PHILIPPINE

PALM OIL INDUSTRY

ROADMAP 2024 - 2033

Philippine Palm Oil Industry Roadmap (2024 - 2033)

ISBN : 978-621-96861-1-2

Authored by:
Philippine Coconut Authority
Department of Trade and Industry
Philippine Palmoil Development Council, Inc.

Published by:
Philippine Coconut Authority - Operations Branch
Department of Agriculture
Elliptical Road Diliman, Quezon City 1101,
Philippines
Tel Nos. 8928-4501-09 loc 223, 8927 6662
Email address: oposcpd@pca.gov.ph

Philippine Palm Oil Industry Roadmap (2024 - 2033)

Technical Working Group (TWG) Members

Head : Mr. Erwin Anthony Y. Garcia, PPDCI

Alternate Head: Mr. Roel M. Rosales, PCA-OB

Members:
Ms. Gay A. Tidalgo, DTI - Caraga
Mr. Ernie Lito Y. Bollosa, BPI
Ms. Jayce Ann V. Bocala, BAI
Dr. Pablito P. Pamplona, PPDCI
Mr. Vernoulli B. Belgira, PPDCI
Mr. Anthony Bravo, PPDCI
Ms. Renfrenda B. Embalzado, PPDCI
Mr. Raul S. Batiao, COPDCI
Mr. Glenn Arthur A. Garcia, CARSU
Mr. Basser Mamalac, USM
Mr. Pablito Desoasido, LGU Zamboanga
Mr. Edgar S. Acolentava, NGPI

Representatives from Philippine Coconut Authority

Ms. Liberty H. Canja, PCA-OD
Ms. Djoana Eve R. Galang, PCA-OPOSCPD
Ms. Rosella B. Villaruel, PCA-TMDD
Ms. Luz Brenda P. Balibrea, PCA-TIRD
Ms. Marietta C. Perez, PCA Region IV
Mr. Danilo B. Bendanillo, PCA Region IX
Ms. Ma. Chyrelyn A. Pace, PCA Region X
Ms. Grace S. Orilla, PCA Region XI
Ms. Emily A. Lorion, PCA Region XII
Ms. Sarah Jean Serdoncillo, PCA, Region XIII
Mr. Lester Jake Dela Cerna, PCA, BARMM
Mr. Willy A. Mercullo, Jr., PCA - DRC
Mr. Sabiniano Q. Lamban, PCA - DRC
Mr. Gilbert M. Eslit, PCA-ZRC
Ms. Joanne Denise M. Mendoza, PCA - OPOSCPD

Representatives from the Private Sector
Mr. John Jerry Taray, Kilambay Farms Agri Buy N' Sell
Mr. Michael Bragg, Univanich Carmen Palm Oil Corp.
Mr. JP Santos, Sirawai Plywood & Lumber Corp.

Representatives from Other Government Sector / Academe
Mr. Freedcarmariam S. Gonzaga, DTI - Caraga
Mr. Jose Baron, DTI- Agusan del Sur
Mr. Reonel R. Aniñon - DTI - Agusan del Sur
Ms. Kathryn Diamante, BAI
Mr. Badu M. Panimbang, SKSU

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

MESSAGE

Serving as the Administrator of the Philippine Coconut Authority (PCA) , the agency mandated to promote the sustainable development of the palm oil industry in our country, I am looking forward to the efficient and timely implementation of the Philippine Palm Oil Industry Roadmap 2024-2033 as it carries the vision of a dynamic and innovative palm oil industry.

The Philippine Palm Oil Industry is a significant sector in the country's agriculture and economy that produces palm oil and by-products such as oil palm wood, briquetted charcoal, compost and palm oil meal, and sawali or kalakat panels.

Palm oil is a durable, versatile, and widely used vegetable oil known for its high yield and diverse applications in various industries and uses, including food preparation as household cooking oil, industrial frying, margarine, shortening, etc. It is also used as material for soaps and detergents, surfactants, oleochemicals, and cosmetics.

Nevertheless, there remains vast opportunities for the sustainable growth and expansion of the industry in terms of production, productivity, marketing, and partnerships. Along with the other initiatives of the PCA on oil palm development, such as the Smallholder Oil Palm Plantation Development Project, Trainings on Agro Technology in Oil Palm Production and Farm Management, and the Philippine National Standard for Oil Products, updating the Philippine Palm Oil Industry Roadmap is crucial to reinvigorate the industry and maximize its potential.

Given the current realities of the industry, the Philippine Palm Oil Industry Roadmap underscores development strategies being pursued by the PCA and its partners for the gainful production and enhanced productivity, processing, and marketing of oil palm products and by-products to attain food security, increased income, and other benefits and opportunities for oil palm growers, farmers, and their communities.

All these would not be possible without continuous efforts and expertise of my colleagues at the Authority, who took part in updating this roadmap for whom I would like to extend my gratitude and appreciation. I hope that we can all keep working together as we apply best practices and embrace new technologies for the palm oil industry development.

With high hopes, let us seek active collaboration with stakeholders in the coconut and palm oil industries to implement this roadmap and promote sustainable development to ensure that such growth directly benefits Filipino oil palm farmers, growers, and communities and work towards reinvigorating the Philippine palm oil industry.

BERNIE FERRER CRUZ
Administrator
Philippine Coconut Authority

MESSAGE

The Palm Oil industry is one of the fast-growing agricultural industries in the recent years. In the country, the industry is recognized as a significant contributor to the reduction of poverty through income generation, particularly for the smallholders, whose primary means of livelihood is significantly dependent on the agri-industrial subsector. Although the palm oil industry in the country is still not comparable with others like Malaysia, Indonesia and Thailand, it is considered a growing industry with its vast potential to address poverty in the countryside.

There is a wide potential area for oil palm production expansion of about 975, 300 hectares in which 117,313 hectares were already validated by PCA Regional Offices.

As a primary government agency mandated to promote the rapid integrated development of oil palm in all its aspects among others, the PCA is committed to take greater initiatives in fostering the growth of the industry. Presently, the PCA helps the smallholder oil palm growers by providing good quality oil palm planting materials, fertilizers, and technical assistance for their farms.

The Philippine Palm Oil Industry Roadmap 2024-2033 depict our aspirations to be a vibrant and innovative palm oil industry that complements the Philippine Coconut Industry. The roadmap provides comprehensive information on its future development, as well as the Philippine and global palm oil industry situation. Moreover, the long-term development track of the industry, in terms of strategies, and planning programs, activities, and projects for the sector's development are encapsulated on the document.

Consequently, PCA is dedicated to supporting industry directions through a collaborative effort among palm oil stakeholders, including the private sector and other government agencies. It is envisioned the country's domestic palm oil demand will be adequately met. While simultaneously providing jobs in rural regions through sustainable oil palm development.

ROEL M. ROSALES
Deputy Administrator
Operations Branch
Philippine Coconut Authority

MESSAGE

On behalf of the Department of Trade and Industry (DTI), I extend my heartfelt congratulations to the organizers behind the launch of the Philippine Palm Oil Roadmap 2024-2033. This remarkable initiative stands as a testament to our shared commitment to attain sustainable development and advance the economic growth of the Philippine palm oil sector.

The Philippine Palm Oil Roadmap 2024-2033 reflects the industry's unwavering commitment to advance growth, sustainability, and innovation. Through this updated roadmap, industry players will be able to align contemporary global standards to ensure the resilience of the industry in the face of evolving challenges.

We at DTI laud the planning process and collaborative efforts undertaken by all stakeholders, particularly the Philippine Coconut Authority (PCA) and the Philippine Palm Oil Development Council, Inc. (PPDCI) to ensure the comprehensive formulation of this roadmap. As we push forward a science, technology and innovation (STI) driven approach, this roadmap will be in charting a course of action toward sustainable development for the palm industry over the next decades.

The Department also recognizes the vital role of the palm oil industry in bolstering the country's robust economic growth. Therefore, we are committed to working with all stakeholders to ensure that the roadmap enhances competitiveness, promotes fair trade practices, and contributes to the overall economic prosperity of our country.

I am confident that the Philippine Palm Oil Roadmap will serve as a guiding framework to steer the country's palm oil industry to a future marked with innovation and environmental stewardship.

Through our collective efforts, we will build a resilient, sustainable, and prosperous future for the palm industry and our country. Let's work together as we work to realize a Bagong Pilipinas with inclusive and globally competitive industries!

