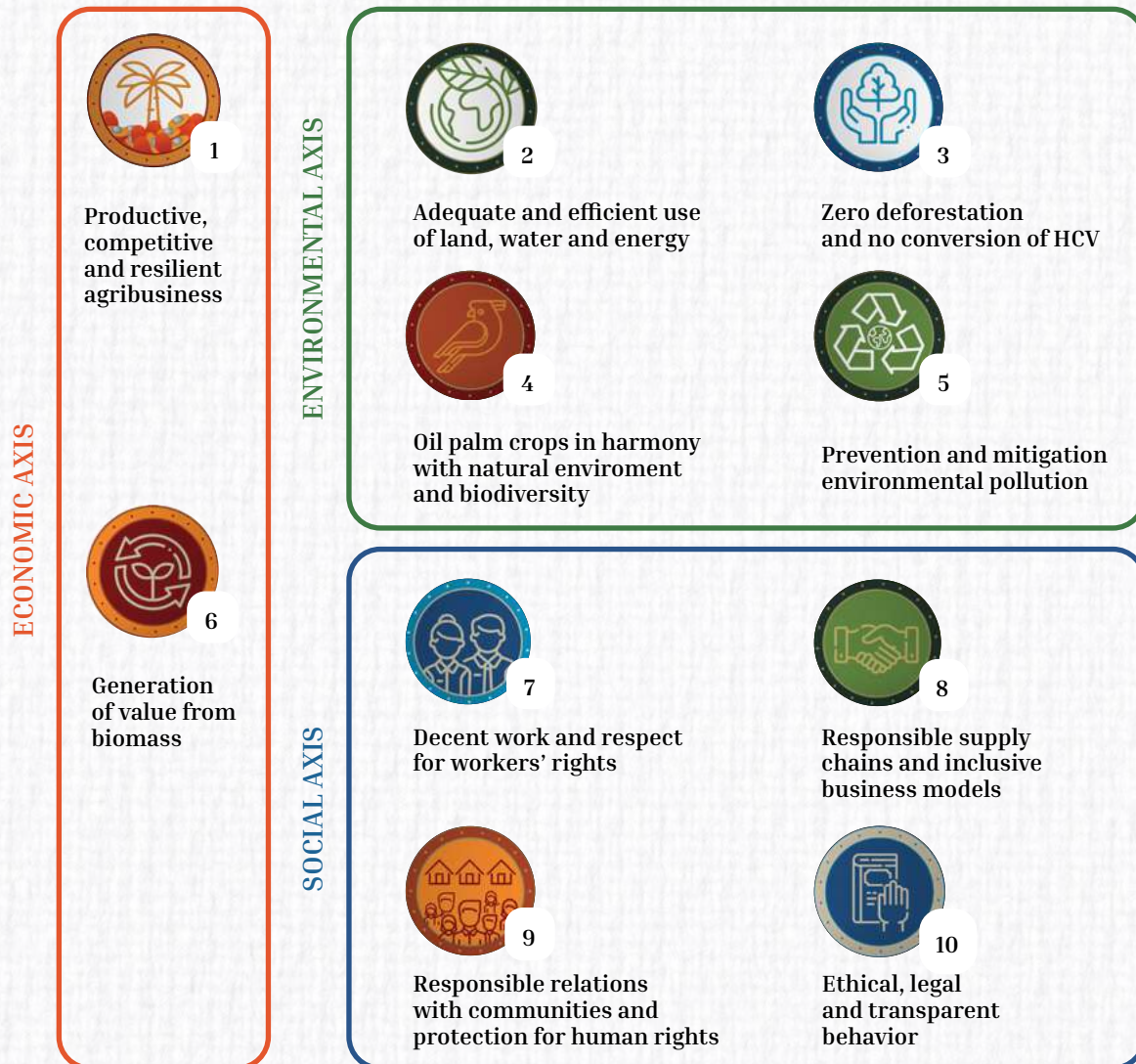
The objective of this decalogue created in 2019 is to guide the processes with which the country consolidates as a sustainable produ-

cer, contributing to Colombia and the world by knowing the efforts of thousands of palm growers who, every day, seek to produce a unique and distinctive oil.

Video with the ten principles of Colombian Sustainable Palm Oil



Table 7. **Principles of Colombian Sustainable Palm Oil**



3.2.2. Consolidating a Sustainable Origin

3.2.2.1. Sustainability Index (SI)

The Sustainability Index (SI) is a measurement and monitoring tool that evaluates different issues to **identify the current status of oil palm crops and mills** regarding the implementation of best economic and environmental practices in line with the ten principles of

the Sustainable Palm Oil Program. Furthermore, it provides basic information to evidence risk levels, facilitating the prioritization of activities to mitigate possible risks.

Crop Sustainability Index

The sustainability baseline of 2,937 oil palm growers nationwide was consolidated in 2021, covering 169,042 hectares of crops; 86% were natural persons, and 14% were enterprises. The overall results of the SI survey show a 49% adoption rate of sustainability best practices, according to the results shown in the following graph:

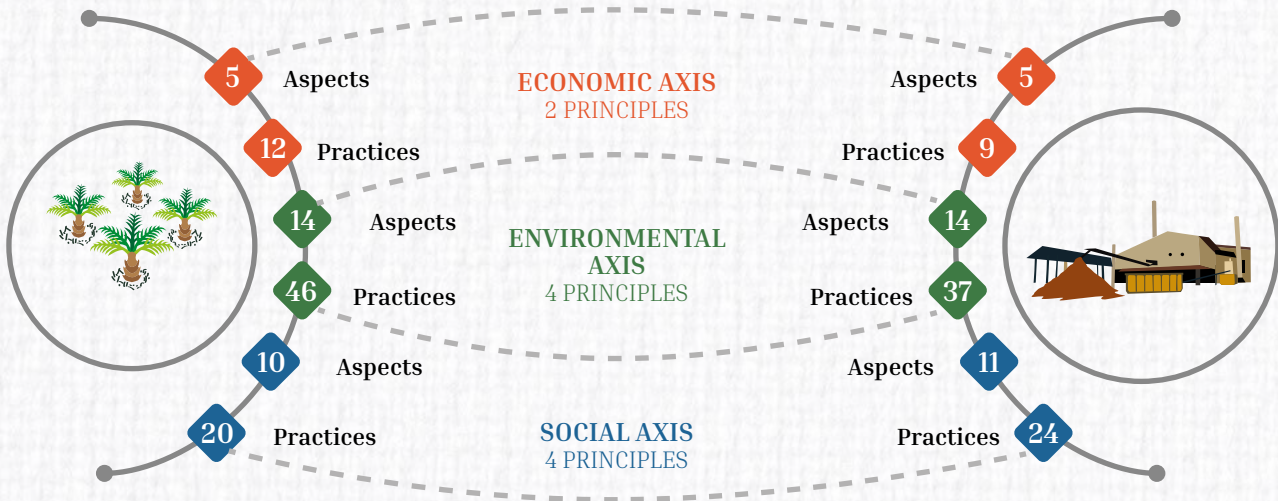


Figure 20. **Sustainability index tool. Axes, principles, aspects and practices**

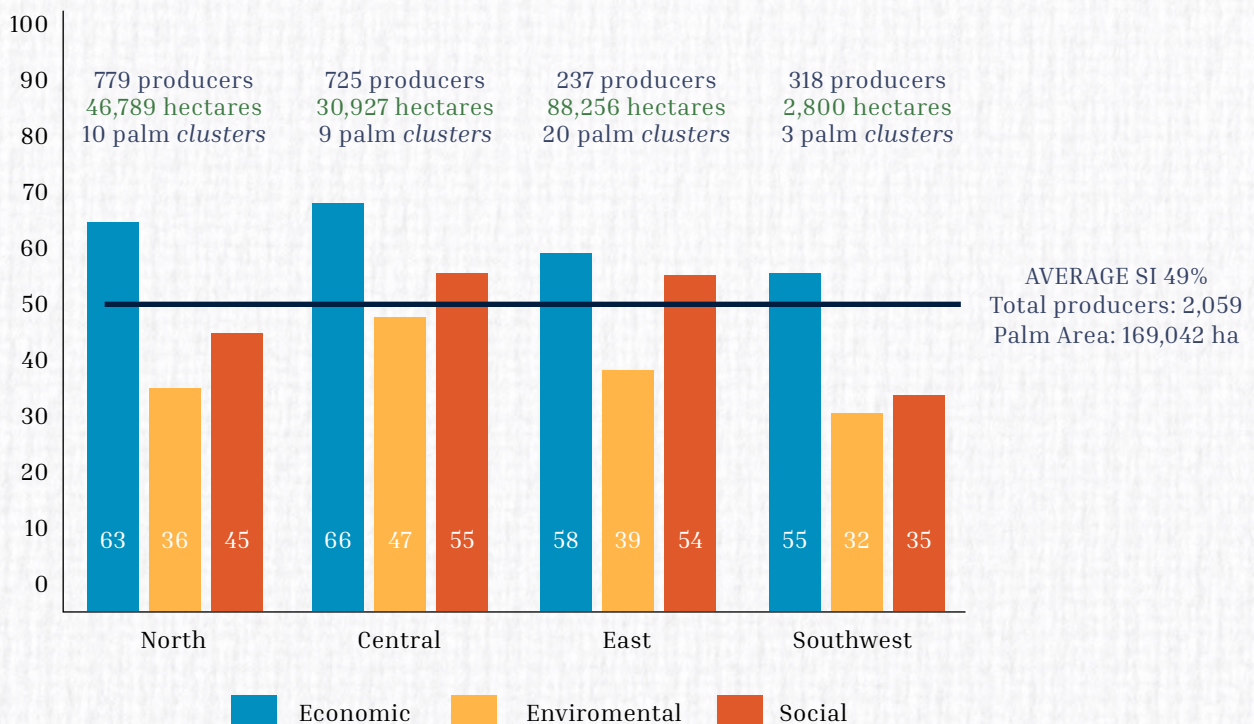


Figure 21. **Results of the palm oil crops sustainability baseline survey**
 Source: Fedepalma

The economic axis evidently has an outstanding result, with more than 60% compliance on average. This is due to the adoption of best economic practices implemented in the crop and the result of their business plans.

On the social axis, the average compliance with the main social practices, such as labor forma-

lization, respect for human rights, and no child or forced labor, was 47%.

The average compliance of the environmental axis was higher than 39%. This axis focuses its best practices on identifying and preventing environmental impacts and preserving the ecosystem's fauna and flora.

Sustainability Index for mills (MSI)

Just like cultivation, the main objective of the MSI is to identify the main risks and opportunities to improve at the mills and encourage the implementation of best practices.

In 2021, the same year the tool was created, the pilot program began and a baseline was established with eight mills in three palm zones (North, Central and East), which for 2021 processed 12.16% of the country’s FFB, aiming to have 100% of mills adopting this tool in the short term.

The pilot results show average compliance of 88% in the three axes evaluated. Figure 22 shows 94% compliance in the economic axis. This is related to the mills’ efforts to maintain efficiency in their process. One of the main challenges identified in this axis is the generation of value from biomass. On the other hand, the compliance of the social axis is 89%. In this axis, note the efforts of mills to ensure labor formality and mitigate illicit risks. Finally, the environmental axis has 82% compliance. Note the commitment of the mills to zero deforestation and the main challenges concerning prevention and mitigation of environmental pollution.

«The main pillar of mills in Colombia is sustainable palm oil production. This is associated with the demands of a dynamic market and its response to the needs of its communities and environmental responsibility. We hope that the MSI tool will be helpful for mills just beginning the path of sustainability. For those certified, it will be a way to evaluate their processes and continue with continuous improvement»

Anderson Guerrero,
Mill Outreach

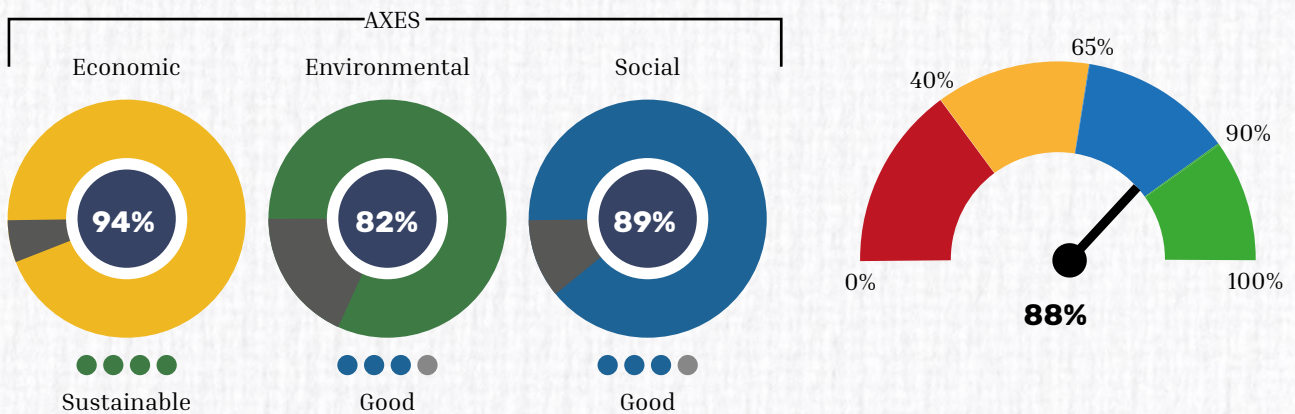


Figure 22. **Results of mills sustainability index. North Zone pilot**
Source: Fedepalma

APSCO Protocol and Corporation APSColombia

With the launch of the Colombian Sustainable Palm Oil Program in 2018, the palm oil sector joined in a collective effort to consolidate its sustainable origin. As a result, the Ten Principles of Sustainable Palm Oil in Colombia were developed in 2019, which were associated to a set of best practices aligned with the Outreach work and the application of the SI.

The Program continued to be strengthened in 2020-2021, with the partnership signed with ICONTEC, under which the sectorial norms that govern the Production of Sustainable Palm Oil in Colombia in crops and mills were developed.

The definition of two company standards marked the completion of the design of the stages and instruments for their validation and verification. These were incorporated into a sche-

me called the Colombian Sustainable Palm Oil Protocol, whose main elements can be divided into three stages: (i) self-management, (ii) validation of the adoption of practices, and (iii) verification of compliance with the established standard.

Likewise, and following the 2020 plan, the development of the institutional support continued to implement this Protocol, which Corporación APSColombia will manage. This new organization seeks to strengthen the institutions of the palm oil sector, allowing the active involvement of both palm growers and other relevant national and international stakeholders in the value chain, academia and research, civil society and government organizations, among others, and contribute to the national and international positioning of Colombian palm oil as unique and distinctive.



A photograph of a porcupine in a tropical forest. The porcupine is the central focus, covered in its characteristic long, sharp quills. It has a reddish-brown face and is looking towards the right. It is perched on a branch, surrounded by lush green foliage and palm trees in the background. The lighting is bright, suggesting a sunny day.

4. Material Topics

[C102-40, C102-46-C102-50, C102-47]

Porcupine.
Author: Rigoberto
Roa. National
Environmental and
Social Photography
Contest in Palm Areas
2012.

As part of the sector's commitments, we have undertaken to consolidate our progress by preparing a sustainability report aligned with the **Global Reporting Initiative (GRI)** standards. Likewise, we include the sector's contributions to achieving the Sustainable Development Goals (SDGs) by mobilizing actions aimed at guaranteeing the generation of resources, the quality of life of the people who make up the value chain, and the adequate use and protection of the natural resources required for its operation.

While preparing the report and strengthening the sector's sustainability model, we have identified the most relevant topics to manage the palm oil sector based on the **analysis of megatrends** that impact the business model and its value creation. This exercise allowed us to identify the key issues on the global agenda that directly affect the management of the environmental, social and corporate governance (ESG) issues of the palm oil sector.

With this in mind, first we reviewed sources of information that provide basic guidelines such as:

- ▲ Guidelines for the agro-industrial sector and the Organization for Economic Cooperation and Development (OECD) environmental indicators.
 - ▲ Indicators for the palm oil sector, as determined by the national government.
 - ▲ Contents of international criteria such as the CDP reporting system.
 - ▲ The Sustainability Policy Transparency Toolkit (SPOTT) international index.
- Based on a **benchmarking exercise**, the topics reported by the companies in the sector were considered to determine their alignment with the material topics identified in this report.
- Once identified, the topics were analyzed internally, considering the **sector's strategic needs**, the demands for information by the different stakeholders (external voices analysis) and the priorities established under the Principles of Colombian Sustainable Palm Oil.
- As a result, we have identified 15 material topics associated with the economic, environmental and social axes, as shown in Figure 23. This report will address these material topics in the section dedicated to each axis.
- ▲ The aspects mentioned in the RSPO Principles and Criteria (P&C) to produce sustainable palm oil.



Figure 23. **Materiality**
Source: Fedepalma



5. Sector's Contributions to Sustainability

Indomitable
(Series 2 of photographs).
Author: Joseph Janner
López Marín.
National Environmental
and Social Photography
Contest in Palm Areas
2019.