ALFREDO E. PASCUAL
Secretary
Department of Trade and Industry

MESSAGE

The Philippine Palm Oil Industry Roadmap 2024 - 2033 aims to achieve a vibrant and sustainable palm oil industry in the country. Aligning with the nation's aspirations for economic growth and environmental stewardship, this roadmap envisions a future where the Philippines emerges as a leading producer of high-quality, sustainable palm oil, contributing to the country's economic development, food security, and social upliftment.

The roadmap aims to achieve the following goals;

- To expand the oil palm cultivation to 300,000 hectares, ensuring responsible land use practices and adherence to sustainability standards
- To increase yield, and productivity through cost efficiency and new technology.
- To increase the number of palm oil mill and refineries as may be necessary.
- To generate employment and enhance livelihood activities in the countryside so that a total of about 200,000 farmers shall have benefitted from industry development
- To build farm-to-market roads leading to plantations, research and training facilities.
- To encourage and provide incentives to investors to provide their rural oil palm growing communities with basic amenities such as housing, health facilities, schools and recreational centers.

By realizing these goals, the Philippine can harness the potential of palm oil to create a strong and vibrant economy, while upholding its commitment to environmental conservation and social responsibility. Together, we can pave the way for a sustainable palm oil future that benefits all Filipinos.

MR. ERWIN ANTHONY Y. GARCIA

President

Philippine Palmoil Development Council, Inc.

EXECUTIVE SUMMARY

The Philippine Palm Oil Industry Roadmap 2024-2033 embodies the aspiration of its stakeholders to become a dynamic, innovative and self-sufficient industry that complements with the coconut industry and provides benefits and stable supply of vegetable oils for the country, and for export. Also, this plan will serve as a reference in sourcing funds to implement industry projects.

This roadmap contains programs, activities and projects addressing the pressing concerns of the industry. Constraints and issues perceived in the Strength, Weaknesses, Opportunities, Threat (SWOT) Analysis shaped the proposed strategies for the development of the Palm Oil Industry, namely: (1) expansion of areas to meet our domestic needs for food security, (2) development and adoption of available and appropriate technologies, (3) enhancement of market access through standards development and efficiencies of production and enforcement of appropriate policies, (4) strengthening collaboration and convergence, e.g., public and private partnership, (5) enhancement of stakeholder engagement and consultation, (6) establishment of R&D in oil palm, and (7) enhancement of policy making and enforcement.

The Oil Palm (*Elaeis guineensis Jacq.*) originated in Tropical Africa. It is a perennial crop with a productive lifespan of up to 30 years. It is superior to other oil crops as the oil palm yields up to five tons of crude palm oil (CPO) per hectare per year. It has various uses in the food, non-food and bio-fuel industries.

In 2023, the global production of palm oil is 79,464,000 MT. Production is dominated by Indonesia with 59% of the total production followed by Malaysia with 24% share, Thailand, Colombia and Nigeria has less than 5% share each. The Philippines belongs to the other countries which has a total production of 3,114,000 MT.

The Philippines' oil palm production area is gradually increasing from 53,014 hectares in 2012 to 63,380.85 hectares in 2022 according to the Philippine Statistics Authority. Region XII dominates the production area of the country with 33% of the total area planted, followed by Caraga Region with 27%. At present there are eleven (11) palm oil milling plants in the country with a total capacity of 275 metric tons per hour.

The total oil production in the Philippines is almost entirely consumed by the domestic market because the country is a large importer of palm oil relative to its domestic production. The biggest importation of palm oil was recorded in 2022 which reached 1,150,000 MT.

Industry experts have estimated a total of about 1 million hectares available for Oil Palm production in the country, 98% of which are located in Mindanao. Among the regions, Caraga has the biggest potential area which is about 40% of the total prospective area for oil palm production.

THE OIL PALM

The oil palm is native to tropical Africa occurring in wild and semi-wild groves along the western coast from Senegal to Angola and towards Central regions of Congo, Sudan, Uganda and Tanzania. In 1848, four palms had found their way to Bogor Botanical Garden for experimental purposes. It was from those palms where planting materials had originated for the succeeding larger plantations in Malaysia and Indonesia which in 1960 registered an area of 55,000 hectares.

The oil palm, scientifically known as *Elaeis guineensis Jacq*., belongs to the family of palms that include coconuts. It is a monoecious and perennial plant which is naturally cross-pollinated and produces separate male and female inflorescence in the same tree. Palm trees typically begin flowering and producing fruits after 3-4 years and yield well enough after 6-8 years. Oil palm plantations generally remain profitable for 25 years, after which they need to be replanted. Peak palm oil yields occur anywhere between 10 to 18 years of age, and gradually decline thereafter. Table 1 further shows the basic information about the oil palm.

It yields numerous red nuts in a bunch; thus, its fruits are generally termed as fresh fruit bunches (FFB). The oil palm is considered the most productive oil crop with an annual yield of 3.5 to 5 tons of crude palm oil per hectare, five to ten times more than the yield of any commercially known oil crop.

The oil palm has a long history of food use, which in history can be traced back to 5,000 BC in ancient Egypt. The first commercial planting was in Sumatra in 1911. Other countries in the Far East, Latin America and Southeast Asia followed in the 1960's.

Oil Palm plantations do have an essential role in climate change mitigation specifically in offsetting anthropogenic carbon emissions. A study by Borbon, et al (2020) shows that 2 to 7 years old oil palm plantations can store an average of 40.33 tC/ha and can sequester 4.55 tC/ha/year.

Table 1. Basic facts about oil palm.

Botanical Name :	*Elaeis guineensis Jacq.*
Common Name:	African Oil Palm
Species:	Tenera (Dura x Pisifera)
Plant Height	20-30 m
Trunk Circumference:	350-400 cm
Frond Production:	24 - 30 per year
Frond Length:	6 - 8 m
Leaf Color :	Green
Ripe Fruit Color:	Reddish Orange
Nursery Period:	8 -12 months
Age of Harvesting after field planting:	30 months
Harvesting Intervals:	10 - 15 days
Number of buncher per palm:	10 -12
Average bunch weight (8 years and above)	15 - 30 kg
Average number of fruitlets per bunch:	1,500
Yield per year (FFB):	18 -25 MT per hectare
Shape of fruitlets:	Spherical to Oval
Kernel per bunch (fruit) :	3 -4.5%
Oil per bunch (fruit) :	18 - 25
Oil per mesocarp:	20 - 50%
Average crude oil yield:	4.2 MT/hectare/year
Average palm kernel oil yield:	300-350 kg/hectare/yr
Planting Density:	128 -142 palms per hectare
Economic Life:	25 - 30 years

Source: Various sources

AGRO-CLIMATIC REQUIREMENT

The oil palm grows within 10° latitude from the equator; however, the ideal growing conditions are within 5°(Figure1). This makes Malaysia, Indonesia, and the Philippines among the best areas for oil palm plantations. To date, oil palms are now spreading to drier areas up to 15° from the equator using drought-tolerant hybrid seeds.

The suitable daily temperature requirement is 24-32° Celsius. The average rainfall requirement is 1,800 – 2,200 mm per annum. The Plant requires sunlight 6 - 8 hours daily. The ideal topography for a plantation is flat to rolling and good water-retaining alluvial soil with a soil pH of between 4.0 - 6.0.

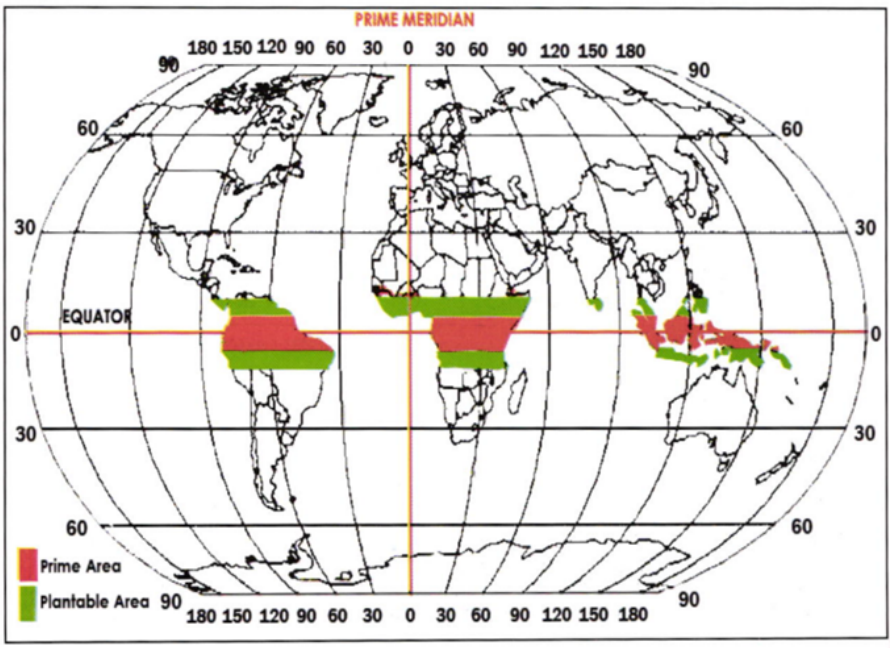

Figure 1. Oil palm cultivation area

FRESH FRUIT BUNCHES

The fresh fruit bunch (FFB) is the name of the fruit of the oil palm, which contains, 18-25% palm oil and 4% palm kernel when processed (Figure 2). A fresh fruit bunch that weighs an average of 25 kilos can produce 5 kilograms of palm oil and 0.4 kilogram of kernel oil.

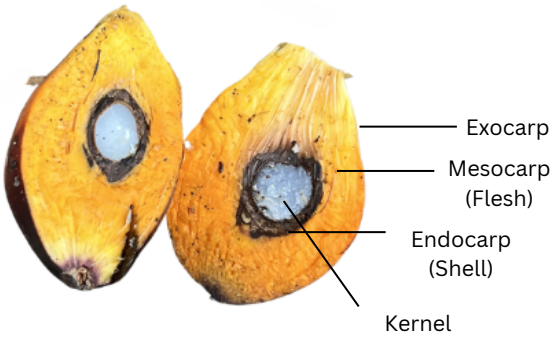

Figure 2. Oil palm fruitlet

FFBs harvested from the palm trees are processed in the mill to produce crude palm oil (CPO) and palm kernel oil (PKO). The former is extracted from the mesocarp of the fruits while the latter is obtained from the palm kernel. Though the existing mills in the country are capable of producing CPO and PKO, the present practice is to sell the palm kernel to local feed mill.

PRODUCTS AND BY-PRODUCTS

CPO is also called “palmitic oil” with a high content (40%) of palmitic fatty acid. It undergoes refining to be edible, thereby producing two products, palm olein and palm stearin. Palm olein, which is a liquid fraction to the oil comprising about 70% of the CPO is mainly used for cooking. On the other hand, the remaining solid fraction (palm stearin) is typically used for industrial purposes.

PKO can be used in ice cream and chocolate fat substitutes. It is also a close substitute for coconut oil in the so-called lauric oil complex. It has a fatty acid composition of 46-49% in the C12 range. This technical characteristic is an important factor in the vegetable oil market.

Palm oil is used in food preparation as household cooking oil, industrial frying, margarine, shortening, vegetable ghee, ice cream, confectionery and non-dairy creamers. It has protein, fat, carbohydrate, Vitamin E, (tocotrienols and tocopherols) and Vitamin A (beta-carotene). It is most preferred for food uses because it is cholesterol-free, rich in natural vitamins and has a high oxidation level, therefore resistant to discoloration, smell and has a long shelf life even after reuse. It is also used as material for soaps and detergents, surfactants, oleochemicals and cosmetics.

PKO just like Coconut Oil (CNO) is known as lauric oil because of its high lauric acid content. These are tropical oils that are greatly valued in Asian cultures especially as cooking oil.

Figure 3 shows the different by-products of oil palm from its trunks, fronds, empty bunches and fiber. Empty bunches, fiber and shell as mill by-products are used in the field for mulching, saving the growers of up to 10% in farm inputs. The fiber and shell are also used as fuel for the boilers for mill power generation. Stripped fronds are made into “kalakat” panels by enterprising dependents of the plantation workers.

Figure 3. Oil palm by-products

BENEFITS OF PALM OIL

Palm oil has several advantages over other vegetable oils, it is more durable, more resistant to pressure and high temperature, and is relatively stable. Further, there is a perceived health benefit to palm oil, as unlike many other cooking oils that are liquid at room temperature, it remains as a solid, and therefore does not need to be hydrogenated as other oils do, and thus does not contain trans-fatty acids.

Palm oil has high carotene content, cholesterol free, no risk of trans-fatty acid and contains vitamin E with the highest content of tocotrienols among edible oils. It also has a balanced composition of saturated and unsaturated fatty acids. It is used widely as food stock in a number of food products such as cooking oil and margarine. The quality of palm oil is measured by its content free fatty acid. The higher the content of free fatty acid the lower the quality of the palm oil will be.

Table 2. Triacylglycerols composition of fractioned palm oil and other vegetable oils in percentage (%)

Sources	PLO	PLP	OOO	POO	POP	PPP	POS	SOS	SOO
CPO	10.5	8.7	4.0	22.1	29.1	5.6	4.9	0.4	2.3
RPO	6.6	6.4	5.7	22.2	17.9	6.8	3.5	0.2	1.8
POI	9.2	7.4	2.8	33.1	36.4	0.9	4.2	-	2.3
PS	6.2	8.0	2.9	17.8	36.7	12.5	5.9	0.4	1.3
PKO	-	-	1.6	1.5	0.8	0.2	0.2	0.3	-
Olive Oil	5.5	1.3	41.0	15.5	2.3	-	1.0	-	5.2
Soybean Oil	13.7	1.3	2.0	2.2	-	-	0.9	-	-
Sunflower Oil	5.7	0.4	38.7	6.4	0.3	0.4	0.2	-	0.6
Sesame Oil	12.0	2.1	14.5	8.1	1.3	-	1.1	0.5	2.8
Canola Oil	1.6	1.1	28.7	5.8	-	-	-	-	2.4

Abbreviations: PLO ¼ 1-palmitoyl-2-linoleoyl-3-oleoyl-sn-glycerol; PLP ¼ 1-palmitoyl-2-linoleoyl-3-palmitoyl-sn-glycerol; OOO ¼ 1-oleoyl-2-oleoyl-3-oleoyl-sn-glycerol; POO ¼ 1-palmitoyl-2-oleoyl-3-oleoyl-sn-glycerol; POP ¼ 1-palmitoyl-2-oleoyl-3-palmitoyl-sn-glycerol; PPP ¼ 1-palmitoyl-2-palmitoyl-3-palmitoyl-sn-glycerol; POS ¼ 1-palmitoyl-2-oleoyl-3-stearoyl-sn-glycerol; SOS ¼ 1-stearoyl-2-oleoyl-3-stearoyl-sn-glycerol; SOO ¼ 1-stearoyl-2-oleoyl-3-oleoyl-sn-glycerol.

Table 3. Major fatty acid profile of fractionated palm oil and other vegetable oils in percentage (%)

Sources	**C12:0**	**C14:0**	**C16:0**	**C18:0**	**C18:1**	**C18:2**	**C18:3**	C20
CPO	0.3	1.3	43.6	4.2	38.9	10.4	0.3	0.3
PKO	51.8	17.0	7.9	1.9	12.2	2.0	-	0.2
POI	0.5	1.2	35.5	4.1	46.2	12.0	0.3	0.5
PS	0.4	1.6	6.0.6	5.1	25.4	6.2	0.3	0.4
Olive Oil	-	-	13.8	2.8	69.0	12.3	0.8	-
Soybean Oil	-	-	10.6	3.8	24.4	53.3	8.1	-
Sunflower Oil	-	0.3	11.3	4.4	25.9	56.6	0.4	-
Sesame Oil	0.2	0.3	11.3	4.7	35.0	45.0	0.4	0.4
Canola Oil	-	-	5.1	2.0	57.5	22.7	9.2	-

Abbreviations: C12:0 ¼ Lauric acid; C14:0 ¼ Myristic acid; C16:0 ¼ Palmitic acid; C18:0 ¼ Stearic acid; C18:1 ¼ Oleic acid; C18:2 ¼ Linoleic acid; C18:3 ¼ Linolenic acid; C20:0 ¼ Arachidic acid.

GLOBAL PALM OIL INDUSTRY

GLOBAL PRODUCTION

Malaysia has been the leading producer of palm oil, but was overtaken by Indonesia in the late 2000s. In 2022, Malaysia and Indonesia produced 84% of the worlds' supply, eclipsing the next largest producer, Thailand at 4%. Interestingly, Malaysian companies own 25% of the acreage in Indonesia.