5.1. Sector's Contributions to Achieving the Sustainable Development Goals (SDGs)

[GRI C102-12]

The Colombian palm oil agribusiness actively contributes to achieving the targets set out in the 17 Sustainable Development Goals (SDGs) as part of the United Nations 2030 agenda. Thus, the principles of Colombian Sustainable Palm Oil are aligned to the SDGs, and below, we mention the sector's contribution to their achievement.

Table 8. SDGs and APSCO Principles



Table 9. **Sector's Contributions to the SDGs**





Faces of the plantation (photograph 2 of a series of 8).
 Author: Juan Pablo Marín García.
 National Environmental and Social Photography Contest in Palm Areas 2019.

5.2. We Know our Origin: Contribution to Economic Development

[C103-1, C103-2, C2-103-3]

Economic performance underpins all activities in palm agribusiness, so its efficiency is key to assessing the effectiveness of Environmental, Social and Governance (ESG) decisions. For years, the Colombian palm oil sector has been developing a process to build sustainability, seeking that all palm oil activities are profitable, respectful of the environment and have a high social impact in the regions.



Figure 24. **Economic Contribution of the palm oil sector**
 Source: Fedepalma

5.2.1. Responsible Sourcing and Sustainability Standards

Understanding that being sustainable goes beyond the need to meet market requirements has allowed the national palm oil sector to advance in the social relations with palm communities and all the actors of the production chain without neglecting the harmonious development of biodiverse landscapes and the design of sustainable projects in the long term.

Consequently, Colombian palm oil comes from a value chain that sees each link in the production chain as a source of **multidimensional wealth** for the agricultural sector and the regions. This work is evident in the increased production of palm oil certified under international sustainability standards, which in 2021 amounted to 26.3% of the national production⁴, showing our growing commitment to the topic.

Responsible sourcing and sustainability standards

Contribution	<ul style="list-style-type: none"> ▲ Colombian Sustainable Palm Oil Program. ▲ Palm oil sector sustainability index. ▲ Corporación Aceite de Palma Sostenible de Colombia
Progress	<ul style="list-style-type: none"> ▲ As of 2021, 26.3% of crude palm oil (CPO) production is certified under international sustainability standards. ▲ The sustainability baseline of 2059 oil palm growers nationwide was consolidated in 2021, covering 169,042 hectares of crops; 86% were natural persons, and 14% were enterprises.
Challenges	<ul style="list-style-type: none"> ▲ By 2023, 75% of the country's palm oil production will be certified or verified under sustainability standards. ▲ Increase the adoption of best practices to become increasingly productive and sustainable.



Relevant facts

- ▲ Between 2018 and 2021, the number of companies certified under international sustainability standards went from 17 to 35, i.e., a growth of more than 100%. Likewise, by 2023 we expect that 75% of the CPO products will be certified or verified under sustainability standards.

4 Sectorial indicator that measures the percentage of tons of crude palm oil certified under the RSP0, RAC, and ISCC standards, as reported by mills and verified under the sustainability standards or protocols and within the framework of the APSO program, concerning the total tons of crude palm oil produced during the period.

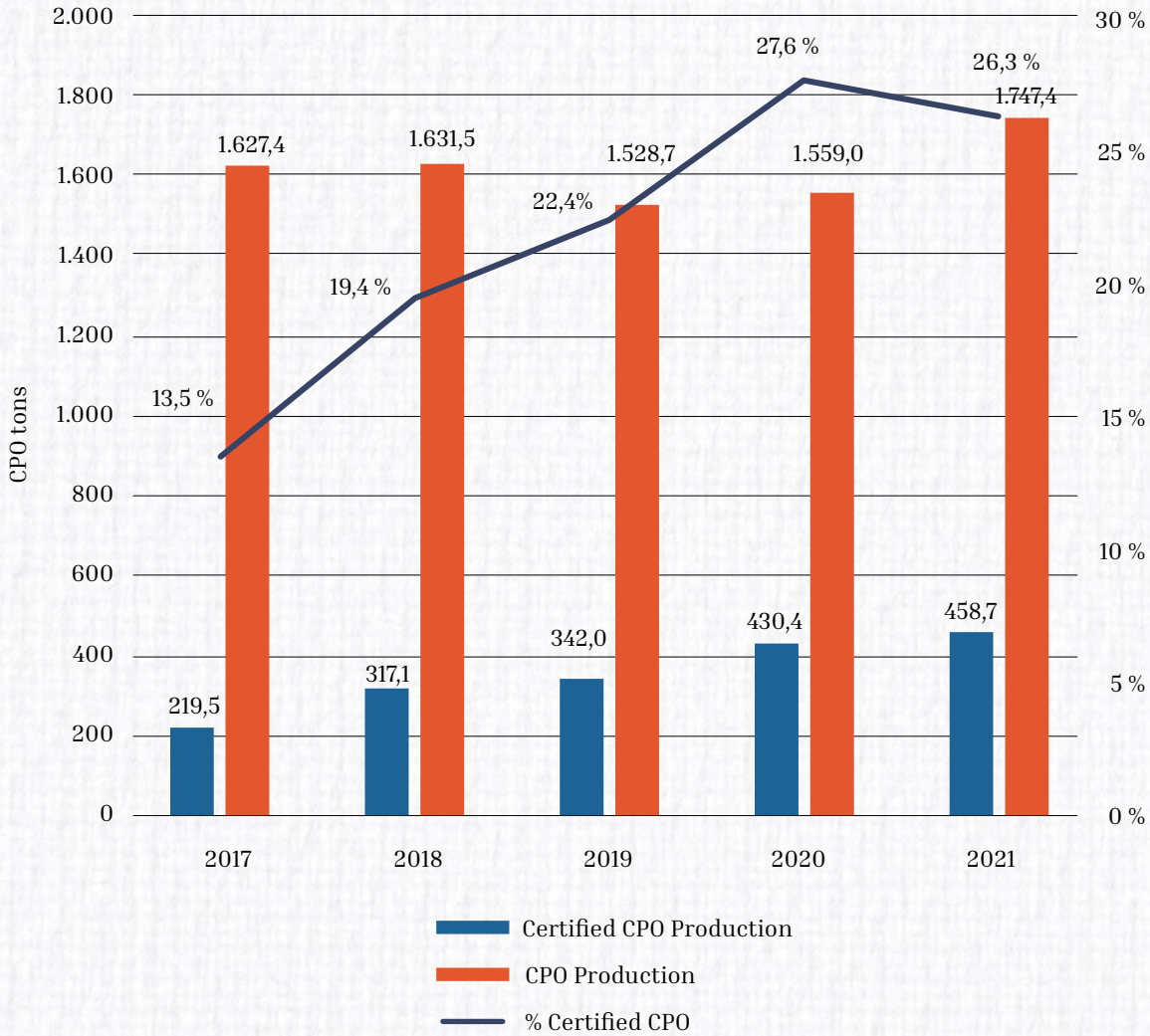
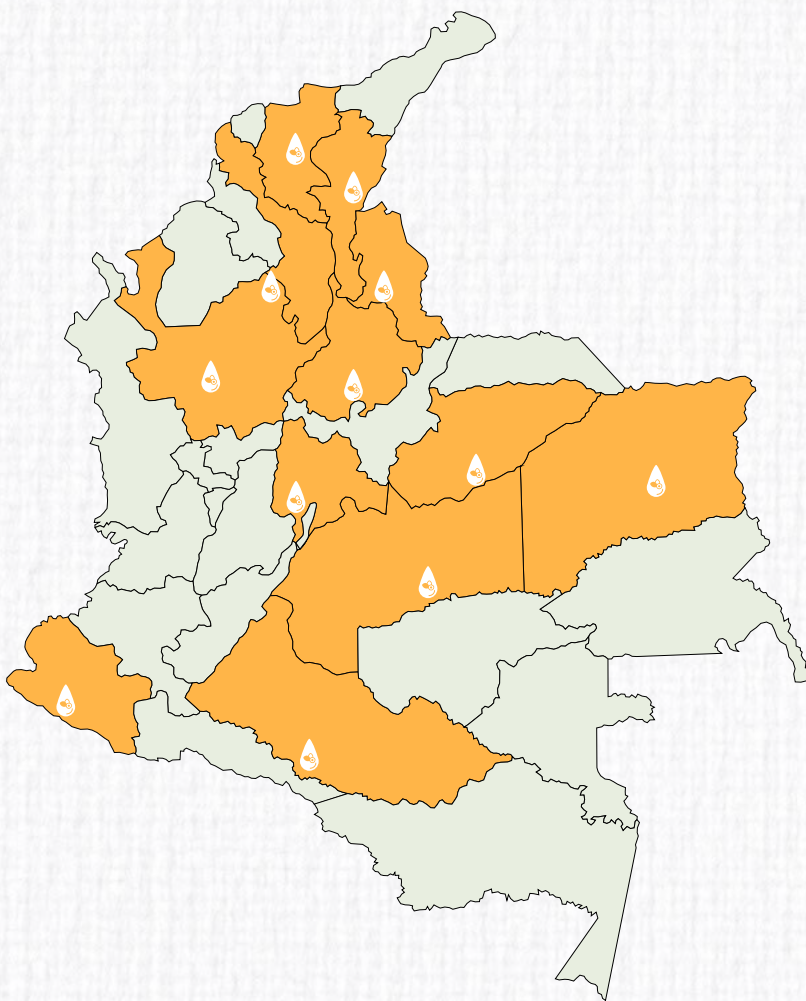


Figure 25. **Evolution of the production of certified sustainable palm oil**
 Source: Fedepalma

The Colombian palm sector accounts for 15.6% of the agricultural GDP. In the departments of Cesar, Meta, Casanare, Magdalena and Norte de Santander, the palm oil sector accounts for more than 10% of the GDP, making it a driving force for regional economies. The economic benefits of the palm oil agribusiness are evident. In 2021, the sector generated COP 7.7 billion, becoming the most dynamic in the agricultural sector and the fourth most important sector for national exports. The growth of the sector has been constant in recent years. For example, 195,000 new hectares were devel-

oped between 2011 and 2021. With an average investment value per hectare of COP 22 million, these new hectares have contributed almost COP 4.3 billion to the Colombian economy.

In pursuit of the economic sustainability that allows expanding the crops and other activities, the sector has focused on searching profitability for the producer. However, to be profitable, it must respect the environment and focus on developing cutting-edge research and transferring this knowledge to producers to add value to production.



Department*	Share of palm oil production value in the agricultural GDP
Cesar	37,1 %
Meta	26,0 %
Casanare	19,6 %
Magdalena	19,4 %
Norte de Santander	15,2 %
Vichada	9,0 %
Bolívar	8,9 %
Santander	8,0 %
Nariño	4,4 %
Antioquia	0,4 %
Cundinamarca	0,04 %
Caquetá	0,01 %

* The information presented corresponds to the departments that have mills.

Figure 26. **Share of palm oil production value in the agricultural GDP**

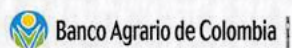
Source: Fedepalma, DANE database



Challenges to be turned into opportunities

- ▲ Develop credit lines that respond to the business life cycle.
- ▲ Consolidate financing and insurance alternatives for palm growers.

Partners



Commercial banks

Comisión Nacional de Crédito Agropecuario



5.3. Innovation to Maximize the Agribusiness

[GRI C103-1, C103-2, C103-3, APSCO 1]

The production process entails multiple risks and opportunities. Technological advances offer the possibility of responding to these challenges, mobilizing the agribusiness’ potential for innovation and competitiveness and improving the relations with the community. Therefore, this material topic is an essential driver to advance on the path of sustainability.

5.3.1. Creating Knowledge and Transferring Technology

Centro de Investigación en Palma de Aceite –Cenipalma– was established in 1990 through an initiative of palm growers to con-

tribute to solve the multiple problems affecting the agribusiness in the regions. In 2019, Cenipalma received the Great Place to Work certificate as one of the best places to work. In 2021, it celebrated 30 years of **research, validation and technology transfer** (known as outreach processes) and has gained the sector’s recognition for its impact and relevance, thus becoming a key organization for the advancement of the sector.

Strategic Research and Outreach Lined

Thanks to the coordinated and strategic work of Fedepalma and Cenipalma, the palm oil agribusiness has made significant progress in the environmental, social and economic aspects, which has led to tools and technologies tailored to the needs of the agribusiness. Precisely, the research and outreach lines prioritize problems, challenges and opportunities, and coordinate and guide efforts under the premise of what the sector really needs.

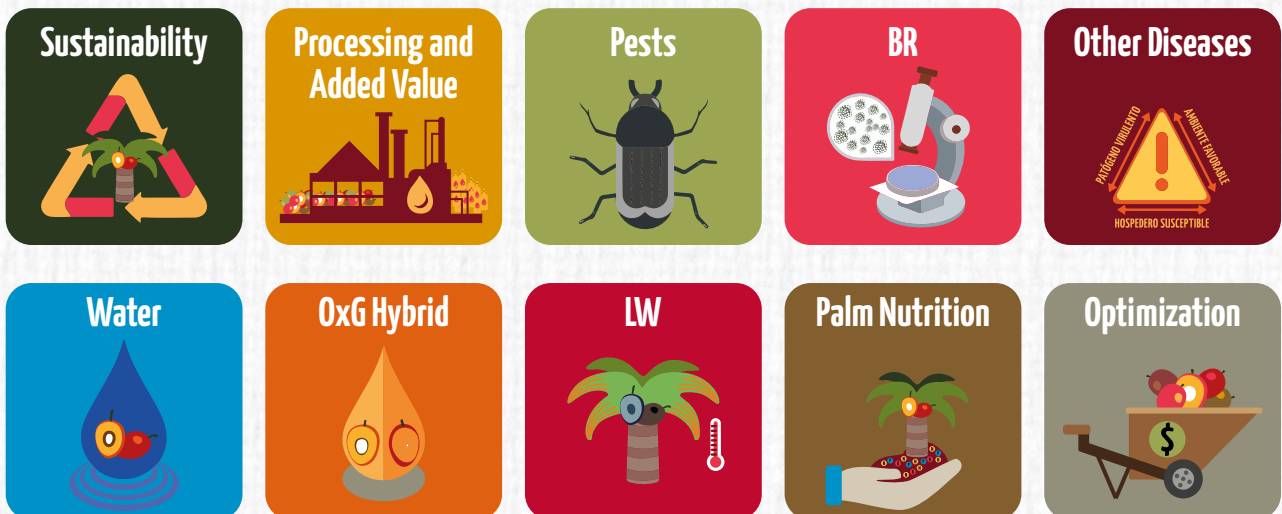


Figure 27. **Strategic Research and Outreach Lines**
Source: Cenipalma

Tecnopalma: Technology at the Service of Palm Growers

Como resultado de la evolución del Laboratorio de Análisis Foliar y de Suelos (LAFS) y de Servicios Técnicos Especializados, Cenipalma creó **Tecnopalma**, como una subdivisión que brinda ofertas tecnológicas de alta calidad e impacto a los palmicultores.

By selling the specialized services and products developed by Cenipalma, the center has created economic resources and contributed **to increasing crop productivity and differentiating Colombian oil globally.**

Products and technical services for palm growers:

- ▲ Leaf and Soil Analysis Laboratory.
- ▲ Technical audit of oil palm plantations.
- ▲ Technical training for personnel working at mills.
- ▲ Artificial pollinator 98% (ANA).
- ▲ Entomopathogenic fungi.
- ▲ Oil laboratory.
- ▲ Rhynchophorol C. pheromone.

Tecnopalma Achievements

Obtained the ICA Registry 2686 of the product ANA-Artificial pollinator 98%



Obtained LAFS certificate under ISO 9001:2015 standard and the extension of its scope to pheromones.



Launch of the Tecnopalma brand under the slogan #Cultivandoprogreso (Growing Progress) to provide better services to Colombian palm growers



Working for an Innovative and Connected Agribusiness

GEOPALMA PRO is a Geographic and Agromomic Information System developed by Cenipalma and the palm growing companies to manage agronomic information in plantations and experimental fields. With this tool, the palm grower can collect, store, process and visualize data to **centralize its production information** and access it at any time.

MODULES INCLUDED

 Cadastre	 Sanitation	 Production	 Nutrition
 Supervision	 Machinery	 Tasks	 Research

Geopalma APP is the system's application for smartphones and allows:



Identifying palms faster with the use of QR codes.

Directly storing the information collected in the database.

Recording the tasks performed by supervisors.

Watch video on Tecopalma - introducing Geopalma PRO



Another tool developed by Cenipalma (with Agroince) and brought to the palm grower by Tecopalma is the **Industrial Oil Potential** (PIA, for its initials in Spanish) online. This technology allows knowing the amount of oil in fresh fruit bunches (FFB) in real time. It consists of the joint use of industrial automation and methodologies specifically designed to measure the PIA indicator, along with parameters such as free fatty acids (FFA) and other

parameters related to oil quality under study conditions.

Furthermore, identifying problems in nutrition, health, and other agro-edaphoclimatic variables (degree of suitability of soils for agriculture) allows for obtaining reliable information so that the agronomic team of each plantation can direct its efforts towards increasing the oil potential per oil palm batch analyzed.



Palmar de las Corocoras Experimental Field



Finca La Providencia Experimental Station

5.3.2. Experimental fields

Specially intended to strategically provide the research and outreach services developed by Cenipalma in each zone, they are company benchmarks and constitute an agronomic, **environmental and business management model**. Furthermore, these are spaces created for research, technology transfer and share knowledge with palm growers.

Through the experimental fields, we seek to create mechanisms to verify and recognize the **relevance and innovation** developed for the palm oil agribusiness. We are working to increasingly **align and commit the supply chain to responsible social and environmental management**.



Considering the environmental conditions of each palm zone, we work on the different problems that affect the palm oil agribusiness and its development. Therefore, each of the four experimental fields has a different approach, as shown in the map below.

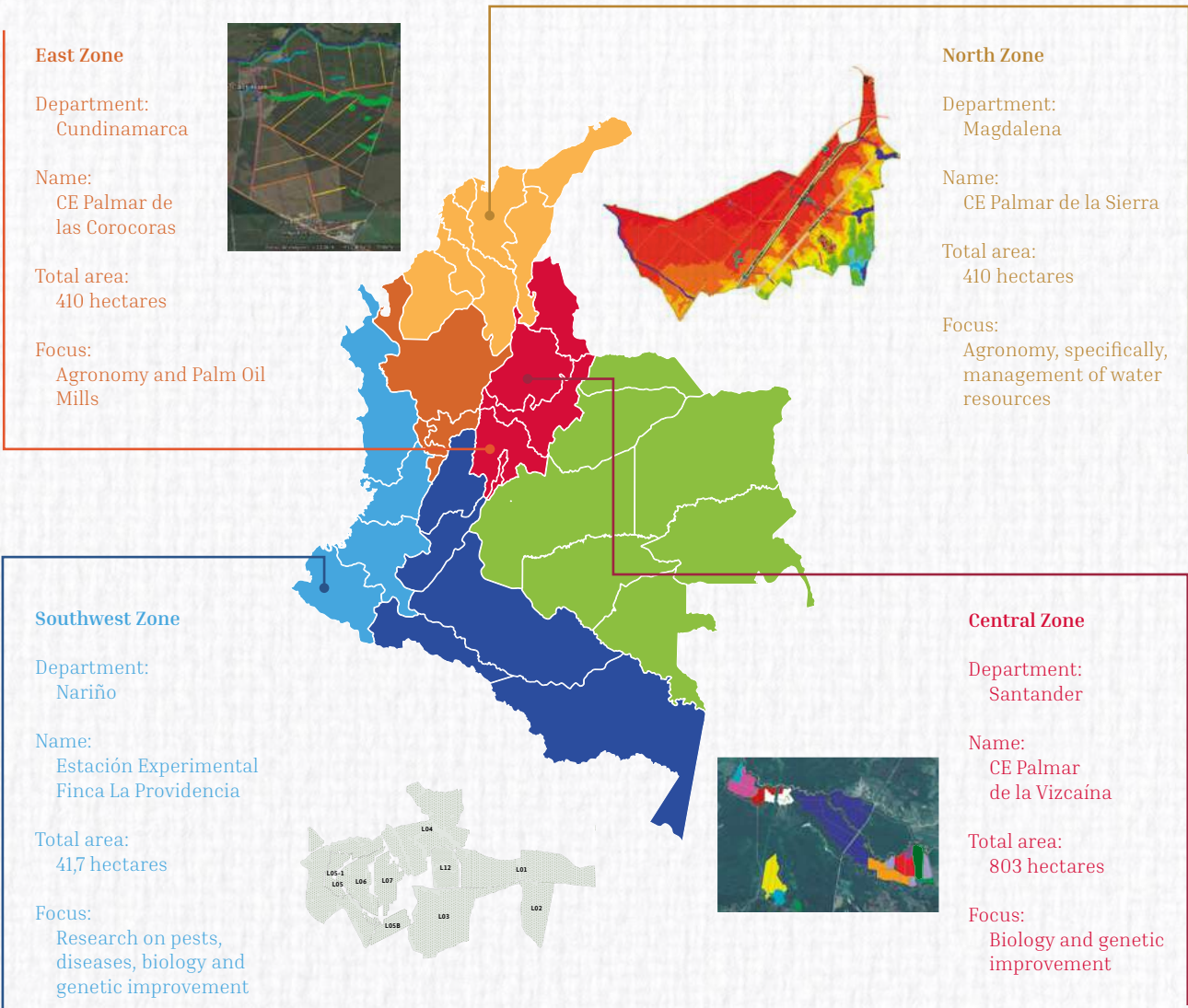


Figure 28. **Map of Experimental Fields in Colombia**
 Source: Cenipalma

Table 10. **Advances in the Management of Experimental Fields**

Source: Cenipalma

<i>Zone</i>	<i>2018-2021</i>
North - CE Palmar de la Sierra	Advanced in expanding the high-flow drip irrigation area in 26 ha, as a commitment to improving efficiency in water use.
Central – CE Palmar de la Vizcaína	Reduced the interventions needed to treat palms affected by bud rot (BR) by more than 28% compared to 2017, contributing to efficient crop management.
East – CE Palmar de las Corocoras	Completed the construction of the first stage of infrastructure, which allowed transferring Cenipalma offices and laboratories previously at Unipalma facilities, thus facilitating the advancement of the soils research program.
Southwest-La Providencia Experimental Station	The average historical productivity of the cultivars planted in this field has exceeded that of the area in their first, second, third and fourth years of production. In this way, a significant advance in the productive and sanitary behavior of the crop is evidenced.

Table 11. **Challenges in managing experimental fields**

Source: Cenipalma

<i>Experimental Field</i>	<i>Challenges</i>	<i>Transversal Challenges</i>
North Zone – CE Palmar de la Sierra	<ul style="list-style-type: none"> ▲ Increase knowledge of the issue of illegal mining in the area. ▲ Continue developing and implementing projects for the efficient use of water. 	<ul style="list-style-type: none"> ▲ Strengthen relations with communities by creating job opportunities. ▲ Strengthen the implementation of programs aimed at the gender policy implemented by the Federation.
Central Zone – CE Palmar de la Vizcaína	<ul style="list-style-type: none"> ▲ Develop projects to manage and use the existing biodiversity in the field (more than 100 species found, including turtles, macaws, oncillas; about 550 ha of natural reserve, birdwatching, etc.) ▲ Continue developing genetic improvement projects. 	
East Zone – CE Palmar de las Corocoras	<ul style="list-style-type: none"> ▲ Continue research in agronomy and CPO (crude palm oil) mills. 	

<i>Experimental Field</i>	<i>Challenges</i>	<i>Transversal Challenges</i>
Southwest Zone – Finca La Providencia Experimental Station	<ul style="list-style-type: none"> ▲ Reduce the use of agrochemicals in the sanitary management of the plantation, directing efforts to a biological control of pests and diseases. ▲ Continue researching pests and diseases. 	<ul style="list-style-type: none"> ▲ Implement projects that improve access to facilities for staff with mobility limitations.

Table 12. **Contribution of the experimental fields to the sector's sustainability**

Source: Cenipalma

<i>Ambiental</i>	<i>Social</i>	<i>Económico</i>
<ul style="list-style-type: none"> ▲ Preservation of the world's genetic resources by protecting 135 oil palm species. ▲ Conservation of native fauna and flora. ▲ Reduction of environmental impact by using pheromones. ▲ Monitoring and care of water consumption. Conclusions show that "the annual water deficit is lower in high-flow drip irrigation, followed by sprinkler irrigation, which represent 29% and 43% of that obtained by surface irrigation (the highest of all with 656 mm)". 	<ul style="list-style-type: none"> ▲ Creation of local, stable and comprehensive rural jobs by applying the Comprehensive Welfare Plan of Family Compensation Funds and Fedepalma Employee Fund. ▲ Technical outreach for the producer. ▲ On-the-job training through internships (91 internships in 2018-2020). ▲ In 2020, Cenipalma awarded 16 educational grants for a total of COP 66 million for undergraduate, specialization and master's studies training. ▲ Knowledge transfer to academic institutions (universities and schools) by opening the experimental fields for visits. 	<ul style="list-style-type: none"> ▲ Implementation of good business management and best agricultural economic practices. ▲ Significant reduction of bud rot (BR) disease. ▲ Self-sustainable crops in their operation, so that they perform the cultivation and harvesting tasks and manage the sale of the fruit to the mills. ▲ As of 2021, there are 604.8 hectares established in cultivation⁵.

5 Number of hectares related to each field.

Table 13. **Number of hectares related to each field⁶**

Source: Cenipalma

<i>Experimental Field</i>	<i>Planted area</i>	<i>Direct Jobs</i>	<i>Indirect jobs</i>	<i>Total jobs</i>
Palmar de la Vizcaína	241.6	29	44	73
Palmar de la Sierra	109.0	13	20	33
Palmar de las Corocoras	220	27	40	67
Finca La Providencia Experimental Station	34.2	4	6	10
Total	604.8	73	110	183

Our partners

Municipal town halls		
	Environmental corporations	

«Implementing water-efficient technologies
is key to sustainable palm cultivation»»

*José Julián Monroy Rairán,
Palmar de la Sierra Experimental Field Superintendent*

6 Estimates based on data from Cenipalma 2021.

5.4. Value of Creating an Environmentally Friendly Product: Environmental Dimension

[C103-1, C103-2, C103-3]

Colombia is the **2nd** Most biodiverse country in the world

Only 17 countries in the world are considered megadiverse, and 12 of them are palm oil producers. This poses a global challenge to the agribusiness to continue developing without affecting the natural wealth of its environment.

Colombia is a **megadiverse country** with forests in more than half of its territory and considerable vulnerability to climate change. Therefore, deforestation, biodiversity conservation, and mitigation and adaptation to climate change are both issues of the global environmental agenda and national environmental policy, which require **responsible and proactive management** by the palm oil agribusiness.

Therefore, to create an environmentally responsible product we have sought to ensure that the palm oil agribusiness is committed to the adoption of good environmental practices in all stages of cultivation: **planning, design and establishment/construction, operation and management, to reduce the environmental impact** of our activities, ensure the sustainability of these resources over time, and **improve efficiency** in the use of natural resources based on an environmental strategy that covers the entire production chain.



Sowing the future in Urabá.
 Author: Irving Bernal Arango.
 National Environmental and Social Photography Contest in Palm Areas 2019.

The above is expanded and further developed in the Environmental Guide for the Palm Oil Agribusiness in Colombia, which aims to guide palm growers and palm oil companies in the adoption of a management approach that contributes to the productivity, competitiveness and environmental sustainability of the sector and the country's palm oil regions.



5.4.1. Water Resources Management and Protection

[C103-1, C103-2, C103-3]

Climate change has affected access to water for the world's crops, limiting their productivity and threatening people's food security. This reality is not alien to the palm oil sector, as there are areas with marked dry seasons, which can face up to eight months of annual drought (Caicedo *et al.*, 2017), i.e., rainfall of 500 mm per year when the crop needs 1,800 mm.

Thus, water is one of the essential natural resources for developing the palm oil industry. Therefore, the sector has focused its efforts on understanding how to make **adequate use** of this resource in the different stages of the production process, considering compliance with the applicable legal requirements and demands for its collection, avoiding the deterioration of its quality, any affectation to its availability and preventing risks due to shortages. Likewise, we have developed actions for its **efficient use** to **minimize its ecological footprint**⁷ and maximize its **eco-efficiency**⁸ (Espinosa *et al.*, 2021) by producing a greater amount of products (fruit and oil), using the minimum possible amount of water resources.

Considering the climatic variability of the different palm regions, through Cenipalma, the sector has concentrated its efforts to:

- ▲ Improve knowledge about the crop’s water requirements according to its phenological stage so that water is used efficiently without incurring in moisture surplus or deficit.
- ▲ Develop a soil water balance model that is practical and easy to use by palm growers, developed by Cenipalma’s Agronomy Program.
- ▲ Use technologies to optimize irrigation, fertigation and/or drainage systems.
- ▲ Develop technologies to measure and monitor the efficiency of irrigation, fertigation and/or drainage networks.

Water Resources Management and Protection

Contribution	<ul style="list-style-type: none"> ▲ Fundamentals and principles on how to manage water in a problem area. ▲ Guideline Basic Aspects for Understanding Drainage Systems and their Maintenance in Oil Palm Crops. ▲ Methodological Guide to Evaluate Irrigation Systems Used in Oil Palm Crops.
Progress	<ul style="list-style-type: none"> ▲ Methodology for early selection of palms or crossbreeds, according to its response to water deficit stress. ▲ Develop the water balance advancement model.
Challenge	<ul style="list-style-type: none"> ▲ Adequate use of water resources in crops and mills. ▲ Measure water consumption to reduce inefficiency and take ▲ Appropriate measures on a case-by-case basis. ▲ Close gaps in the efficiency of water use, considering implementing more efficient irrigation systems and reducing losses in conduction and distribution.

7 **Ecological footprint:** measures the demand humanity imposes on nature and compares it with the capacity of natural ecosystems to supply it.

8 **Eco-efficiency:** means producing more using fewer resources and generating minimal environmental impacts. Its underlying premise is that the excessive use of resources and pollution are signs of inefficiency that result in productivity losses.

The adequate and efficient water use begins with the pre-feasibility and feasibility analysis of a new oil palm project. The project should be located in areas where the resource is available to adequately supply the crop during the production cycle.

Subsequently, water must be collected legally, considering the applicable regulations and applying for the corresponding permits before commissioning the crop and mill. Likewise, it is necessary to improve the efficiency adequately and permanently in water use, adopting practi-

ces and technologies that favor its use in productive activities.

Therefore, and given the climatic variability of the different palm oil regions, the sector has focused on advancing the **research and implementation of efficient irrigation systems** (Figure 29), which seek to better exploit water by irrigating other palm areas to avoid periods of stress in the crop, thus ensuring greater fruit production with higher oil contents and the work of the people who depend on it in the region.

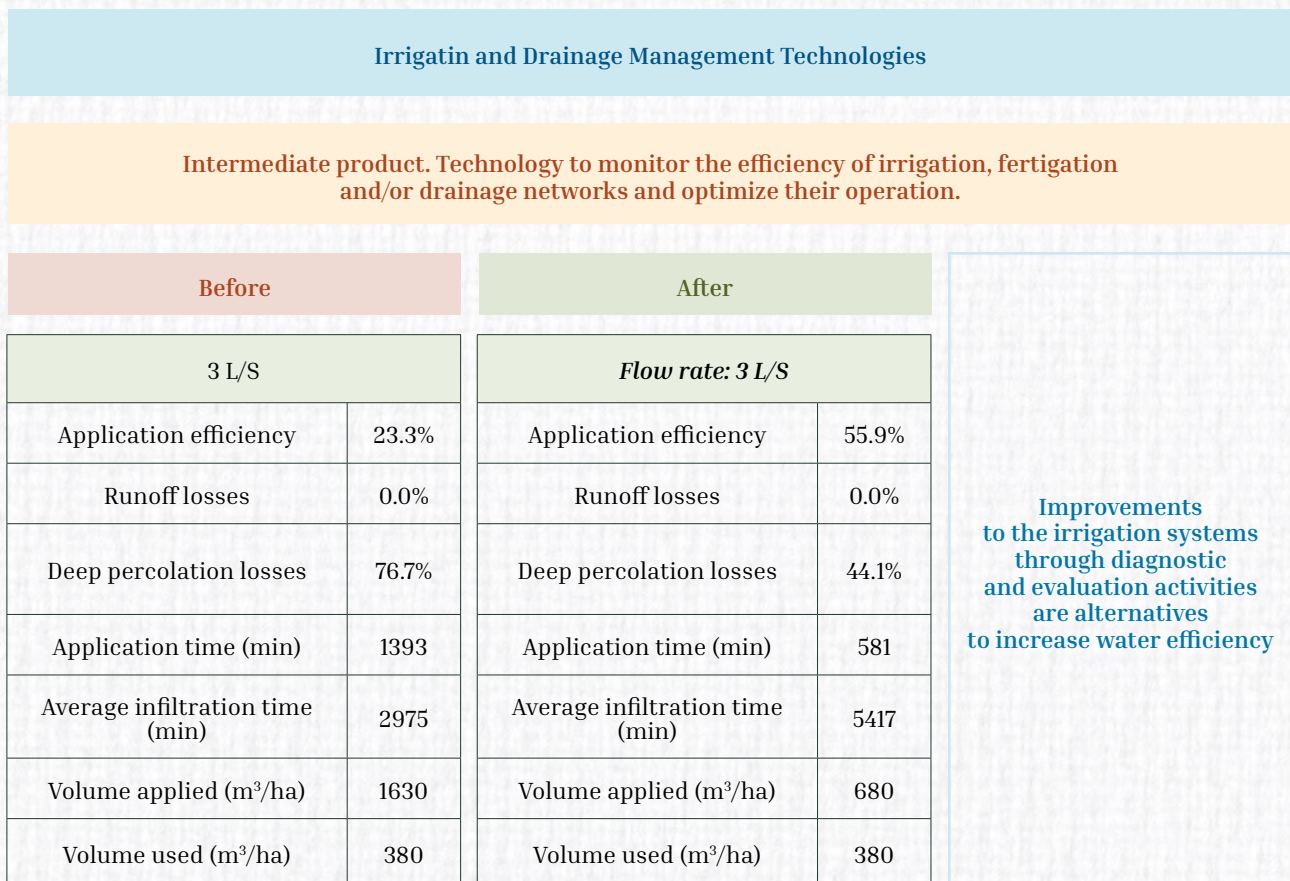


Figure 29. **Irrigation and Drainage Management Technologies**
Source: Cenipalma

The most used irrigation system in oil palm is surface irrigation, which has low efficiency. However, the use of wide grooves along the palm line is promoted because it allows water-

ring only the area adjacent to them, avoiding wetting other areas and thus reducing the volumes of water to be applied, as shown in Figure 30 for the case of the North Palm Zone.