Colombia is the largest producer in the Americas accounting for about 2% of the world's supply. Like many other agricultural products in the region, 35% of its production goes to biofuel.

In 2023, the global production of palm oil is 79,464,000 MT. Production is dominated by Indonesia with 59% of the total production followed by Malaysia with 24% share, Thailand, Colombia and Nigeria has less than 5% share each. The Philippines belongs to the other countries which has a total production of 3,114,000 MT.

Table 4. Global palm oil production.

Country	2023 Production (1000 MT)	2022 Production (1000 MT)	2021 Production (1000 MT)
Indonesia	47,000	46,000	42,000
Malaysia	19,000	18,400	18,152
Thailand	3,450	3,415	3,376
Colombia	1,900	1,800	1,762
Nigeria	1,500	1,400	1,400
Guatemala	920	910	880
Papua New Guinea	800	780	720
Honduras	595	600	600
Cote d'Ivoire	600	600	575
Brazil	585	570	550
Other Countries	3,114	3,101	2,949
TOTAL	**79,464**	**77,576**	**72,964**

Source: USDA, 2023

In terms of production areas, Indonesia leads with 15 million hectares of plantation, while Malaysia has 5.1 million hectares. The other countries have less than 10% share in the total production area of the world.

Today, palm oil make-up 36% of global vegetable oil production. There is a growing market for palm oil and the major countries with strong demand for exports like India and China.

Table 5. Palm oil production areas in hectares (2021).

Country	Area (ha)
1. Indonesia	15,001,273
2. Malaysia	5,144,180
3. Nigeria	3,937,865
4. Thailand	893,846
5. Colombia	499,364
6. Cote d'Ivoire	362,704
7. Ghana	354,541
8. Guinea	225,000
9. Democratic Republic of Congo	322,708
10. Papua New Guinea	231,827
OTHERS	1,936,480
TOTAL	**28,909,788**

Source: Food and Agriculture Organization of the United Nations , 2021

MARKET SITUATION

There are two major markets for vegetable oils: i) food which represents over 80%, and ii) industrial use including biodiesel, cosmetics and other oleo-chemicals. The main driver for expansion is still the growing demand for edible oils for the food market, although an important part of this demand comes from the biodiesel sector.

Over the past 20 years, the share of palm oil in the worldwide vegetable oil market has grown two-folds along with a strong increase in global palm oil trade. The market growth for palm oil is driven by market demand for food, oleochemicals, and biofuel due to increase in population and economic growth.

Geographically, Indonesia and Malaysia are the largest producers of palm oil, while India, China and the European Union (EU) are the largest consumers. These countries consume more than 80% of palm oil. Due to the rising population and the increasing income, the emerging markets including China and India are anticipated to record an increase in demand for palm oil.

Table 6. Palm oil 2023 world imports in metric tons (As of October 2023).

Rank	Country	Percent of World Imports	Imports (1000 MT)
1	India	19	9,300
2	China	14	6,400
3	European Union	10	4,850
4	Pakistan	8	3,850
5	United States	4	1,900
6	Bangladesh	3	1,700
7	Malaysia	3	1,400
8	Philippines	3	1,280
9	Egypt	2	1,200
10	Kenya	2	1,050
11	Others	32	15,867
TOTAL			**48,797**

Source: USDA, 2023

Table 7. Palm oil 2023 world exports in metric tons (As of October 2023).

Rank	Country	Percent of World Exports	Exports (1000 MT)
1	Indonesia	56	28,300
2	Malaysia	32	16,500
3	Guatemala	2	875
4	Papua New Guinea	2	800
5	Colombia	1	750
6	Thailand	1	675
7	Honduras	1	435
8	Cote d'Ivoire	1	375
9	Costa Rica	0.46	235
10	European Union	0.39	200
11	Others	3.5	1,793
TOTAL			**50,938**

Source: USDA, 2023

The world population is recorded at 8 billion in 2022 and projected to grow at 9.8 billion in 2050. Based on the calculation made by Dr. Yusof Basiron, the per capita oil and fat consumption by 2043 will be 40 kilograms. This will result in the total world demand for oils and fats at 360M MT by 2043. This is an increase of 184M MT in 32 years or 5.75 million per annum (from the 176 million oils and fats to be consumed in 2011). If the increased demand is to be fulfilled by soybean oil with a yield factor of 0.5 MT per hectare, it requires an additional 11.8 million hectares of land per year. However, if increased demand is to be fulfilled by palm oil with an oil yield of 4 MT per hectare, it requires an additional 1.48 million hectare of land per year.

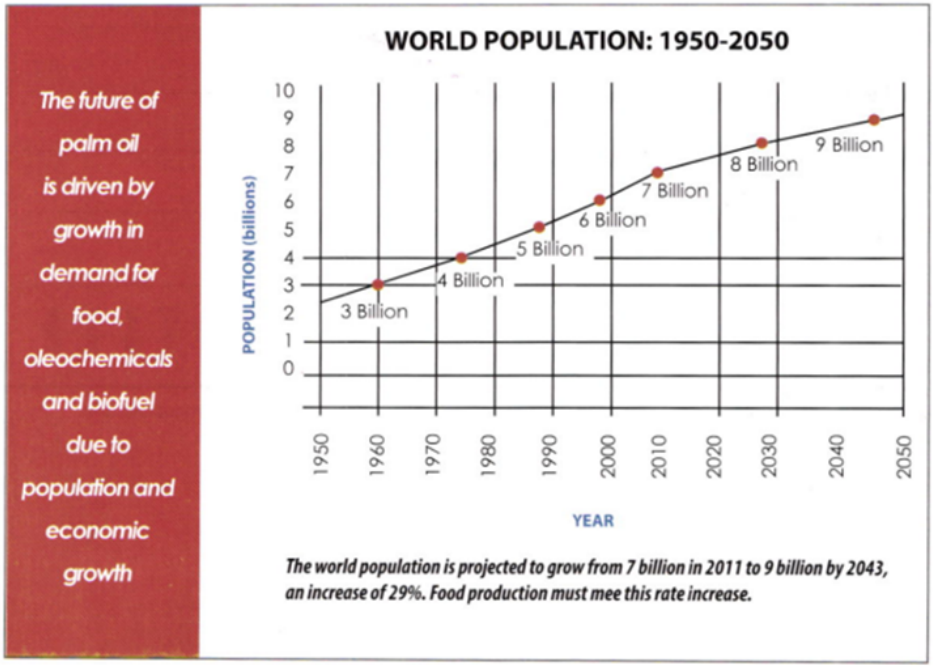

Figure 4. Growth in World Population , 1950 - 2050

Source: Dr. Yusof Basiron. Global market Challenges: lmpact on Palm Oil and Other Vegetable Oils

The Asia and the Pacific regions are the net exporter of oils and fats particularly for Palm Oil while the Americas for soybean oil. China, the European Union and India are the leading importers of oils and fats in the world. Of the three largest importers, China and India are in the emerging market category. Europe, being in the third seat, has been a historically important processing center for palm oil since the colonial era. These three countries also control 50% of the market, and demand has been increasing in recent years, thus world trade is expected to grow further.

The changes in prices of the vegetable oils in the world market including crude palm oil and lauric oils are attributed to the following factors (The Lipid Library, 2011):

- Growing demand from a rising population with increasing wealth, which is increasingly urbanized, has been estimated at 4 to 5 million tons extra per annum.

- Demand for biodiesel is also affecting the vegetable oils being used as ingredients such as rapeseed oil, soybean and palm oil. There is also a remarkable increase in the cost of agricultural production and in storage and transport costs resulting from the severe rise in the price of oil.

- Oilseeds yield has fallen through poor climatic conditions in many parts of the world. For instance, there have been droughts in Europe, Australia, Indonesia, Ukraine, Southwest Russia, and China.

DEVELOPMENT MODELS

Malaysia Development Strategies

The Federal and Development Authority (FELDA) first introduced the oil palm in 1961 on an initial size of 375 hectares to help the landless farmers. Due to the fall of rubber and tin prices, estate planting of oil palm tended to be on old rubber estate land when the prospects of high yields and profitability of palm oil were recognized. In 1996, Malaysia overtook Nigeria as the world's leading exporter of palm oil.

Acting against the advice of international agencies, the Malaysian government began in the late 1970s to encourage a shift from CPO exports to refined products through taxation and incentive policies.

The 1980s saw the “Malaysianization” of three major plantation companies previously run by the British i.e., Sime Darby, Guthrie and Harrizon and Crossfiled (later Golden Hope Plantations). The 1980s also saw the founding of the Kuala Lumpur Commodity Exchange (KLCE), a key instrument for price setting, hedging and dissemination of market information to reduce market risk in the trading of palm oil.

Seeing the need for product development to sustain the upstream development of palm oil, the industry was flagged for sectoral support under the Industrial Master Plan of 1986 (IMP1). The IMP1 emphasized on the rationalization of refining and fractionation to increase efficiency and competitiveness of Malaysian downstream processing as it was more economical to export refined products to have them processed in Europe.

By the time the Industrial Master Plan 2 (IMP2) was launched in 1996, Malaysia’s processing capacity had exceeded the supply of CPO. IMP2 led to the expansion of oil palm hectarage to East Malaysia and also encouraged the private sector to seek raw materials from abroad. IMP2 also saw stimulated participation in R&D to meet the call for productivity gains and further value-added product development along the value chain.

By the time the Industrial Master Plan 2 (IMP2) was launched in 1996, Malaysia’s processing capacity had exceeded the supply of CPO. IMP2 led to the expansion of oil palm hectarage to East Malaysia and also encouraged the private sector to seek raw materials from abroad. IMP2 also saw stimulated participation in R&D to meet the call for productivity gains and further value-added product development along the value chain.

The palm oil industry of Malaysia has been a key economic growth driver by creating jobs and triggering downstream activities to bring in revenue for national development and stability.

Table 8 Key Drivers of the Malaysian Palm Oil Sector

	Industrial Plan 1 (1985 - 1995)	Industrial Plan 2 (1996 - Present)
Area Focus	• Peninsula Malaysia • Call for development of different segments of the industry n the value chain especially oleochemicals	• East Malaysia • Call for productivity gains • Encouraged Malaysia to seek raw materials from abroad
Human Resources	• Training institutes, universities • On the Job Training	• Training focused on downstream products • Training R&D Personnel • Overseas Training
Technology	• Adapt process and R&D technology from PORIM • Local fabrication	• Localization of machinery & Equipment production • Reduce downtime and costs from freight and exchange rate fluctuations
Infrastructure	• Rationalization of palm oil refining and fractionation • To increase efficiency and competitiveness in world markets	• Expansion of bulking, onshore pumping, storage and handling facilities in East Malaysia
Tax and Regulatory Agencies	• Government Incentives • Double deduction tax benefit on export sales • Export tax on CPO to reduce supplies destination refineries in Europe	• Market coordinated incentives

Indonesia Development Strategy

The commercial palm oil production in Indonesia originated with Dutch colonial plantations on the island of Sumatra, where the rich volcanic soils and tropical climate were best suited for the crop. Today, Sumatra is still home to the majority of the national palm crop, with 75% of total mature area and 80% of total palm oil production.

In 2004, the Indonesian government, through the auspices of the office of the Directorate General of Plantation Production and Development (DGPPD), determined that there were approximately 32 million hectares of suitable land for oil palm plantation development in the country.

The huge start-up costs and log lead time between plantation establishments and profitability are huge impediments to independent small farmers in Indonesia. That is why the government had to provide substantial long-term capital and subsidies to smallholder farmers to ensure they have the ability to participate in the industry.

The government of Indonesia has provided various subsidies over the past decade to encourage the expansion of palm plantations managed by non-commercial farmers called smallholders and plasmas. The government has sought to subsidize plantation establishment costs through provision of loans at preferential below market interest rates, and through programs supplying improvised seed and fertilizers. As a result of these successful interventions, smallholder palm area grew 2 million hectares since 2000, and now accounts for 44 percent of total palm area in the country (2nd only in total acreage to private commercial estates).

PHILIPPINE PALM OIL INDUSTRY

HISTORY OF PHILIPPINE PALM OIL INDUSTRY

The palm oil industry in the Philippines traces its early beginning to the 1950s with the 200-hectare plantation established by Menzi Agricultural Corporation in Basilan. However, the operation of the plantation was stopped when the land was turned over to farm workers, as part of the Comprehensive Agrarian Reform Program of the government. In the 1960s, Kenram Industries, Inc. in Sultan Kudarat converted their Ramie (Boehmerianivea) plantation to oil palm and established a 1,100 hectares nucleus farm as well as a 20-ton capacity crude palm oil mill.

In 1980, the National Development Corporation (NDC), in partnership with Guthrie Corporation developed a 4,000 hectares oil palm plantation in Agusan Del Sur in 1983, NDC-Guthrie Estates, Inc. (NGEI) developed another 4,000-hectare plantation in the municipalities of Rosario and Bunawan in Agusan Del Sur, together with the establishment of a 36-ton /hour crude palm oil mill. In 1994, Filipinas Palm Oil Plantations, Inc. (FPPI) acquired full ownership and control of the plantations and oil mills of NGEI.

In 1982, a joint-venture of Singaporean, Filipino and Malaysian investors paved the way for the creation of Agusan Plantations, Inc. (API) that developed an 1,800-hectare plantation in Trento, Agusan del Sur, then a 30-ton crude palm oil mill was built in 1998. API pioneered an “out-growership” scheme and aggressively pursued expansion in North Cotabato, Sultan Kudarat, Maguindanao, Bohol and Palawan. To date the company operates three (3) palm oil mills and its out-growers are widely spread in Regions IV-B, XI, XII, XIII, and BARMM.

In 2003, A Brown Company thru its two subsidiary companies – Nakeen and ABERDI, developed a 1,200-hectare oil palm plantation in Impasugong, Bukidnon. ABERDI runs the 10-ton/hr. crude palm oil mill while Nakeen runs the plantation. In 2015, ABERDI runs an average of 50-tons /day RBD.

These companies pioneered the oil palm industry in the Philippines. At present, there are eleven (11) oil mills that serve as the main players in continuing the expansion of oil palm in the country.

PRODUCTION AREA

Philippines' oil palm production area is gradually increasing with 63,380.85 hectares in 2022 based on the Philippines Statistics Authority at an average growth rate3 of 1.6% per annum, from 60,069 hectares in 2016 to 63,933 hectares in 2020. Region XII (SOCKSARGEN) dominates the production area of the country with 34% of the total area planted, followed by Caraga Region with 27%.

Table 9. Oil palm production area in hectares by region (2022).

Region	Area Planted (Ha)	No. of Bearing Trees	FFB Production (MT)
IV-B	5,920	582,515	14,181.15
VII	5,869	1,842,886	330
IX	4,966.06	680,863	34,663.14
X	3,840.22	347,293	46,671.32
XI	1,334	65,475	5,306.24
XII	21,521	1,817,718	226,145.82
XIII	17,475.57	1,705,967	176,970.34
BARMM	2,455	208,250	27,130.51
TOTAL	**63,380.85**	**7,250,967**	**533,398.52**

Source: Philippine Statistics Authority, 2022

PALM OIL MILLS AND REFINERY

Philippines has eleven (11) existing palm oil mills with a total rated capacity of 275 metric tons FFB per hour, owned by 9 companies – 1) Agumil Philippines, Inc., 2) Sirawai Plywood & Lumber Corporation (Zanorte), 3) A Brown Energy & Resources Development Inc., 4) Palm Asia Milling, Inc., 5) Univanich Carmen Palm Oil Corp., 6) AC Garcia Palm Oil Mill Corporation, 7) Kenram Palm Oil Industries, Inc., 8) Filipinas Palm Oil Plantations, Inc., 9) Surigao Greens Agri Corporation.

Table 10. List of palm oil mills in the Philippines , 2023.