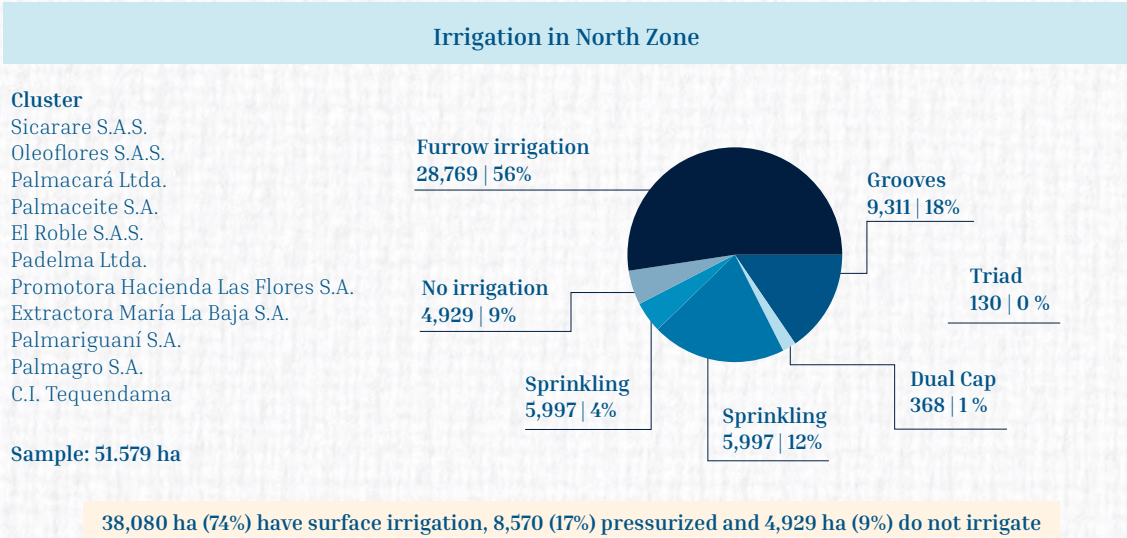


Figure 30. **Irrigation Systems Implemented in the North Zone**

Source: Cenipalma

Besides developing tools to use water resources efficiently, the palm oil sector has identified the importance of working on **water governance** as a key strategy to properly manage this natural resource in relation to the communities where palm oil is produced. Water governance is defined as “the comprehensive management of the country’s water resources, which involves the cultural, economic, political and biophysical contexts of the territories and involves all water actors in the transformation of socio-environmental issues

related to this resource” (Ministry of Environment and Rural Development, n.d.).

To make this possible, we must work in coordination with environmental authorities such as the Regional Autonomous Corporations (CAR)⁹, since these entities promote coordinated land and water use planning, as well as flora and fauna of the watersheds, through a tool called the Watershed Management Plan (*Plan de Ordenamiento y Manejo de Cuencas Hidrográficas*, POMCA).



Relevant facts

- ▲ There are 33 Autonomous Regional and Sustainable Development Corporations (CAR) in Colombia; 88% of the area planted with oil palm is in the jurisdiction of five of them. As of December 2019, estimates show that there are oil palm crops in 64 hydrographic subzones of the country, which are governed by 93 Watershed Ordering and Management Plans (POMCA). Three of these watersheds covered more than 25,000 hectares planted; 14 between 10,000 to 25,000 ha., and 23, between 5,000 and 10,000 ha. On the other hand, crops occupied over 25% of the total area of the Giramena and Guaroa basins, tributaries of the Metica

9 Regional Autonomous and Sustainable Development Corporations (CAR) were created by Law 99/1993 and are the environmental entities responsible for administering and ensuring the good use of natural resources and the environment within their jurisdictions. The jurisdiction of a CAR is defined by characteristics that, geographically, belong to the same ecosystem or form a geopolitical, biogeographic or hydrogeographic unit.

river (35.9%), direct tributaries of the middle Lebrija river (29.7%) and Pajure river (26.8%) (Fedepalma, 2020a). **This shows that palm growers and companies play a significant role in the water governance of the territories.**

- ▲ Developed a water balance software that allows knowing the frequency, quantity and mode of efficient water application for each crop for easy and practical use by palm growers.
- ▲ Through screening and nursery studies, we determined the characteristics of the palms that should be evaluated within the breeding program to increase their resistance to water stress and thus improve their production.
- ▲ Farms have incorporated the position of agricultural engineer to improve water and crop management. The agricultural engineer will focus on improving the plants' conditions.
- ▲ Determined a methodology to measure, characterize and diagnose the performance in the consumption of industrial services in profit plants.
- ▲ Developed a device to record the water table (WT) automatically. This is an ultrasonic sensor that estimates the depth of the water table.



Challenges to turn into opportunities

- ▲ Increase the percentage of palm growers adopting good practices in adequate and efficient water use.
- ▲ Apply the technologies developed and socialize the knowledge gained to raise awareness of the proper use of water.
- ▲ Improve water use efficiency, avoiding water loss along its route between the collection and irrigation points.
- ▲ Support plantations interested in determining the efficiency of their installed irrigation systems and using management indicators.
- ▲ Improve the efficiency of existing irrigation and drainage systems.
- ▲ Optimize the coordination between Fedepalma and Cenipalma to align government guidelines to the needs of palm growers by managing agroclimatic tables, which include the work with the Watershed Ordering and Management Plans (POMCA).
- ▲ Support water governance. Promote mechanisms to coordinate collective actions to manage water resources in palm-growing areas.

Partners

Governor's Office of Cesar (Research Project in Technics to Adapt Oil Palm to Climate Change (TAPACC))



Oil palm plantations and mills
Regional Autonomous Corporations

Agroclimate Committees



5.4.2. Zero deforestation and Commitment to Biodiversity

[C103-1, C103-2, C103-3]

Since the late 1990s, there has been growing concern about the development of palm oil agribusiness because, in some countries, it has taken place at the expense of forests, negatively affecting natural ecosystems. For this reason, and being a central topic of the global agenda, the national palm agribusiness has promoted Zero deforestation, non-replacement of areas with High Conservation Values and palm growing respectful of the natural environment and biodiversity.

Under this roadmap, we have determined:

▲ In Colombia, most oil palm plantations **have not replaced natural forests**. Moreover, they have been established in areas previously used for other agricultural activities (mainly livestock, cotton, rice and banana plantations, among others). However, there is still a great threat since some areas of deforestation in the country border oil palm production areas, which makes the need for coordinated work and governance management around the soil even more important.

- ▲ **Oil palm cultivation is not a driver of deforestation in Colombia.** Even so, it is one of the concerns of those who make up the sector. Therefore, we have established strategies to **prevent deforestation or transformation of areas with High Conservation Values (HCVs)¹⁰ and produce deforestation-free palm oil.**
- ▲ We seek to develop productive activities that respect the environment and promote the preservation of biodiversity, avoiding the transformation of ecosystems, protecting species and creating conditions that favor the presence of species and natural areas from the planning and design stages.

Oil palm cultivation is not a driver of deforestation in Colombia

10 A HCV is an exceptionally significant or critically important biological, ecological, social or cultural value for the world, a country, a region or a local community. Source: Espinosa *et al.*, 2021.

Zero Deforestation and Commitment to Biodiversity

Contribution	<ul style="list-style-type: none"> ▲ Sectorial strategy for zero deforestation. ▲ Biodiverse Palm Environment (PPB) project.
Progress	<ul style="list-style-type: none"> ▲ Association's strategy for the production of deforestation-free palm oil.
Challenge	<ul style="list-style-type: none"> ▲ Achieve traceable and deforestation-free supply chains. ▲ Communicate the benefits of environmental management from the planning stages to future palm oil project investors. ▲ Develop tools to use biodiversity's ecosystem services to oil palm crops. ▲ Increase the adoption of Landscape Management Tools (LMT) by palm growers.

The ecological debt of deforestation is irreversible. That's why we respect the agricultural frontier and promote the valuation of ecosystem services as key to conserving our natural wealth

More than a Commitment Against Deforestation: How to Act




The sector has sought to make significant progress on two fronts: **Prevent deforestation due to the development of oil palm projects and produce deforestation-free palm oil** (Table 13). The first refers to the need to ensure that new plantations will not require deforestation to establish the crop. For this purpose, we identify the forest and protected areas where it is not permitted to establish this type of crop; the National Agricultural Frontier (NAF) determines the areas where it is possible to develop agricultural

and livestock activities, and the map of suitability for oil palm cultivation prepared by the Rural Agricultural Planning Unit (UPRA, for its initials in Spanish) identifies those areas that are more suitable to develop the crop due to their conditions and climate.

The second front refers to ensuring that crude palm oil is produced without deforestation. Thus, with the sector's adhesion to the Zero Deforestation Agreement for the Palm Oil Supply Chain¹¹ in 2017, we developed a strategy to fight this problem and engage all the actors involved in the agribusiness processes as partners in advancing in each stage.

11 Initiative signed in 2017 with the support of the ministries of Environment and Sustainable Development, Agriculture and Rural Development, Industry and Trade, and the governments of Norway, the United Kingdom and Germany.

Table 14. **Measures Against Deforestation**

<p><i>Prevent deforestation caused by the development of palm projects and produce deforestation-free palm oil</i></p>	Association strategy to prevent and mitigate deforestation			
	 1 Communication and dissemination	 2 Follow-up and monitoring	 3 Report cases of deforestation	 4 Guidance to palm growers
	Suitability map for commercial oil palm cultivation-UPRA			
	Zero Deforestation Agreement			
	Environmental Guide for the Colombian Palm Oil Agribusiness			
	2011-2017 Deforestation Baseline (IDEAM)			
	National Agricultural Frontier Map			

The Colombian Palm Oil Sector Develops in Harmony with its Environment



Highlights:

- ▲ IDEAM prepared the national deforestation baseline for 2011 to 2017 and showed that only 0.4% of national deforestation (1.1 million ha) was related to oil palm crops.
- ▲ In the 2018 information update, IDEAM concluded that 0.22% (about 438 hectares) of the year’s deforestation was associated with oil palm crops, a reduction to almost half of that observed in the previous six years.
- ▲ Since 2017 we have been committed to preventing and reporting new deforestation in the country.
- ▲ The companies that signed the Zero Deforestation Agreement account for 41.7% of the country’s palm oil production.
- ▲ Guide to prepare a business plan on oil palm and procedure to establish new plantations <https://bit.ly/3L0eV91>.



To produce deforestation-free palm oil, we must:

- ▲ Commit the senior management and have an express zero-deforestation policy.
- ▲ Periodically analyze whether there has been deforestation on the farms of fruit suppliers.
- ▲ Review the deforestation footprint of new fruit suppliers.
- ▲ Implement mechanisms to trace the source of all fruits entering the mills.
- ▲ Develop corrective actions in areas that have had deforestation.

More than a Commitment Against Deforestation: How to Act

In terms of biodiversity, **once the natural landscape is affected, its impact on the ecosystem** is irreversible; therefore, we must use tools to identify conservation areas and forested zones. This information should be included in the feasibility and viability studies for new productive projects. As we mentioned in the section on deforestation, the suitability map for developing oil palm crops prepared by UPRA is one of the tools we use to know the areas that are more suitable for this crop without affecting natural areas.

The areas where palm oil crops are established have a great wealth of biodiversity; therefore, we have identified the importance of developing a palm crop that respects it, as it brings benefits to the environment, society and production:

- ▲ **Prevents the transformation** of ecosystems and natural habitats for the establishment and development of oil palm plantations and mills.
- ▲ **Protects** the species and ecosystems in and around the palm estates so that they contribute to **ecological processes in the region** (biological corridors, supply of resources for species, ecosystem connectivity, etc.).
- ▲ Creates and preserves conditions that functionally favor biodiversity.
- ▲ Prevents and mitigates the impacts on species and ecosystems in the area of influence of oil palm projects.
- ▲ Implement **more diverse productive systems** by promoting interactions and

Support guidelines to implement LMT



synergies with species of fauna and flora that benefit the crop.

To realize these benefits, the **Landscape Management Tools (LMT)** promoted by the Alexander von Humboldt Institute is available as a strategy that contributes to the conservation and sustainability of biodiversity in productive systems by recovering and maintaining the natural vegetation that interacts with them. These tools were integrated through the **Biodiverse Palm Landscape Project (PPB, for its initials in Spanish)**¹², which “promoted the incorporation of environmental considerations and information in planning, designing and operating palm oil palm projects to prevent and mitigate impacts on biodiversity, and have farms that are more in harmony with their natural surroundings, materializing on the ground their favorability with local biodiversity” (Fedepalma *et al.*, 2018b and Espinosa, 2019, in Espinosa *et al.*, 2021).

Ecosystem Services (ES) are the natural processes and resources with which an

12 The PPB was implemented with resources from GEF (Global Environment Facility) between 2012 and 2018.

ecosystem can benefit the crop. Some ES that biodiversity provides to oil palm crops include:

- ▲ **Pollination** (the most important for agricultural production).
- ▲ Biological pest control.
- ▲ Soil formation and erosion control.
- ▲ Soil moisture maintenance.

▲ Flood and fire protection.

Accordingly, we assess incorporating more vegetation in the crops to provide such services. Given that **ES** “sustain agricultural production and ensure their resilience, to the extent in which productive systems are intensified to meet the growing demand for food” (FAO, 2018 in Environmental Guide, 2021), LMTs favor the provision of **ES** for the productive development in harmony with biodiversity.

Challenges to turn into opportunities



Deforestation

- ▲ Achieve zero deforestation in new oil palm projects. For this, it is key to consider these elements when planning new projects.
- ▲ Encourage planning to acquire land, considering the area of the agricultural frontier, new national parks, conservation portfolios and forests. If a plot of land has been deforested since January 1, 2011, its forest cover must be restored.
- ▲ Develop the elements necessary to certify zero deforestation in the supply chain: supply chain analysis and supplier certification process.



Biodiversity

- ▲ Promote ES in the sector’s environmental agenda.
- ▲ Replicate and disseminate good practices so that all producers adopt them.
- ▲ Socialize the cost-benefit of adopting this principle for palm growers. A well-managed oil palm crop can be one of the most productive and favorable agricultural systems for local biodiversity.
- ▲ Design oil palm plantations that include natural elements such as forests, riparian zones, natural corridors, nectariferous flowers, living fences, and covers with food, among other LMTs.

Partners



5.4.3. Preventing and Mitigating Environmental Pollution

[C103-1, C103-2, C103-3]

The comprehensive management of pollution seeks to manage the riskiest impacts of the operations. This involves two strategies that are complementary to each other: prevention and mitigation. Prevention seeks to prevent pollution caused by the production process as much as possible, reducing its ecological footprint and increasing the eco-efficiency of processes by reducing the total volume of pollutants generated and the volume per unit of product. Mitigation includes end-of-process management measures, technologies and treatment systems to control residual pollution in an isolated environment/space,

thus mitigating the potential impacts on the environment and natural resources.

On the other hand, preventing possible sources of pollution saves mitigation costs that inevitably have to be incurred in the future, i.e., the cost of prevention is actually a key investment in the agribusiness. Likewise, mitigation activities are very important for the sector, since they reduce the negative impact of palm oil activities on the environment and influence the availability of natural resources for the communities surrounding oil palm estates.

Pollution prevention is more cost-effective than mitigation because it reduces the pollution generated in the process, reducing the cost of investing in highly complex mitigation techniques and technologies

Preventing and Mitigating Environmental Pollution

Contribution	<ul style="list-style-type: none"> ▲ Identified the most significant environmental risks and impacts that may occur in the oil palm crop and mill.
Progress	<ul style="list-style-type: none"> ▲ Instruments to clarify the measures to adopt (in prevention or mitigation) according to the risk.
Challenges	<ul style="list-style-type: none"> ▲ Increase the number of covered lagoons in mills. ▲ Emphasize the importance of preventing pollution as opposed to controlling it.

Riskiest Sources Identified in the Agribusiness

Liquid effluent discharges

Mills generate the highest amount of discharges of industrial waters with a high pollution load, although there are other sources of wastewater discharges from agricultural and domestic activities. Non-Domestic Wastewater (NDWW) or industrial wastewater, which are generated at the mills, are those with the highest volume and polluting load (mainly organic), and their discharge into water bodies or soil could cause major environmental impacts and legal risks.

Atmospheric emissions and greenhouse gas (GHG) emissions¹³

The main source of GHG emissions in the palm oil production chain in Colombia include methane gas released by Industrial Wastewater Treatment Systems (IWTS); emissions from crop fertilization; emissions from land use change; fossil fuel used to generate electricity, and transportation of fresh fruit bunches (FFB).

Waste generation

The activities carried out by the palm oil sector generate different types of waste and require comprehensive management to prevent and mitigate pollution. Waste is classified into solid waste and hazardous waste.

Ordinary solid waste: They come from domestic, pruning and maintenance activities. As for hazardous waste, most relate to agrochemical containers and their handling, and to the maintenance of agricultural machinery and tools. At the mills, ordinary waste is associated with daily office, kitchen, cleaning and maintenance activities. Hazardous waste includes the use of lubricants, fuels, chemical products, solvents and maintenance of process equipment.

Accordingly, for each of these sources, we have promoted the adoption of practices based on the development of:

13 For more information, see also 6.3.4 Management of emissions and carbon footprint and 6.3.6 Clean energy and biomass use, respectively.

Table 15. **Pollution Prevention and Mitigation Actions**

Source: Espinosa *et al.*, 2021

<i>Prevention actions</i>	<i>Mitigation actions</i>
<ul style="list-style-type: none"> ▲ Identify the main sources of pollution and implement best practices. ▲ Replace supplies with a high content of harmful substances. ▲ Reorganize processes and adapt technological changes to reduce pollution at the source. 	<ul style="list-style-type: none"> ▲ Identify adequate management measures for each case. ▲ Implement end-of-process treatment technologies and systems to control an isolated environment/space.

Under the preventive approach, the sector has different guidelines, including:



Relevant facts



The sector has promoted different guidelines to prevent and mitigate pollution in mills such as:

- ▲ Monitor the physicochemical parameters of mill effluents to prevent the generation of pollutants and ultimately determine what material is available where for its subsequent treatment once they reach the lagoons.
- ▲ Cover the effluent treatment lagoons to generate biogas and, consequently, electric power.
- ▲ Use the sludge from waste-water lagoons.
- ▲ Promote fertigation to take advantage of the nutritional content of mill wastewater instead of discharging it into water bodies.
- ▲ In 2020, the association worked to update the diagnosis of compliance with the regulations on discharge to surface waters, finding an average compliance above 70% in all parameters, except chlorides. To close gaps, we designed a form to collect variables on the design, operation and maintenance of Wastewater Treatment Systems (WWTs) and began developing the guidelines to improve some aspects of the system.
- ▲ Design artificial wetlands and phytoremediation with microalgae as appropriate technologies to reduce the concentration of chlorides in mill effluents.

By reducing the production and pollution control costs, we:



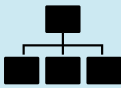
Create value



Increase productivity



Create additional income from the sale or internal use of byproducts.



Improve our position before stakeholders.

Challenges to be turned into opportunities



- ▲ Adopt prevention technologies.
- ▲ Implement mitigation systems or treatments.
- ▲ Comply with guidelines to prevent chloride discharges.
- ▲ Foster a proactive attitude in palm growers to go beyond regulatory compliance.

Partners



5.4.4. Managing emissions and carbon footprint

[C103-1, C103-2, C103-3]

Depending on the actions implemented, the palm oil sector can be a major absorber or emitter of greenhouse gases (GHG). Therefore, measuring, monitoring and reducing both GHG and the carbon footprint are critical for the sector's environmental management. For this reason, this material topic is associated with principle number six of the Colombian Sustainable Palm Oil: **Creation of value**, which seeks to take advantage of the byproducts created by the crop and the extraction process, thus creating value and closing material and energy cycles, avoiding potential risks of environmental impacts.

Recently, Cenipalma analyzed the carbon footprint of 28 mills in the country, which accounted for 70% of the processed fruit (Ramírez-Contreras *et al.*, 2020). The results show that, the vast majority of oil palm crops in Colombia have not replaced forests or other areas with high carbon stocks, the crop acts as a carbon sink (in green, lower part of Figure 31), finding that the average carbon footprint of palm oil in Colombia is negative, equal to $-689,8 \text{ kg CO}_{2\text{eq}} / \text{t CPO}$.

Table 16: **Riskiest Aspects.** Source: Espinosa *et al.*, 2021

Main Sources of GHG ¹⁴	Management
1. Methane gas released in Industrial Wastewater Treatment Systems.	<ul style="list-style-type: none"> ▲ Lagoon covers. ▲ Effluent (POME¹⁵) treatment systems.
2. Emissions from crop fertilization.	<ul style="list-style-type: none"> ▲ Use fertilizers with a low carbon footprint from manufacture to application. ▲ Use amendments such as biomass and/or organic fertilizers.
3. Emissions from land use change (LUC).	<ul style="list-style-type: none"> ▲ Do not develop oil palm projects in the legal environmental exclusion zones (PNN2, PNN3, natural forests and forest reserves of Law 2, Category A). ▲ Identify and preserve wetland and floodplain systems. ▲ Identify and preserve other areas of environmental importance. ▲ Identify areas suitable for the establishment of crops.
4. The fossil fuel used to generate electric power and transport FFB (fresh fruit bunches).	Biomass use.

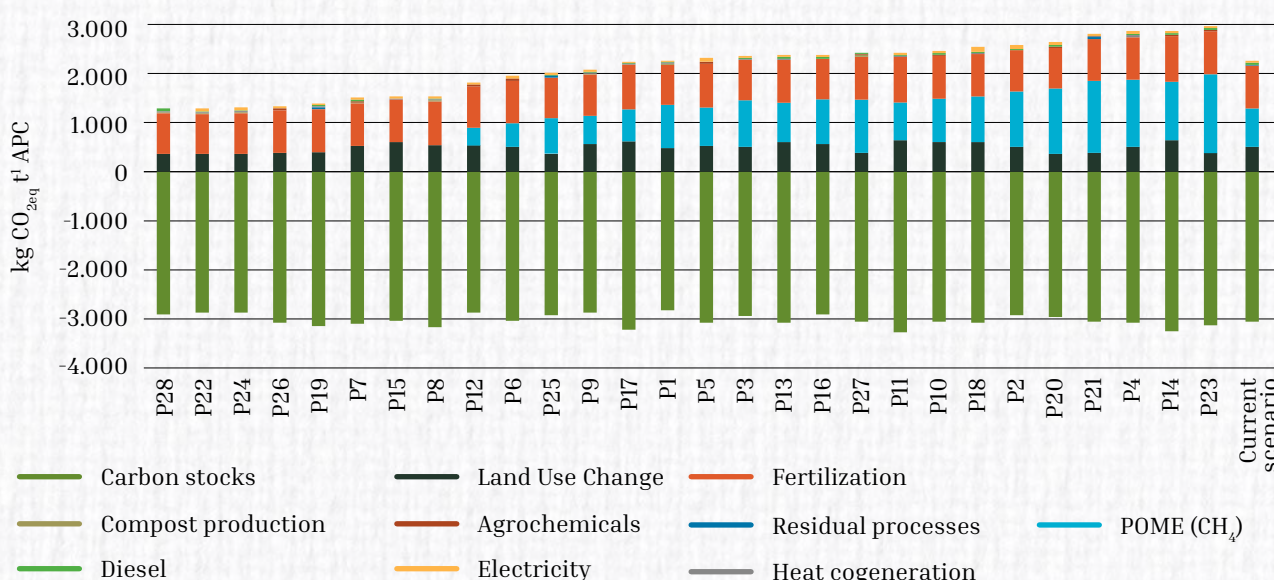


Figure 31. **Balance of GHG emissions in 28 mills of the palm oil sector in 2017**

Source: RRamírez-Contreras *et al.* (2020). Each mill is represented by the letter P and a number from 1 to 28. The national average of GHG emissions is shown in the “current scenario” bar

14 Managing sources 1 and 4 can generate clean energy, so we will further delve into it in material topic 6.1.6 Clean Energy and Biomass Use.

15 POME are the greasy residues left on the surface of pools where water is poured with hot steam, used to soften the oil palm fruit shell.

Managing emissions and carbon footprint

Contribution	<ul style="list-style-type: none"> ▲ Strategies to reduce indirect emissions caused by the impact of Land Use Change (LUC). ▲ Prospective studies on the agricultural intensification.
Progress	<ul style="list-style-type: none"> ▲ Comparison of tools to calculate and reduce the palm oil carbon footprint.
Challenges	<ul style="list-style-type: none"> ▲ Increase methane capture through covered lagoons in mills. ▲ Open operation of the Carbon Footprint Calculator for all palm growers.

Towards a low-carbon development model to reduce GHG emissionsI

The **carbon footprint is an indicator** to measure the total greenhouse gas (GHG) emissions generated directly and indirectly by a product, service or organization throughout its life cycle.

The greatest contribution to the carbon footprint can occur during land use change (LUC), if forests, wetlands, peatlands or other high carbon covers are replaced, but if the new palm planting replaces transient crops, pastures or other low carbon cover, the resulting footprint will be negative (i.e., the net yield during its production cycle will be carbon capture in the crop). Therefore, palm growers have received training in low-carbon best practices, considering the identification of areas suitable for the establishment of the crop from its plantation, such as:

- ▲ Use lands with a low carbon content.

- ▲ Zero deforestation.
- ▲ Increase carbon sequestration in crops whose areas are considered suitable for developing the crop.
- ▲ Optimize the use of nitrogen for crop nutrition.
- ▲ Increase yields (t CPO/ha).
- ▲ Collect and use the methane provided by POME.
- ▲ Reduce the consumption of fossil fuels, use biomass to produce bioenergy and efficiently use natural resources (water, air, soil) and other commodities.

The adequate management of emissions and the carbon footprint creates value by reducing the direct and indirect emissions, which is appreciated in the global market and translates into green bonds.

Carbon footprint calculator for producers

This initiative seeks to provide a tool for palm growers to calculate the emission and carbon footprint of their crops to subsequently access carbon bonds, among other benefits.



Scope:

Calculates GHG emissions and their respective carbon footprint, from the crop to the resulting CPO.



Basis:

Life cycle analysis methodology; ISO 1407 and IPCC guidelines.



Compared to:

RSPO and ISCC calculator (no significant differences have been identified, only variables such as: emission factor, carbon stock, fertilizers and cultivation periods).



In process:

Open to all palm growers, although there have been five courses with 140 people and 60 companies to socialize the tool.

Relevant facts



- ▲ Publication of the **Guideline on Best Low-Carbon Practices Associated with the Production of Sustainable Palm Oil in Colombia** and 7 fact sheets with best practices, in partnership with WWF (2017-2019).
- ▲ Compilation of the practices that most influence the protection of carbon stocks and the reduction of GHG in the areas of influence of an oil palm project by planning continuous improvement activities; the efficient use of resources such as fertilizers and agrochemicals and reducing fossil fuel consumption during the cultivation stage.
- ▲ Manufacture of oil palm biomass biocarbon and incorporate it into the soil for carbon sequestration.
- ▲ Reactivation of palm oil companies selling carbon bonds in 2019.
- ▲ Carbon footprint calculator for producers, which seeks that palm growers can calculate their emissions and the carbon footprint of their crops to access carbon bonds, among other benefits. It is being validated to be openly used by all palm growers. Furthermore, five courses have been held with 140 people from 60 companies to socialize this tool.

Challenges to turn into opportunities



- ▲ Facilitate access to the sale of carbon bonds.
- ▲ Strengthen the conversion of CO₂ into carbon capture, so as to increase the value and use of biomass.
- ▲ The IDEAM is expected to endorse the carbon footprint calculator in order to formalize parameters or emissions to be considered in relation to climate change issues, which will allow progress in measuring the carbon footprint and optimizing production processes.
- ▲ Achieve climate-smart palm cultivation with an approach that guides the actions needed to transform and reorganize production systems to effectively support development and ensure food security in the context of a changing climate.
- ▲ Collection of emission factors specific to Colombia.

Oil palm crops, as well as forest plantations, can contribute to the carbon balance in tropical regions by absorbing large amounts of CO₂ and fixing it in the form of biomass

Partners



5.4.5. Efficient Land Use

[C103-1, C103-2, C103-3]

Soil is one of the essential resources to develop oil palm. Soil quality is vital for the productivity of the palm oil agribusiness, since maintaining its physical, chemical and biological properties allows the soil to comply with multiple ecosystem functions and services, thereby **preserving the environmental balance**.

This material issue is related to the following principles: 1. Productive, competitive and resilient agribusiness; 2. Adequate and efficient use of land, water and energy; and 5. Preventing and mitigating environmental pollution.

These principles promote the adequate planning and design of plantations and mills, optimizing the use of this natural resource under a continuous improvement approach.

The **efficient use** of natural resources (water, soil, energy) seeks **to maximize its eco-efficiency**, producing the largest amount of fruit or oil per unit of water, soil or energy used. Likewise, it seeks to **minimize its ecological footprint**, reducing water from surface and underground sources that the production process demands, as well as the total consumption of water and energy per period of time, using renewable energy sources to the extent possible.

Efficient land use

Contribution	▲ Identify good practices to avoid the impact on land use change (LUC).
Progress	▲ Creation of UMA ¹⁸ (Environmental Management Units) as a crop design and management strategy which recognizes and builds on the heterogeneous conditions in an area.
Challenges	▲ Palm growers consolidate the application of efficient land use practices.

16 UMA: "Specific and delimited areas within the same plantation that may be adjacent or dispersed, but that have homogeneous characteristics in terms of climate, soils, water, genetic material for planting and age of the crop. This allows planning and implementing specialized best agricultural practices in these areas, achieving greater efficiency in the management of the agronomic phases and productivity of oil palm crops" (Cenipalma, 2017).

The soil is a **dynamic and complex system** modified by the action of men for production activities, causing a land use change (LUC) that affects its performance. In this sense, the palm oil sector seeks to avoid affecting soil by practices for an adequate use of the

soil in oil palm crops and mills to comply with the permits and other requirements of the current regulations; avoid the deterioration in the quality of the conditions and properties of the soil and regenerate its physical, chemical and biological properties.

The first guideline for an adequate and efficient use of the land is to locate the crops in areas suitable for oil palm



Relevant facts

- ▲ The sector has a guide to create Agronomic Management Units as a crop design and management strategy which recognizes and builds on the heterogeneous conditions in an area. This allows planning and implementing specialized best agricultural practices in these areas, achieving greater efficiency in the management of the agronomic phases and productivity of oil palm crops.
- ▲ The soil and climate criteria and variables to be considered for palm cultivation have been determined.
- ▲ There is a zoning map showing suitable areas for growing oil palm in Colombia, developed by UPRÁ and available at: <https://sipra.upra.gov.co/>



Challenges to be turned into opportunities

- ▲ For further advancement of the sector, it is still imperative that palm growers increase the implementation of efficient land use practices.



5.4.6. Clean Energy and Biomass Use

[C103-1, C103-2, C103-3]

As mentioned above, implementing eco-efficiency is critical for the country’s palm oil agribusiness as a mechanism to make the most of the byproducts of oil palm, crops and oil extraction in a comprehensive way to enhance its value through business strategies and technological changes.

Another alternative with great potential for creating value is the reduction of GHG emissions and the generation of renewable energy by using the methane gas (biogas) released in the wastewater treatment systems of the mills.

It is estimated that the palm oil agribusiness has the potential to generate 340 MW of power.

For this, we seek that the sector:

- ▲ Optimizes or reduces the use of fossil fuels.
- ▲ Increases the use of renewable energy sources in the energy matrix of crops and mills.
- ▲ Adopts energy efficiency technologies and practices by optimizing energy use, replacing fossil fuels with clean energy (electric

and thermal), and measuring, monitoring and setting goals to improve performance.

A mill can generate enough electricity to be self-sufficient and its electricity matrix will be 100% renewable with the use of biogas; however, it can also obtain additional income from the sale of surplus energy. Therefore, an adequate use of energy creates value for the palm oil business in three complementary ways:

1. Higher economic value (higher revenues or lower costs).
2. Replace fossil fuels in diesel plants, which reduces GHG.
3. In areas not connected to the power grid, they can contribute to closing the energy gap in the region.

As of December 2019, seven palm oil mills have covered lagoons to capture methane and reduce GHG; five of them generated their energy from biogas to supply their demand, and two sold the surplus energy to the external network. (Fedepalma, 2021).