Company Name	Plant Address	Product Line	Capacity (MT)
Agumil Philippines, Inc.	• KM. 172, Maasin, Brooke's Point, Palawan • P-3 Brgy. Manat, Trento, Agusan del Sur • Poblacion Buluan, Maguindanao	Crude Palm Oil (CPO)/ Palm Oil Mill Effluent/ Palm Kernel Oil, Palm Oil Cake	• 30 • 30 • 30
Sirawai Plywood & Lumber Corporation (Zanorte)	Guban, Sirawai, Zamboanga del Norte	Crude Palm Oil, Crude Palm Kernel Oil, Palm Kernel Cake/Expeller	30
A Brown Energy & Resources Development Inc. (ABERDI)	Sitio Malubog, Impasug-ong, Bukidnon	RBDO, Olein Oil & Stearin Oil Producer/Crude Palm Oil	10
Palm Asia Milling Inc.	Cabligan, Matanao, Davao del Sur	CPO	15
Univanich Carmen Palm Oil Corporation	Sayre Highway, Brgy. Tacupan, Carmen North Cotabato	CPO, CPKO,Palm Kernel, Sludge Oil	30
AC Garcia Palm Oil Mill Corporation	Brgy. EJC Montila, Tacurong City	CPO, CPKO	20
Kenram Palmoil Industries, Inc.	Brgy. Kenram, Isulan Sultan Kudarat	CPO, CPKO	30-60
Filipinas Palm Oil Plantations, Inc.	Brgy.Mate, San Francisco, Agusan del Sur	CPO	40
Surigao Greens Agri Corporation	Brgy. Tambis, Barobo, Surigao del Sur	Palm Fatty Acid Distillate (PFAD)	10

Source: Philippine Coconut Authority, 2023

Table 11. List of palm oil refinery in the Philippines, 2023.

Company Name	Plant Address	Product Line
Oleo-Fats Incorporated	No. 5 Mercury Avenue, Bagumbayan, Quezon City	RBD Palm Olein
Tantuco Enterprises, Inc.	Maharlika Hi-way, Barangay Ilayang Iyam, Lucena City	RBD Palm Olein
Ricor Mills Corporation	Purok 6, Tablon, Cagayan de Oro City	RBD, Cooking Oil, Lard Margarine and Coconut Acid Oil
A Brown Energy & Resources Development Inc. (ABERDI)	Sitio Malubog, Impasug-ong, Bukidnon	RBD
Caraga Oil Refining, Inc.	Brgy.Mate, San Francisco, Agusan del Sur	RBD Palm Oil, RBD Palm Kernel Oil, RBD Palm Stearin, RBD Palm Olein, Margarine, Shortening, Laundry Soap

Source: Philippine Coconut Authority, 2023

OIL PALM NURSERIES

A total of seven (7) registered oil palm nurseries are operating in the country located in Regions IX , XII, and XIII: 1) Sirawai Plywood & Lumber Corporation, 2) Kilambay Farms Agri Buy N' Sell, 3) Triple P Farms and Nursery, 4) EYG Palm Oil Seedlings, 5) Pacific Oil Farmers, Inc . , 6) NGPI Multi Purpose Cooperative, and 7) South Davao Development Agricultural Corporation.

Table 12. List of PCA registered oil palm nurseries , 2023.

Company Name	Nursery Address
Sirawai Plywood & Lumber Corporation	Sirawai, Zamboanga del Norte
Kilambay Farms Agri Buy N' Sell	Carmen, North Cotabato
Triple P Farms and Nursery	Kabacan, North Cotabato
EYG Palm Oil Seedlings	Tacurong City, Sultan Kudarat
Pacific Oil Farmers, Inc.	Pisaan, San Francisco, Agusan del Sur
NGPI Multi Purpose Cooperative	San Francisco, Agusan del Sur
South Davao Development Agricultural Corporation	Sta. Teresita, Bayugan City, Agusan del Sur

Source: Philippine Coconut Authority, 2023

Figure 5. Map Locator

SUPPLY AND DEMAND SITUATION

The Philippines produced 522, 861.06 MT of Fresh Fruit Bunch which is equivalent to 104,572 MT of crude palm oil and about 26,143 MT of palm kernel oil in 2021. The country's total palm oil production is almost entirely consumed in the domestic market because the country is a large importer of palm oil relative to its domestic production. Hence, the current domestic production will not suffice the local consumption of palm oil products in the country.

Palm oil is the main imported oil in the Philippines with the share of 85% from the total oils and fats import in 2021. During the last 10 years, the biggest importation of palm oil was recorded in 2022 which reached 1,176,497.18 MT.

POTENTIAL PRODUCTION AREAS

The country has a wide potential area for palm oil production; the Philippine Coconut Authority has identified around 117,313 hectares suitable for oil palm farming as shown in Table 11. On the other hand, Philippine Palm Oil Development Council (PPDCI) has estimated 975,300 hectares subject to site suitability assessment for area development.

These areas consisting of vast tracts of lands are ideal for plantation development. As a matter of fact, several big companies are already interested in developing these areas into palm plantations.

However, there are several policy issues that must be addressed in order to develop these areas. Among the issues are the following:

1. Implementation DENR MEMORANDUM CIRCULAR 2004 - 12

This DENR Memorandum Circular establishes the Revised Guidelines Governing the Identification of Forest Areas for the Establishment of African Oil Palm (Elaeis Guineensis Jacq.) Plantation. The revised guidelines aim at guiding and implementing the following: the establishment of African oil palm plantation may be allowed in open areas/brushland areas of forest lands with slope of not more than 50% as not designated protected areas; In no case shall African oil palm plantation be allowed within Protected Areas covered by Republic Act (RA) No 7586 or the National Integrated Protected Area System (NIPAS) law; Areas proposed for African oil palm plantation establishment have to be jointly certified by the Competent Authority of DENR as suitable and available, respectively, for African oil palm plantation development.

2. Free, Prior and Informed Consent (FPIC) under Republic Act No. 8371 or an Act to Recognize, Protect and Promote the Rights of Indigenous Peoples, Creating A National Commission

Free and Prior Informed Consent — as defined in the Act shall mean the consensus of all members of the ICCs/IPs to be determined in accordance with their respective customary laws and practices, free from any external manipulation, interference and coercion, and obtained after fully disclosing the intent and scope of the activity, in a language and process understandable to the community.

Table 13. Potential areas for expansion in hectares identified by PCA.

Region	Potential Area
IX	15,145
X	19,535
XI	210
XII	73,718
XIII	3,705
BARMM	5,000
TOTAL	**117,313**

Table 14. Potential areas in hectares based on the PPDCI Data

Region	Potential Area
IV-B	16,300
IX	102,000
X	154,000
XI	104,000
XII	112,000
XIII	384,000
BARMM	103,000
TOTAL	**975,300**

STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS

The country has a wide potential area for palm oil production, as shown in Table 15. However, these areas have limited comprehensive suitability assessment and some have no tenurial instruments. Certain areas in Mindanao, particularly in BARMM have unstable peace and order conditions, which limit development and discourage local and foreign investors. Some of the road networks also in these areas have not yet been developed, especially in the rural areas and small landholdings, but this should not hinder the development because oil millers are willing to rehabilitate and / or develop road networks in areas that have great potential in producing tons of FFBs. The industry players can also coordinate or collaborate with the LGUs and other government agencies in developing farm roads.

On nursery establishment, operators have total dependence on quality imported seeds from Thailand, Indonesia, Malaysia and Latin America, which is very expensive. Problem on the existence of unaccredited F1/F2 nurseries needs strict implementation of quarantine, certification and accreditation rules and regulations so as to standardize the quality of the planting materials. On the other hand, there is a presence of research centers and academic institutions capable of conducting research on oil palm.

The industry has available production technologies and best practices that can be adopted especially by small growers and new investors. Technical expertise on oil palm production is available in the government and private sector, which they are willing to share. However, the industry has limited information and education campaigns to promote the oil palm and to counteract the negative publicities on oil palm farming in the environment.

On postharvest operations, the existence of eleven (11) oil mills with 275 MT of FFB per hour capacity guarantees that there are enough processing facilities for oil palm. These oil mills are strategically located at the production areas of oil palm plantations. But out-growers and small independent growers have problems with high transportation costs and massive postharvest losses because of the remoteness of their farms to the oil mills.

Table 15. Strengths, Weaknesses, Opportunities, and Threats of the oil palm industry.

Strengths	Weaknesses	Opportunities	Threats
Wide potential area for oil palm production .	• Lack of comprehensive suitability assessment of existing and potential areas.	• Favourable climatic condition. • Strong Market Potential.	• Unstable peace and order conditions that may limit development in suitable areas and discourage local and foreign investors. • Lack of tenurial instruments. • High investment cost. • Policies limiting the expansion areas.
	• Total dependence on imported planting materials. • High cost of planting materials.	• Access to imported seeds from Thailand, Indonesia, Malaysia, Latin America as major sources of quality seeds. • PCA's available technology to produce hybrid planting materials without resorting to importing parent materials.	• Existence of unaccredited F1/F2 nurseries.
	• Inadequate road network especially in rural areas and small growers' location.	• Coordination/linkage with the LGUs, MRDP/PRDP and /or other government agencies. • Oil millers plans to rehabilitate or maintain road network.	
Availability of production technologies and best practices that can be adopted.	• Lack of information and education campaign.	• Access to plantations that have the best technologies and practices.	• Negative publicity of oil palm farming in the environment.