Contribution	<ul style="list-style-type: none"> ▲ Change in the assessment of biomass as a waste to become a byproduct. ▲ Compliance with all the regulatory requirements to generate clean energy.
Progress	<ul style="list-style-type: none"> ▲ Currently, 11 mills have a cogeneration system that allows them to supply about 59% of the electrical energy required by the palm oil extraction process.
Challenges	<ul style="list-style-type: none"> ▲ Increase biogas production to generate electricity. ▲ Increase the adoption of biomass use system by palm growers for cogeneration processes and produce biodiesel.

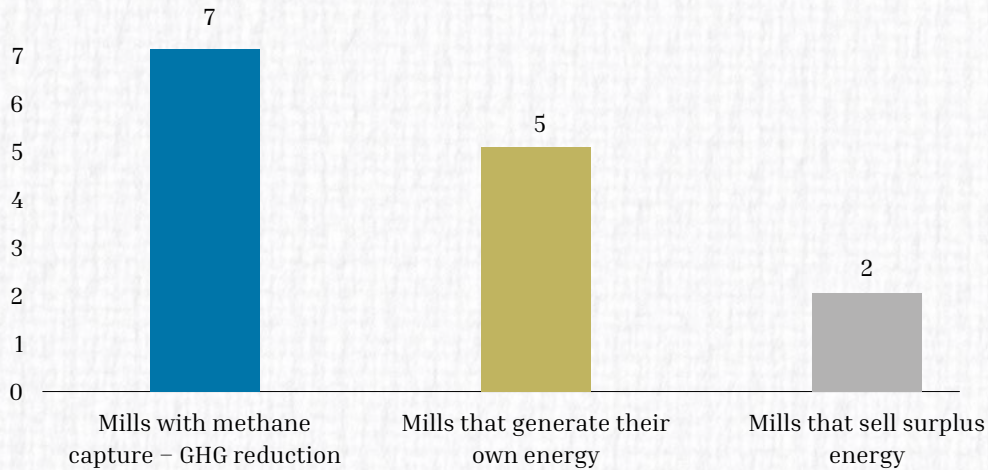


Figure 32. **Reduction of GHG emissions and energy generation from biogas**
 Source: Fedepalma (2021)

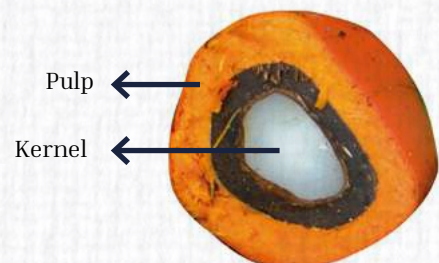
Biomass use

Another significant step in the creation of value is to leverage the nutritional content of industrial wastewater from the palm oil extraction process and thus avoid its discharge into water bodies or the soil. Due to their high organic load content, industrial waste water have a high potential for polluting surface and groundwater bodies. This can be avoided if instead of discharging them into water or soil, they are used in composting or fertigation systems, as mentioned in section 4.5.1. However, it should be noted that composting systems generally cannot use the entire volume of IWW generated in the mills.

Another form to use biomass is through composting, i.e., the transformation of these byproducts into organic matter with a high nutrient content, useful to meet the crop requirements. Therefore, composting is an alternative to use the byproducts, create added value and close matter and energy cycles in the palm oil sector. By 2021, 25 of the 69 palm oil mills had established composting systems as a strategy to use byproducts.

On the other hand, much of the fiber and husks are used as fuel in the boilers to create water steam.

For the sector, circular economy is a key sustainability strategy to recycle organic matter (biomass) and generate renewable energies from it.



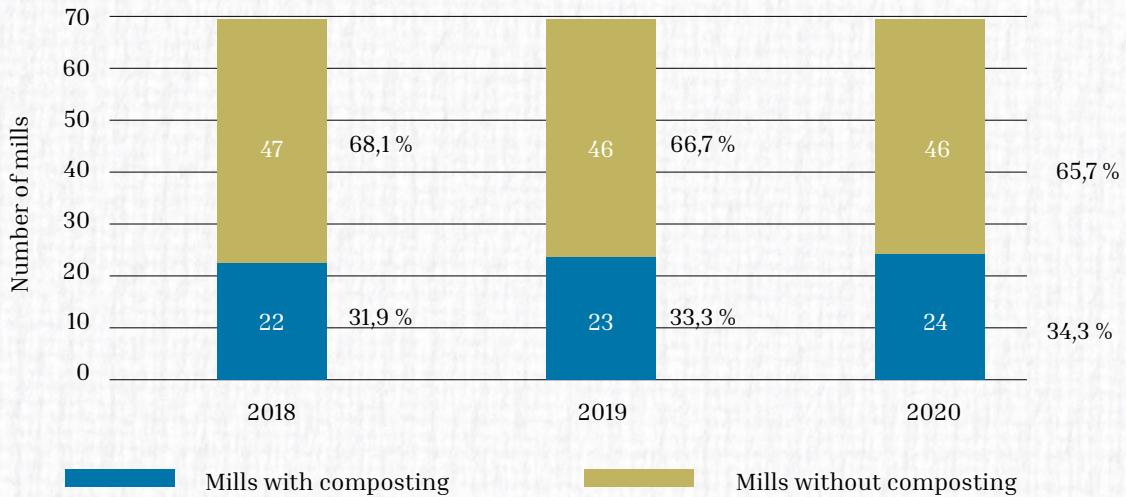


Figure 33. **Use of solid biomass through composting**

Source: Fedepalma

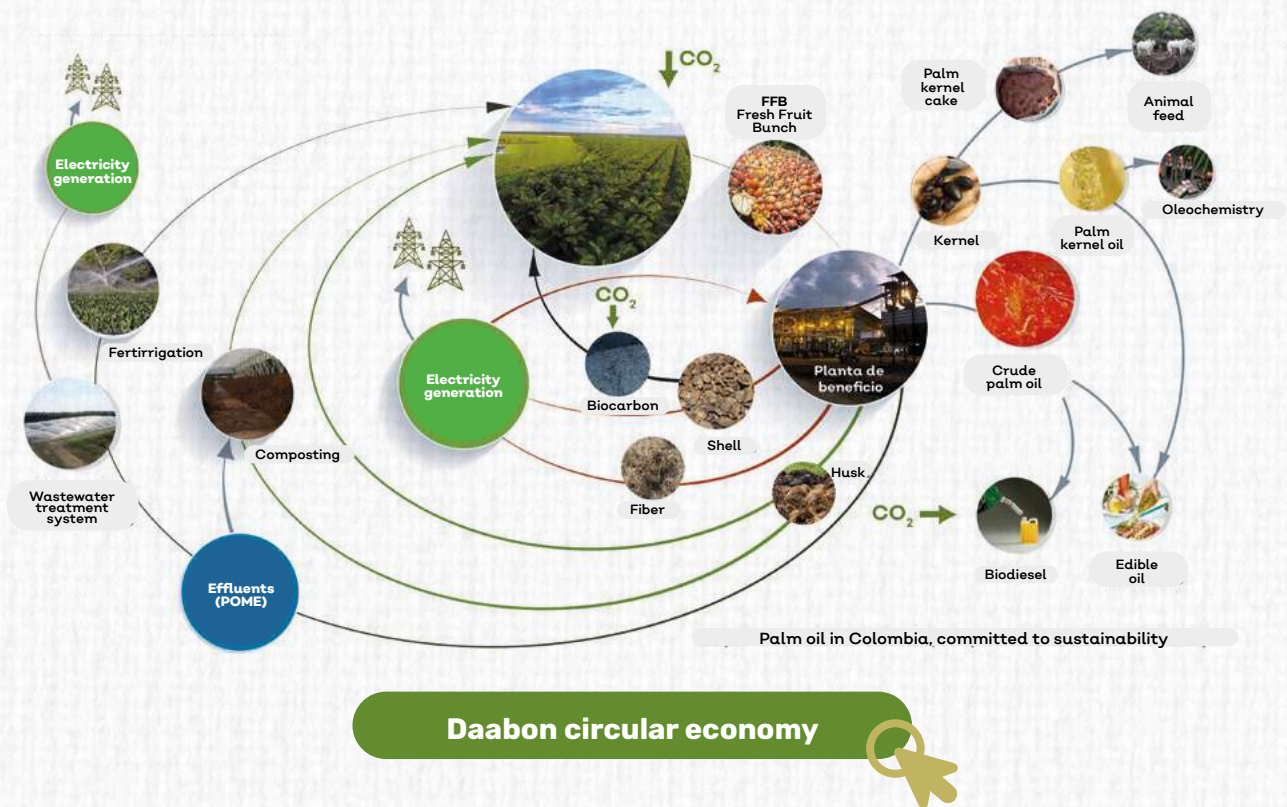


Figure 34. **Circular economy in the palm oil sector**

Source: Fedepalma and Cenipalma

Ensuring that all solid biomass is used is equivalent to using more than 2.8 million tons of biomass produced annually in the mills, mainly husks (approximately 50% of the total weight), fiber (34%) and shell (14%)



Relevant facts

- ▲ Regulatory frameworks such as Law 1715 that favor and encourage the generation of electrical energy in the palm agribusiness.
- ▲ 2020 analysis of barriers to use biomass and identified that producers have difficulties in using the byproducts of the palm oil extraction process because they lack investor partners and do not know the market for selling energy; therefore, we agreed to develop a pilot project to identify how to implement and achieve alternative income for small palm growers (30t FFB).
- ▲ Although only two palm *clusters* have managed to sell their surplus energy from biomass, they are a key example for other companies in the sector.
- ▲ Conducted studies to increase the methane production in the water treatment system (WWTs) due to husk co-digestion.
- ▲ Developed a study of the energy potential of different scenarios of power generation from palm biomass.
- ▲ Developed a biomass energy co-generation module to be used efficiently, included in the carbon calculator developed by Cenipalma's Processing Program.
- ▲ Advanced in the design of the process to manufacture biocarbon from palm husks to absorb contaminants.



Challenges to be turned into opportunities

- ▲ Produce biogas by collecting methane in the POME treatment or covered lagoons that ensure the recirculation and degradation process.
- ▲ Escalate the technologies to be adopted on a pilot or industrial scale.
- ▲ Adopt the carbon calculator to model co-generation scenarios.
- ▲ Promote the formalization of partnerships with companies specialized in the assembly of biogas power generation system.
- ▲ Enhance the value of biomass under the concept of biorefinery,¹⁷ as it would contribute to the environmental (clean energy generation), economic (creation of economic value), and social (job creation) aspects.
- ▲ Ensure 100% use of the biomass generated to prevent soil and water pollution due to inadequate waste disposal.

17 There are multiple alternatives to incorporate biorefinery concepts and modules into the mills and thus give greater value to biomass. Each mill must analyze the alternative that represents the greatest value according to their business interests, their particular conditions and possible customers or partners that make their implementation feasible.

- ▲ During the palm projects planning phase, emphasize the implications of commissioning a mill together with the legal-environmental requirements.

Partners

Leading mills on the topic

UCME



Residual Biomass Committee

5.5. The Importance of Doing Things Right: Social Dimension

[C103-1, C103, C2-103]

Stability, growth and well-being are essential to create strong bonds between people. For this reason, social contributions of the palm sector to sustainability have focused on the promotion of good practices to **drive social development, respect for the rights** of all stakeholders and the evaluation of regional



Sowing a safe future.
 Author: Álvaro Andrés Cerezo Ríos.
 National Environmental and Social Photography Contest in Palm Areas 2020.

The palm sector accounts for
 + **82%**
 of FORMAL JOBS
 Compared to 85% of rural labor
 INFORMALITY in Colombia



18 Decision making process aimed at structuring local spaces that allow deploying the production process, responsible interactions with the environment, the construction of basic infrastructure and the improvement of the quality of life. (Pérez, I.2011). Revista de Ciencias Sociales. Vol. 6, n.º 2, 2011; pp. 185-218. Recuperado de file:///C:/Users/lcastro/Downloads/Dialnet-LasConcepcionesSobreElDesarrolloRegionalEnLasPolit-3868856.pdf

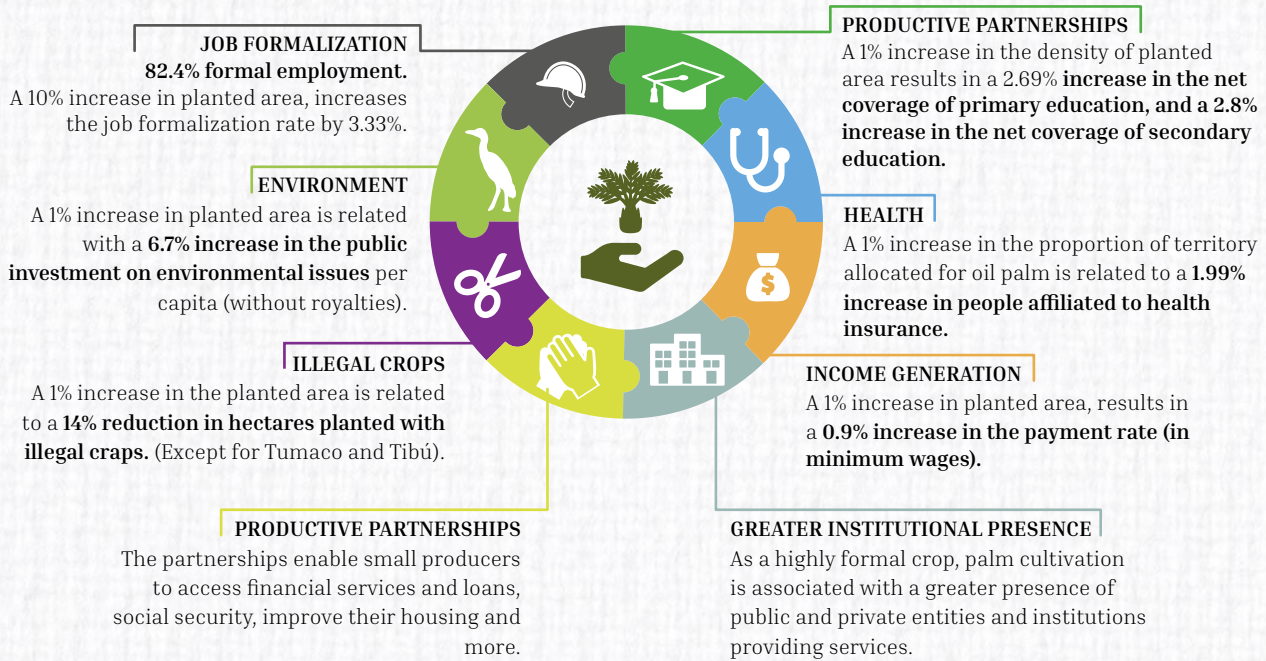


Figure 35. **Social benefits of oil palm**

Source: DANE-Fedepalma Employment Survey, 2017; C-análisis, Daniel Rico, 2021

development¹⁴ in palm growing areas.

5.5.1. Managing Partnerships and Participation Spaces

This issue has materialized in various trai-

ning sessions of the social spectrum, which have fostered knowledge transfer and strengthened the relations between stakeholders. Considering that these groups are the basis for sustaining the changes we will face during this process of building sustainability in the Colombian palm oil sector, each joint action is

Managing partnerships and participation spaces

Contribution	<ul style="list-style-type: none"> ▲ Strategic productive partnerships (APE, for its initials Spanish). ▲ Development of projects with a landscape and territory approach. ▲ Training in labor formalization for work in palm clusters.
Progress	<ul style="list-style-type: none"> ▲ Strategic partnerships for sustainability with different public and private actors (ILO, WWF, Solidaridad, Partner of the Americas, Procolombia, Proforest, IDH, Cargill, SENA, UPRA, Ministry of Agriculture and Rural Development, Ministry of Environment and Sustainable Development, and more).
Challenges	<ul style="list-style-type: none"> ▲ Develop greater regional coordination. ▲ Analyze the current productive partnerships. ▲ Optimize the palm cluster model.

Managing alliances for the sector's progress



Partner
International Labor Organization (ILO)



Outcome

Diploma Course on the Promotion of Job Formalization and Occupational Health and Safety.

Description



Scope

Over
500 people *enrolled*,
210 people *certified/*
graduated



Duration

Two months



Investment

Free



Difficulty

High university level



Year

2020



Outcome

Diploma Course on Gender Equality and Committees.

Descripción



Scope

Over
40 people *enrolled*,
27 people *certified/*
graduated



Duration

Two months



Investment

Free



Difficulty

High university level



Year

2021



Outcome

Guidelines on work at heights and forestry work hazards.

Raising awareness of the work of labor inspectors.

Labor formalization services fairs in palm areas.

Training workshops on the risks in crops and mills, aimed at officials and inspectors of the Ministry of Labor.



Description

We seek to motivate and encourage labor inspectors to carry out pedagogical work and assist the producer, prioritizing the continuous improvement of palm-growing activities over their sanction, thus preventing the appearance of eventual corrupt practices.