Strengths	Weaknesses	Opportunities	Threats
Available technical expertise in the government and private sector.	• Lesser prioritization of the government to the palm oil industry.	• Willingness of private sector to share their technical expertise.	
Presence of research centers and academic institutions capable of conducting researches on oil palm.	• Weak R&D Database	• Breeding program in Mindanao at USM, PCA and ASSCAT. • Production of planting materials tissue culture.	• Research studies on oil palm has limited budget allocation.
Availability of low-cost labor for oil palm farm activities.		• Job generation	
Existence of Palm Oil Mills.	• Unregulated and mis declared importation.	• Assured processing facilities.	• High transportation cost of FFB from farm to mills. • Great distance of the mills from the farms.
Out-growership scheme of plantation and mill owners.	• Fragmented production areas. • Lack of technologies on food and non-food bio-mass utilization.	• Organization/consolidation of small landowners for economies of scale.	• Postharvest losses
Availability of data collectors.	• Poor data management system.	• Availability of digitalized system.	

VISION, MISSION, AND OBJECTIVES

Vision : A dynamic, and innovative palm oil industry that complements with the Philippine Coconut Industry benefitting stakeholders, and contribute to the steady supply of vegetable oils for both the domestic and export markets.

Mission: To develop the Palm Oil Industry through gainful production, processing and marketing of oil palm products and by-products to ensure food security, increased income, employment, peace and prosperity in rural communities through sustainable oil palm development.

Objectives : To contribute in meeting the country's palm oil domestic requirements, developing the countryside and providing employment, peace and prosperity in rural communities, thereby alleviating poverty.

Specific Objectives

1. To increase yield, and productivity through cost efficiency and new technology.

2. To use identified potential areas with a sustainable environment program so that by 2033, a total of about 117,313 hectares expansion areas shall have been planted to oil palm.

3. To increase the number of palm oil mill and refineries as may be necessary.

4. To generate employment and enhance livelihood activities in the countryside so that by the end of 2033, a total of about 200,000 farmers shall have benefited from industry development.

5. To identify the provinces, municipalities and barangays where oil palm planting shall be done to guide the planners and builders of farm-to-market roads and research and training facilities.

6. To encourage and provide incentives to local or foreign investors to provide their rural oil palm-growing communities with basic amenities such as housing, health facilities, schools and recreational centers in all Oil Palm regions.

The industry has a target of 300,000 hectares planted with oil palm .This expansion target is based on the data on the estimated local demand, which at present, 80% of the supply is imported from Malaysia and Indonesia. Private industry players said that this target is attainable if the government will intervene and have a clear agenda for the oil palm industry. Based on records, private sector initiatives resulted only to 4,000 hectares plantation per year. There is also a need to identify where (province/municipality/barangay) these available potential areas are.

STRATEGIES FOR DEVELOPMENT

In response to the perceived constraints to the growth of the industry, different strategies were crafted based on the SWOT analysis. Strategies' made were categorized into: Productivity Enhancement, Market Development, Investment, and Business Enabling (Table 16)

Table 16. Strategies for development.

Strategy	Programs and Projects Activities	Expected Output	Enabling Policy Needed	Responsible Agency/Unit	Timeline
A. PRODUCTION					
1.Expansion of Areas to meet our domestic needs for food security	1.Conduct of Oil Palm suitability assessment thru GIS mapping (with review of the existing assessment) and determination of land class.	• Criteria and methodology for the suitability assessment. • Validated suitability map. • Profile of the proposed area . • Identified farm-to-market roads needed in oil palm growing municipalities/provinces. • Profile of the proposed area	None	DA PCA DENR BSWM NCIP PPDCI Private Investors	1st Quarter of 2024 onwards
	2. Optimize mill – farm ratio using the suitability assessment.	• Inventory of mills capacity. • Inventory of existing areas planted to oil palm. • Inventory of domestic production of FFB.	None	PCA PPDCI	Every 1st Month of the Year
	3.Inventory of oil palm production and processing technologies and best practices available in the Philippines and other oil palm producing countries.	• List of oil palm production technologies and best practices. • Access of technology from other countries.	None	PPDCI PCA DTI	1st quarter of 2024

Strategy	Programs and Projects Activities	Expected Output	Enabling Policy Needed	Responsible Agency/Unit	Timeline
	4.Establishment of complete database of oil palm industry.	• Oil Palm Industry System (Web-based).	None	PCA PPDCI	3rd Quarter of 2024
	5.Supply of Good quality planting materials with nutrient support for 2 years Oil Palm Planting/Replanting Project.	• 117, 313 ha of oil palm planted in 10 years.	None	PCA PPDCI LGU PRIVATE INVESTORS GROWERS	2024 - 2033
	6. Fertilizer support for Oil Palm Rehabilitation of smallholder oil palm farmers/growers.	• 74,000 has of oil palm.		PCA LGU	2024 - 2033
	7.Preparation of submission of Project Proposal for the oil palm farms' productivity improvement.	• Number of Project Proposals submitted.		PCA PPDCI	2nd Quarter of 2024
	8. Government – Government procurement of pre-germinated seeds.	• Number of forged Memorandum of Agreement.		PCA	3rd quarter of 2024
	9. Explore the possibility of conducting Government - to - Government Procurement of inorganic fertilizer, and other farm inputs.	• Identified guidelines in Government - to - Government procurement of inorganic fertilizers, and other farm inputs.		PCA DTI	1st Quarter of 2024
	10. Establishment of Oil Palm, Nurseries from procured imported generated seeds.	• Oil Palm Nurseries in different regions/provinces.		PCA	3rd quarter of 2024
2. Development or Adoption of Available and appropriate technologies	1. Production and distribution of IEC Materials for farmers and outgrowers including organic agriculture.	• Printed and Web-based Leaflets, brochures and other IEC materials.	None	PCA DTI PPDCI	2nd quarter of 2024

Strategy	Programs and Projects Activities	Expected Output	Enabling Policy Needed	Responsible Agency/Unit	Timeline
	2.Enhancement of Extension Services particularly on Business Development/Planning , GAP.	• Number of oil palm farmers/outgrowes mentored / coached / handheld on business development or linked with CDA. • Establishment of Farmers' Training School for Oil Palm. • Development of Training Regulation under TESDA	None	PCA LGUs DTI PPDCI DA ATI - OPA	3rd quarter of 2024, onwards
B. MARKETING AND REGULATION					
3.Enhance Market Access through standards development and efficiencies of production and enforcement of appropriate policies	1.Conduct of Market surveillance Research in collaboration with FDA, LGU - LPCC, DTI – Consumer Welfare Division, DA – AMAS & PRS, and PCA.	• Periodic Market surveillance report. • Policy Brief submitted to concerned agencies.	None	PCA LGU DTI	2024, onwards
	2.Development and transparency of FFB Price watch and Policy in conformity with standard pricing formula and monitoring of weighbridge calibration by government, millers, and farmer producers.	• Price Board Committee (Government, Producers, Millers, Refiners). • Protocols on monitoring weighing and use of pricing formula. • Registration/Licensing of entities/individuals involved in oil palm/palm oil trading business.		PCA PPDCI Recognized Oil Palm Growers' Group LGU DOST DTI	1st Quarter of 2024
	3.FFB Quality Assurance	• Oil Palm Grower/harvester trained on FFB quality standards.		PCA PPDCI BAFS LGU TESDA DA	2nd Quarter of 2023, onwards

Strategy	Programs and Projects Activities	Expected Output	Enabling Policy Needed	Responsible Agency/Unit	Timeline
	4.Conduct of stakeholders' consultation concerning trade e.g., prices, palm oil importation, preferred/potential investments in collaboration with FDA, BOC, ARTA, Tariff Commission, BIR, PSA, PCA.	• Consultation Report submitted to PCA management. • Policies developed/enforced.	None	PCA DTI PPDCI COPDCI LGU BAI	Quarterly
	5.Organize and strengthen farmers, processors, traders' organizations using industry clustering / value chain approach.	• Established Value Chain Maps. • Identified Production Areas.		PCA DTI PPDCI Growers' Association/ FCAs	2nd Quarter of 2024 onwards
	6.Establishment and Dissemination of Palm Oil Industry Market Information System	• Palm Oil Market Information, Investment Opportunities etc. accessible via PCA website.	None	PCA DTI PPDCI COPDCI DA – AMAS	2nd quarter of 2024
	7.Development of Philippine National Standards and Codes of Practice concerning Oil Palm products.	• PNS and COP developed and promulgated.		BAFS PCA Industry	2nd quarter of 2024, onwards
	8.Policy Review on costing (VAT, tariffs, commodity classification), land conversion, incentives, investments policy under BOI.	• Formulated and Approved Policies on importation and exportation of palm oils.		PCA DA PRC BAI BOC DTI PSA ARTA, Tariff Commission, EDC, Phil Export, EMB	3rd quarter of 2024, onwards

Strategy	Programs and Projects Activities	Expected Output	Enabling Policy Needed	Responsible Agency/Unit	Timeline
C. CONVERGENCE					
4.Strengthening Collaboration and Convergence, e.g., public and private partnership	1.Proposed/Lobbied for the Construction and Rehabilitation of Farm-to-market Roads in collaboration with LGU, MRDP/PRDP and DPWH Work for the inclusion of FMR requirements in oil palm areas in the DA FMR network map.	• Number of resolutions with proposals submitted/lobbied for FMR Projects both for Main and Provincial Roads to LGU/DA/DPWH /etc.	None	PCA Provincial /Municipal LGU	3rd quarter of 2024
	2.Formation and strengthening of oil palm farmers organization e.g. entrepreneurship/ enterprise development in collaboration with CDA, DA-ATI, Academe, DTI, and LGU.	• Organized/ Strengthened and CDA/SEC accredited oil palm farmer organizations.	None	PCA	2024, onwards
	3.Promoting and enhancing access to capital, especially for smallholders thru special financing windows for planting/replanting in collaboration with LBP, DBP, DA- ACPC.	• Increase availability of lending programs by cooperatives and associations.	None	DTI PCA LGU PPDCI	2024, onwards
	4.Provision of technical advisory on appropriate machineries, processing equipment, etc. in adherence in RA 10601, AFMECH Law.	• Number of technical advisories provided.		PCA PPDCI	3rd Quarter of 2024

Strategy	Programs and Projects Activities	Expected Output	Enabling Policy Needed	Responsible Agency/Unit	Timeline
5.Enhance Stakeholder Engagement and Consultation	1.Conduct of forum on tenurial policy issues in collaboration with DAR, DENR, NCIP, DA.	• Policy papers endorsed/ submitted. • Number of Forums conducted.		DAR PCA NCIP DTI	3rd to 4th Quarter of 2024
D. RESEARCH AND DEVELOPMENT					
6.Establishment of R&D in oil palm	1. Identification of Research Gaps	• Identified Research gaps in oil palm		PCA	1st to 2nd Quarter of 2024
	2. Development / Establishment of Oil Palm Germ Plasm for Seed Production Area.	• Feasibility study on establishing a seed production center. • (Determination of the parent materials, Availability of the area requirement). • Research to produce cheaper but good quality hybrid planting materials from existing palms using DNA markers.	None	PCA – ZRC DA Academe	2nd Quarter of 2024, onwards
	3.Establishment of (Dura Grove) from Dura mother palms from USM.	• Established Dura Grove.		PCA PCAARD USM	3rd Quarter of 2024, onwards
	4.Conduct of farm-based researches thru Government-Private-Academe Partnership.	• Number of oil palm farm-based researches/number of technologies generated.	None	PPDCI PCA DENR DA BAR	2nd quarter of 2024, onwards

Strategy	Programs and Projects Activities	Expected Output	Enabling Policy Needed	Responsible Agency/Unit	Timeline
E. POLICY ADVOCACY AND INSTITUTIONAL STRENGTHENING					
7.Enhance policy making and enforcement	1.Policies on Institutionalization of Palm Oil Authority	• Position Paper to Create Palm Oil Branch. • Amended PCA Charter (Philippine Coconut Authority - Philippine Coconut and Palmoil Authority) or creation of Philippine Palm Oil Development Authority (PPODA).		PPDCI PCA	1st Quarter of 2024
	2. Strict implementation of quarantine and certification rules and regulations in collaboration with NSIC, BPI, DA.	• Enforced guidelines on quarantine protocols. • Reduction/Elimination of unaccredited F1 nurseries and elimination of F2 nurseries.	None	PCA BPI	2nd Quarter of 2024
	3. Monitoring of Compliance to PNS.	• Compliance Report		PCA LGU	Monthly
	4.Conduct of awareness campaign or capability building for farmers on the recommended production protocols/GAP, product standards and regulations in collaboration with DAR, DENR, DTI – BPS, TESDA, PCA and ATI.	• Skilled oil palm farmers/outgrowers. • Training and Accreditation of workers within the farm/mills in collaboration with TESDA.	None	PCA	2024 onwards

Table 17. Proposed Programs, Activities, and Projects for the palm oil industry, 2024 - 2033.

Programs and Project Activities	Responsible Unit	2024				2025				2026			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Conduct of Oil Palm suitability assessment thru GIS mapping (with review of the existing assessment) and determination of land class.	DA PCA DENR NCIP PPDCI Private Investors	X	X	X	X	X	X	X	X	X	X	X	X
Optimize mill – farm ratio using the suitability assessment.	PCA PPDCI	X				X				X			
Inventory of oil palm production and processing technologies and best practices available in the Philippines and other oil palm producing countries.	PCA PPDCI DTI	X	X	X	X	X	X	X	X	X	X	X	X
Establishment of complete database of oil palm industry.	PCA PPDCI	X	X	X	X	X	X	X	X	X	X	X	X
Supply of Good quality planting materials with nutrient support for 2 years Oil Palm Planting/Replanting Project.	PCA PPDCI LGU Private Investors Growers	X	X	X	X	X	X	X	X	X	X	X	X
Fertilizer support for Oil Palm Rehabilitation of smallholder oil palm farmers/growers.	PCA LGU	X	X	X	X	X	X	X	X	X	X	X	X

Programs and Project Activities	Responsible Unit	2024				2025				2026			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Preparation of submission of Project Proposal for the oil palm farms' productivity improvement.	PCA PPDCI	X	X	X	X	X	X	X	X	X	X	X	X
Government – Government procurement of pre-germinated seeds.	PCA			X	X	X	X	X	X	X	X	X	X
Identified guidelines in Government - to - Government procurement of inorganic fertilizers, and other farm inputs.	PCA	X	X	X	X								
Establishment of Oil Palm Nurseries from procured germinated seeds.	PCA CSO					X	X	X	X	X	X	X	X
Production and distribution of IEC Materials for farmers and outgrowers including organic agriculture.	PCA PPDCI DTI		X	X	X	X	X	X	X	X	X	X	X
Enhancement of Extension Services particularly on Business Development/Planning, GAP.	PCA LGU DTI PPDCI			X	X	X	X	X	X	X	X	X	X
Conduct of Market surveillance Research in collaboration with FDA, LGU - LPCC, DTI – Consumer Welfare Division, DA – AMAS & PRS, and PCA.	PCA LGU DTI	X	X	X	X	X	X	X	X	X	X	X	X

Programs and Project Activities	Responsible Unit	2024				2025				2026			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Development and transparency of FFB Price watch and Policy in conformity with standard pricing formula and monitoring of weighbridge calibration by government, millers, and farmer producers.	PCA, PPDCI, Recognized Oil Palm Growers' Group	X	X	X	X	X	X	X	X	X	X	X	X
FFB Quality Assurance.	PCA PPDCI LGU TESDA		X	X	X	X	X	X	X	X	X	X	X
Conduct of stakeholders' consultation concerning trade e.g., prices, palm oil importation, preferred/potential investments in collaboration with FDA, BOC, ARTA, Tariff Commission, BIR, PSA, PCA.	PCA DTI BOI PPDCI COPDCI LGU BAI	X	X	X	X	X	X	X	X	X	X	X	X
Organize and strengthen farmers, processors, traders' organizations using industry clustering / value chain approach.	PCA PPDCI DTI Growers' Association /FCAs		X	X	X	X	X	X	X	X	X	X	X
Establishment and Dissemination of Palm Oil Industry Market Information System.	PCA DTI PPDCI COPDCI DA - AMAS		X	X	X	X	X	X	X	X