Outcome

Training in labor formalization and Occupational Health and Safety Management Systems (OHSMS).

Description



Participants

35 *small-scale producers* and some officers of *clusters* and experimental fields



Duration

4 days with 9-hour sessions



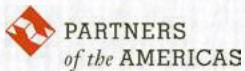
Investment

Free



Place

Bogotá, Colombia



Aliado

Partners of the Americas and Social Accountability International (SAI)



Outcome

Training to prevent child and forced labor and implement compliance systems with the *Palma Futuro* Program.



Training on the prevention of forced labor with Venezuelans in Catatumbo, where we provided guidance on hiring foreign labor in coordination with the Ministry of Foreign Affairs.



Development of graphic material - infographics for care and self-care during the COVID-19 pandemic.



Partner

SAC and Vice Presidency for Women



Outcome

Pact for Rural Women (2019): Created the Network of Palm-Growing Women with the aim of extending the institutional services of the National Land Agency and Banco Agrario.




Partner

United Nations Population Fund



Outcome

Training in Pathways to prevent domestic violence.

 **Partner**
Colpensiones



Outcome

Affiliations to the Social Protection Floor and Periodic Economic Benefits (BEPS) since 2020.



Description

Those who earn less than a minimum salary may apply. Began with pilot programs in two palm *clusters*.



Outcome

Access to a seniority allowance and a micro-insurance for day workers or producers' spouses, who work for a few hours in the plantation, which has been a success. Over 500 attendees and 210 affiliates.



Description

The pilot was prioritized in the North Zone since it has the lowest rates and the largest gap, especially among small-scale producers.



key to their consolidation.

Partner
Social Accountability SA8000



Outcome

Implemented two large pilot projects with the companies Palmas del Cesar and BioCosta to improve working conditions.



Partner
RSPO



Outcome

Consultancy on prevailing salary and Fedepalma's participation in co-direction of the living wage working group.

Palm's Stories

Partner: Social Accountability SA800

A month and a half ago, a courageous producer in Cesar formalized one of his workers: access to health care, pension and social benefits would benefit those hands.

Unfortunately, this worker was murdered 15 days after being hired. Had he not been formalized as a worker just a few days earlier, his wife and three young daughters would have been helpless and facing life with more difficulties than they already have. Today the family is receiving a pension to help the girls grow up.

And the producer? Well, relieved and at peace because he is not obliged to pay a lifetime pension as an employer.

Lesson: Formality is worth it

[Get to know more of palm's stories](#)



Challenges to be turned into opportunities

- ▲ Improve the coordination between the sector and the Ministries of Labor, Education and Health in the implementation of guidelines for the palm oil sector.
- ▲ 100% formal jobs in medium and large companies.
- ▲ Increase the affiliation of small companies to BEPS and minimum floor. This group has the highest rate of informality, but the aforementioned conditions are an acceptable basis for achieving decent working conditions for all workers.
- ▲ Improve the coordination of social management at the regional level.

5.5.2. Human rights and business

Global efforts to establish decent working conditions for all workers have not yet achieved the same **strength, urgency and impact** obtained with environmental rights. However, the palm oil agribusiness has identified them as a fundamental issue of social sustainability, relating to principles 7 and 9 of the APSCO standard, which concentrate most of the as-

pects that the sector seeks to strengthen in the social sphere.

In this regard, it is expected that the European Union will place greater emphasis on the monitoring of human rights throughout the value chain; an exercise that the palm sector has been focusing on with greater emphasis on **the prevention** of child labor, forced labor and discrimination, and on mitigating and redressing the damages caused in this regard.

Managing partnerships and participation spaces

Contribution	▲ Socialize and promote the guidelines for due diligence in the compliance with human rights.
Progress	▲ Guideline. Palm oil sector and Rights. On the Same Side. ▲ Guideline on human rights for palm oil producers.
Challenges	▲ Create a baseline as a diagnosis of human rights in the sector.

The Guideline “Palm oil sector and Rights, on the Same Side” and the guideline on human rights for palm oil producers guide the producer to make assertive decisions on this issue, based on examples of their day-to-day lives.

It presents the basic concepts of human rights to make them applicable in situations such as the use of water in relation to the community; the management of labor relations with indigenous or afro-descendant peoples, among other scenarios.

PILLARS

- 01** The State’s obligation to protect human rights from violations by private companies.
- 02** The Companies’ responsibility to respect human rights.
- 03** Access to reparation mechanisms.



Relevant facts

- ▲ Human Rights and Business workshop for the Sustainability Network.
- ▲ **Baseline of victims of violence in the palm oil sector** (218 documented cases). The stories of the sector were compiled, and the palm growers made proposals for non-repetition as part of the work of the Truth Commission.
- ▲ Delivered a report to the Commission for the Clarification of Truth, for Coexistence and Non-Repetition (CEV). Over 80 interviews and more than 300 hours of recordings, conversations and publication of a book.
- ▲ Palm growers victims of the conflict speak to the CEV about the impact on the agribusiness.



Challenge to be turned into opportunities

- ▲ Formulate sectorial guidelines and policies to promote the protection of human rights in the palm oil agribusiness, thus strengthening the capacities and integrating due diligence processes.
- ▲ Develop capacities to identify potential and real risks that may jeopardize the protection of human rights.
- ▲ Due diligence on land ownership, use and occupancy.

5.5.3. Decent Work and Workers' Rights, and Relations with Communities and Other Actors

Beyond legality, the formalization of employment in the sector is very important because it entails a series of benefits/losses, depending on the actions, which have a profound impact on the social development of areas that –in most cases– are vulnerable to poverty and discrimination.

Companies and producers of the palm oil agribusiness in Colombia have advanced in hiring their workers in compliance with the legal requirements and affiliating them to the national social security system. This effort is

evident in the **First Great National Survey of Direct Employment in the Colombian Palm Oil Sector**, conducted with the National Administrative Department of Statistics (DANE). The survey showed that more than 82% of the jobs created in the sector are formal, being one of the sector's premises.

Another important factor in the agribusiness that became evident in the survey, and was complemented by Econometria in 2020, shows that the salary in the palm oil sector is 1.5 times higher than the minimum salary in the country, which leads to the conclusion that it is a salary that not only exceeds the national minimum salary, but is also higher than the average rural income and covers the needs of families. Efforts in this area should be **aimed at the worker**, whose formalization is difficult due to the short duration of his/her service and high job turnover.

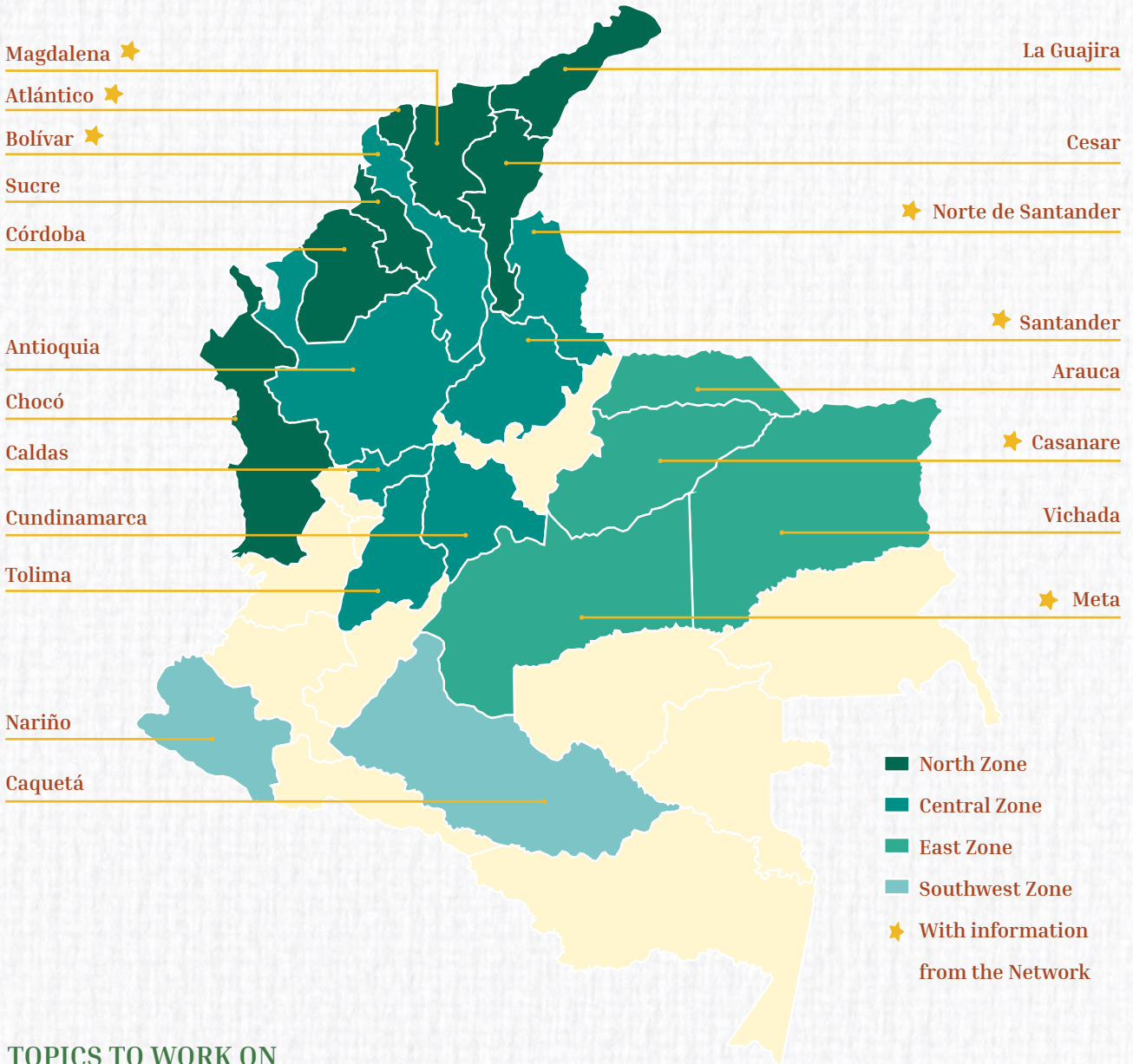
Decent work and workers' rights, and relations with communities and other actors

Contribution	<ul style="list-style-type: none"> ▲ A living salary to cover the needs of workers in the sector and their families. On average, a worker in the sector earns 1.5 monthly legal minimum salaries.
Progress	<ul style="list-style-type: none"> ▲ Publication of the First Great National Survey of Direct Employment in the Colombian Palm Sector (2018). ▲ Book on Minimum Salary in Colombia and the palm oil sector. ▲ Guide for relations with communities, inviting them to nurture the relationship with their respective environment.
Challenges	<ul style="list-style-type: none"> ▲ Develop indicators to measure the impact of palm growing on education, infrastructure, culture, society, and other factors.

Strong ties make for more sustainable palm

On the other hand, the **Palm Sustainability Network** (comprised of foundations and areas of social responsibility of the industry) plays a mediating role between the services and programs managed by Fedepalma through partnerships and with other palm growers and their communities.

The network comprises more than 26 foundations and 47 members of palm oil companies. (a company may have a foundation and a Social Responsibility area, or several companies can have a single foundation). They hold national and regional meetings to share experiences and combine efforts to achieve their common objectives. Therefore, they receive training to measure the social impact of their work in a standardized way.



TOPICS TO WORK ON



Figure 36. **Palm Sustainability Network**

Source: Fedepalma and Cenipalma

A tool for the sector, by the sector

The Palm Solidarity Fund emerged amid the COVID-19 pandemic and was quickly adopted by palm growers because it gathered and managed resources that supported the acquisition of goods and services with a high value for communities. This initiative strengthened the relation between palm growers and companies, foundations, communities and law enforcement, reaching more than 725,000 potential beneficiaries.

Relevant facts



- ▲ The Basic Guide has been used to manage the social responsibility of oil palm growers. This guide allows establishing and maintaining positive relationships with the environment.

Challenges to turn into opportunities



- ▲ Preparation of the Sustainability Network management report.
- ▲ Monitor labor formalization.
- ▲ Train foundations to measure social indicators, quantify their results and strengthen the capacities of their personnel.
- ▲ Strengthen social management capacities.

Oil palm voices

The Solidarity Fund was used to purchase a container that served as a temporary hospital in Maní, Casanare, since the existing hospital collapsed. Furthermore, it was used to:

Acquire an ambulance in Tibú and Urabá to perform COVID-19 tests.

Equipment for the Health Center in Mapiripán, Meta.

In Codazzi, X-ray equipment.

Donation of medicine to San Andrés Hospital in Tumaco, Nariño.

Donation of 8,200 biosecurity kits to Law Enforcement.

Improved the infrastructure of the X-ray room in Algarrobo, Magdalena.

Equipment for the Hospital in San Martín, Cesar.

Donation of supplies and food to assist those affected by Hurricane Iota (San Andrés and Providencia).

**Get to know more
of palm's voices**



5.5.4. Inclusive Businesses

Traceability, which is being increasingly improved in the value chain, demands recording and showing each stage of the process. Therefore, the sector has been working on the clarity of the supply scheme and respecting the commercial relations through principle 8 of Colombian Sustainable Palm Oil. Furthermore, markets are increasingly demanding this information; therefore, this material is critical for the palm oil sector to coordinate the different dimensions of sustainability.

Colombia is mostly characterized by a dynamic of productive partnerships, and the palm oil sector is an example of this. According to Steiner and Ramirez (2019), the palm oil sector stands out against other agro-industrial sectors in the country for the high performance of its productive partnerships in terms of: stable remunerative prices, increase in productivity and quality, banking, access to credit and labor formalization.

Inclusive Businesses

Contribution	▲ The palm oil agribusiness is a leader in partnerships between small, medium and large producers at the national level.
Progress	<ul style="list-style-type: none"> ▲ 80% of palm growers have access to banking services in the Tibú region. ▲ Access to banking services and financial training to palm growers.
Challenges	▲ Identify the development and productive partnerships models used for the agribusiness in each zone.



Relevant facts

- ▲ Partnership with Asobancaria to train palm growers on access to credit. This, to prevent them from getting involved with loan sharks and recognize the value of their labor in the market.



Challenges to be turned into opportunities

- ▲ Evaluate the current state of productive partnerships and define a new roadmap.
- ▲ Identify successful partnership schemes (currently, 113 partnerships have been identified).

5.5.5. Contribution to socio-economic development

The palm oil agribusiness is present in 21 departments and 161 municipalities throughout Colombia, which have mostly been highly affected by the armed conflict. Therefore, it is a productive sector with great potential for the social and economic transformation of rural areas.

In *Estimación del dividendo palmero en Colombia. Efectos de la producción de palma en las condiciones socioeconómicas de los municipios productores, II parte*. Revista Palmas. Bogotá (Colombia) vol. 42(2) 62-81, abril-junio 2021 it is concluded that:

1. Oil palm crops allow small producers to have long-term mentality, plan their future and **create attachment to the territory**. Unlike others, this agribusiness is a long-term crop that promotes local development and lasting settlement.
2. **Labor formalization is the greatest catalyst for the social and economic impacts associated with palm production**. Access to social security and complementary benefits are critical to improve the quality of life of palm growers and their families.

3. Through long-term projection, communities are able to engage more effectively in the supply of goods and services that are essential for their development. Formalization and stability at work are valued over increases in income.
4. Good agricultural practices are one of the major development transfers from the palm agribusiness to the territories.

Contribution to socio-economic development

Contribution	▲ As of late 2021, 196,816 jobs, of which 40% are direct jobs.
Progress	▲ More than 244,000 families benefited by the sector.
Challenges	<ul style="list-style-type: none"> ▲ Create strategies to fight against the problems of Colombian countryside, such as drug trafficking and labor and business informality. ▲ Work so that the youth see the countryside as an option for business development and growth



Relevant facts

- ▲ Two periodic training sessions are held with Finagro on financing for small producers, seeking to reach all palm-growing areas and types of producers, particularly small-scale producers, who represent 85% of the total.

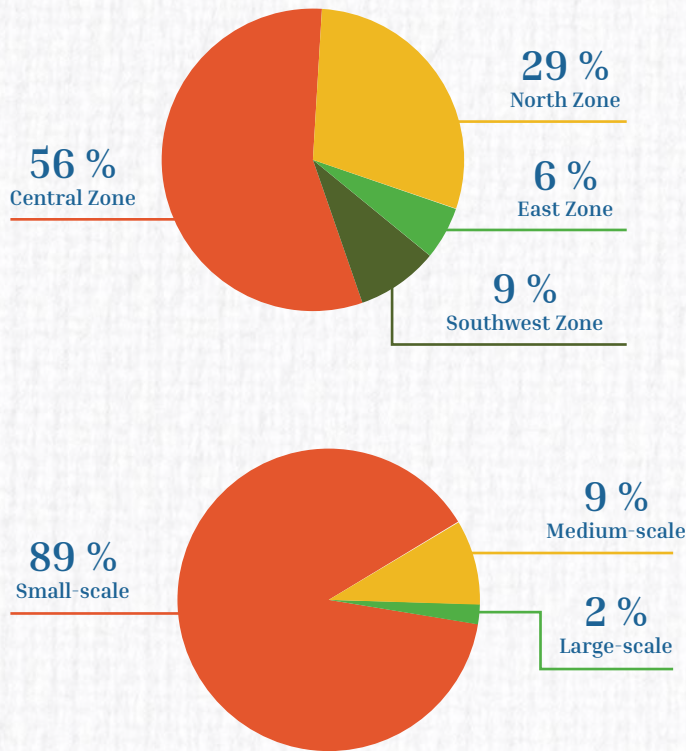
5.5.6. Gender Equality

The palm oil agribusiness promotes equal opportunities for men and women. We are working to close gaps through training on finance, microfinance, personal finances, assistance to domestic violence and risk prevention from the home to the workplace.

The participation of women in the palm oil sector is important since in recent year the agribusiness has been committed to providing opportunities for both men and women.

This is reflected in the increase in female labor in different activities throughout the production chain. In order to encourage and motivate the participation of more women in the agribusiness, there are training sessions on various issues to reduce the gap.

Women palm oil producers network was established in 2020 to create a socialization and communication space that identifies the needs and provide tools to close gaps through training and lectures to help advance and close gaps.



31%
of producers
are women*

89%
of them are
small-scale
producers, and

56%
are in the
Central Zone

Figure 37. **Women in the Colombian Palm Sector. Resilient Communities**

* Includes natural and legal persons (Legal Representatives of legal persons)

Source: RNP- Figures as of 05/16/22

Gender Equality

Aporte	▲ Creation of Women palm oil producers network.
Avance	<p>▲ 14% of employment in the palm oil sector is made up of women. For example, 30% of the operational labor of a company in the Southwest Zone are women.</p> <p>▲ 31% of producers are women, 89% of them are small-scale producers and 56% are in the Central Zone.</p>
Reto	▲ Increase the number of women employees who join Women palm oil producers network.



Relevant facts

- ▲ Training in personal finance and microfinance.
- ▲ Assistance mechanisms for cases of domestic violence.
- ▲ Workshops “Women Saving Lives” to prevent and mitigate multiple risks in the households of oil palm growers.

Watch video Women Palm Grower Award 2021



▲ The Women Palm Grower award included two new categories: Woman Palm Oil Directives, which is aimed at women in managerial positions and medium and large-scale producers, and Women Palm Oil Collaborator, which is aimed at all those women who work in crops, mills, associations and foundations in the sector. The category Entrepreneurial Palm Oil Woman continues, which is awarded to small-scale producers. The women nominated for 2021 were: management employees (6), collaborators (16), and entrepreneurs (7), being the largest participation to date.

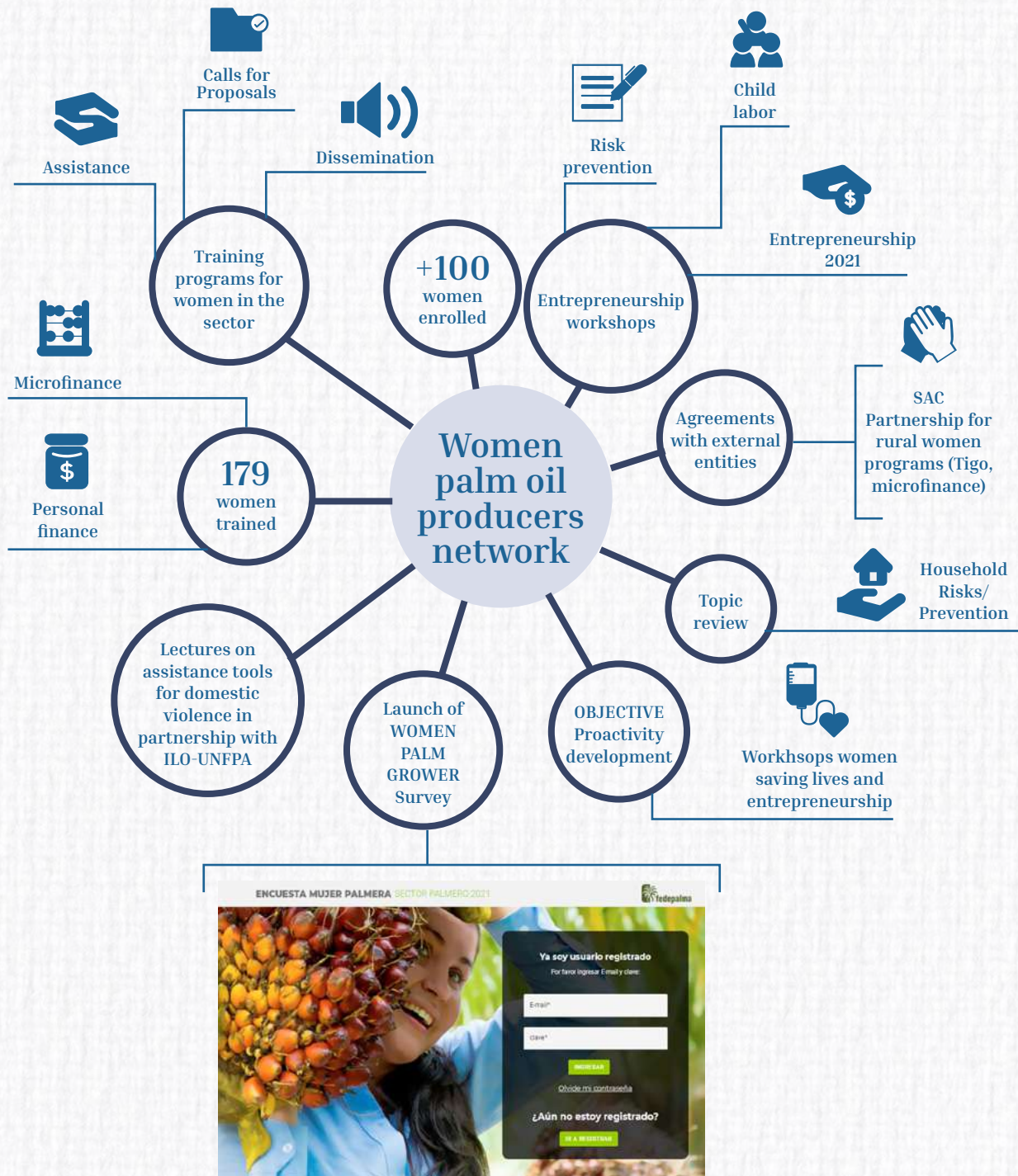


Figure 38. **Women palm oil producers network**
Source: Fedepalma and Cenipalma

Closing words: Colombian Business Council for Sustainable Development (CECODES)

Sustainability reporting is a valuable management tool for organizations that embrace sustainability in their strategy and DNA. As the Colombian Business Council for Sustainable Development (CECODES), we have seen a growing demand for information on these issues over time.

Stakeholders increasingly demand clear commitments and actions from organizations, based on open and truthful information, as a basis for trust and input for decision making. According to KPMG, in 2020, 80% of companies around the world reported their management in sustainability. Congratulations to the palm oil sector, which makes a great contribution to the sustainable development of the country and expands the path of organizations that report with the publication of this first report, an initiative in which we have supported them from the analysis of materiality to its final version. Of course, we welcome this step, and we are sure that it will contribute to better relations between the sector and its stakeholders based on its socio-environmental achievements.

Since 2005 we have accompanied Federación Nacional de Cultivadores de Palma de Aceite – Fedepalma – on the path of sustainability and we are witnessing its sustained commitment to small, medium and large growers to work on joint solutions to the great global challenges: the climate emergency, the loss of biodiversity and inequality.

As CECODES CEO, I would like to acknowledge the progress achieved and the joint work that we have carried out so far. In 2009, together with SNV, Fedepalma and the USAID/MIDAS



Sergio Rengifo Caicedo
CECODES CEO

Program, we conducted research evaluating 22 cases of oil palm productive partnerships in all palm oil regions of the country and published the document "From Productive Partnerships to Inclusive Businesses". In 2010 we trained more than 1,000 producers in the topic of Inclusive Businesses. For 2020, we contributed to the thematic and methodological approach of the book *El Agro y la Agroindustria en Colombia*.

I would also like to emphasize the efforts of the sector and its commitment to the global agendas based on the development of work that is directly related to the ten SDGs established by the United Nations. This is represented in the contribution of the palm oil sector to the country's economic performance with a contribution of 9.1% of the national agricultural GDP, with a level of formality of 82.4%, creating direct jobs in areas of the country with great difficulties and its commitment to non-deforestation.

In this regard, we must also mention that, in terms of sectorial development, the agribusiness has worked on the Colombian Sustainable Palm Oil Principles as a guiding framework for the sector's actions and a Sustainable Palm Protocol to guarantee levels of compliance, transparency and joint work with the different stakeholders to close gaps and show that working in accordance with sustainability is the path towards the transformation of the country's and the world's development. All this has been possible thanks to a collective effort driven by the more than 6,000 palm growers who are part of this sector.

Today, we are proud to accompany the reporting process and look forward to many more projects and initiatives in favor of the sector's sustainability.

Sergio Rengifo Caicedo
CECODES CEO

Annexes

Root bouquet.
Author: Carlos Andrés
Martínez.
National
Environmental and
Social Photography
Contest in Palm Zones
2017.

Annex 1. GRI index

<i>GRI Standard</i>	<i>Contents</i>	<i>Reference or Additional Content</i>	<i>Page Number</i>
GRI 102: General Disclosures			
Organizational Profile			
C102-1	Name of the organization	Not considered because this is a sectoral report. For association purposes, it is understood Federación Nacional de Cultivadores de Palma de Aceite, Fedepalma, and Corporación Centro de Investigación de Palma de Aceite, Cenipalma	17
C102-2	Activities, brands, products and services		26
C102-3	Location of Headquarters		9
C102-4	Location of Operations		19
C102-5	Ownership and Legal Form		9
C102-6	Markets Served		19
C102-8	Information on Employees and Other Workers		58
C102-9	Supply Chain		27
C102-10	Significant Changes to the Organization and its Supply Chain.	There were no significant changes in the supply chain in the reporting period.	-
Strategy			
C102-14	Statement From Senior Decision-Maker		9
Ethics and Integrity			
C102-16	Values, Principles, Standards, and Norms of Behavior		33

<i>GRI Standard</i>	<i>Contents</i>	<i>Reference or Additional Content</i>	<i>Page Number</i>
Governance			
C102-18	Governance Structure		29
C102-19	Delegating Authority		29
C102-22	Composition of the Highest Governance Body and its Committees		29
C102-23	Chair of the Highest Governance Body		29
C102-24	Nominating and Selecting the Highest Governance Body		29
Stakeholder Engagement			
C102-40	List of Stakeholders		39
C102-42	Identifying and Selecting Stakeholders		38
C102-43	Approach to Stakeholder Engagement		52
C102-44	Key Topics and Concerns Raised		52
Reporting Practice			
C102-46	Defining Report Content and Topic Boundaries		54
C102-47	List of Material Topics		54
C102-48	Restatement of Information	Not applicable to this report. Will be considered for future reporting processes.	-
C102-49	Changes in Reporting	This report was prepared considering the guidelines of the GRI Standards.	-
C102-50	Reporting Period		2
C102-52	Reporting Cycle		37
C102-53	Contact Point for Questions Regarding the Report	Andrés Felipe García Azuero afgarcia@fedepalma.org	-

<i>GRI Standard</i>	<i>Contents</i>	<i>Reference or Additional Content</i>	<i>Page Number</i>
C102-54	Claims of Reporting in Accordance with the GRI Standards		-
C102-55	GRI Content Index	Gri Standards Index	109
GRI 103: Management Approach			
C103-1	Explanation of the Material Topic and its Boundary	Guidelines on sustainability are explained in the sustainability strategy. Each material topic identified has its management approach, which are described.	46
C103-2	The Management Approach and its Components		
C103-3	Evaluation of the Management Approach		
	Economic Material Topics	We Know our Origin	58
	Environmental Material Topics	Value of Creating an Environmentally Friendly Product	69
	Social Material Topics	The Importance of Doing Things Right	92

Annex 2. Acronyms

APSCO	Colombian Sustainable Palm Oil
BEPS	Periodical Economic benefits
CGR	Office of the Comptroller General of Colombia
CPO	Crude palm oil
ES	Ecosystem Services
FFA	Free Fatty Acids
FFB	Fresh Fruit Bunch
FFP	Palm Development Fund
Finagro	Fund for the Financing of the Agricultural Sector
GHG	Greenhouse Gases
HCV	High Conservation Values
ILO	International Labor Organization
IPCC	Intergovernmental Panel on Climate Change
ISCC	International Sustainability Carbon Certification
LAFS	Leaf and Soil Analysis
LMT	Landscape Management Tools
LUC	Land Use Change
ML/TF	Money Laundering and Terrorism Financing
NAA	Naphthaleneacetic acid
Palm FEP	Palm Kernel, Palm Oil and Fractions Price Stabilization Fund
PC	Bud Rot
PIA	Industrial Oil Potential
PPB	Biodiverse Palm Landscape
RSPO	Roundtable Sustainable Palm Oil
SDG	Sustainable Development Goals
SI	Sustainability Index
SISPA	Palm Sector Statistical Information System
SMMLV	Current legal monthly minimum salary
TAPACC	Techniques to Adapt Oil Palm to Climate Change
UAATAS	Technical, Environmental and Social Assistance and Auditing Unit
UPRA	Agricultural Rural Planning Unit



References

Sharing the same environment.
Author: Rigoberto Roa. National Environmental and Social Photography Contest in Palm Areas 2010.

- Caicedo, A., Guataquira, S., Bayona, C., Pardo, A., Ayala I., Ruiz, R., & Romero, H. M. (2017). Desarrollo de una metodología para la selección temprana de cultivares de *Elaeis guineensis* Jacq., según su respuesta al estrés por déficit hídrico. *Ceniavances*, 186, Bogotá, Colombia.
- Cenipalma. (2017). *Mejores prácticas agroindustriales del cultivo de la palma de aceite en Colombia*. Bogotá, Colombia: Cenipalma.
- Espinosa, J. C., Cifuentes, J. D., Gómez, G. A., Quintero, O., Gómez, C. & Ruiz, J. (2021). *Guía Ambiental para la Agroindustria de la Palma de Aceite en Colombia*. Colombia: Fedepalma.
- Fedepalma (2020). *Anuario Estadístico 2020*. Principales cifras de la agroindustria de la palma de aceite en Colombia y en el mundo 2015-2019. Bogotá, Colombia: Fedepalma.
- Fedepalma. (2020). Informe de Gestión. Bogotá: Fedepalma.
- Fedepalma. (2021). *Anuario estadístico*. Bogotá, Colombia: Fedepalma.
- Fedepalma. (2021a). *Minianuario estadístico 2021: principales cifras de la agroindustria de la palma de aceite en Colombia*. Bogotá, Colombia: Fedepalma.
- Fedepalma. (2021b). *Balance 2020 y perspectivas 2021 de la agroindustria de la palma de aceite*. Presentación en PDF.
- Gutiérrez, P & Rico, D. (2021). Estimación del dividendo palmero en Colombia. Efectos de la producción de palma en las condiciones socioeconómicas de los municipios productores. II parte. *Revista Palmas*, 42(2), 62-81.
- Ministerio de Ambiente y Desarrollo Sostenible. (s.f.). *Fortalecimiento Institucional y Gobernanza del Agua*. Recuperado de <https://www.minambiente.gov.co/gestion-integral-del-recurso-hidrico/fortalecimiento-institucional-y-gobernanza-del-agua/>
- Pérez, I. (2011) Las concepciones sobre el desarrollo regional en las políticas públicas del sur-sureste mexicano y en los proyectos autogestivos de las comunidades locales: una contrastación a la luz de las inconsistencias del Plan Puebla-Panamá. *Revista de Ciencias Sociales*, 6(2), 185-218.
- Ramírez, N., Arévalo, A. & García, J. A. (2015). Inventario de la biomasa disponible en plantas de beneficio para su aprovechamiento y caracterización fisicoquímica de la tusa en Colombia. *Palmas*, 36(4), 41-54.
- Ramírez, N., Munar, D. A., García, J. A., Mosquera, M., & Faaija, P.C. (2020). GHG emissions and economic performance of the Colombian palm oil sector; current status and long-term perspectives. *Journal of Cleaner Production*, 258, 120757.
- Steiner, R., & Ramírez, T. (2019). Análisis de experiencias de modelos asociativos como mecanismo para el desarrollo empresarial en la ruralidad. Bogotá, Colombia: Fedesarrollo.

**Federación Nacional de Cultivadores
de Palma de Aceite, Fedepalma**
Calle 98 # 70-91 | PBX: (57+601) 313 8600
Bogotá, Colombia
www.fedepalma.org

Follow us:

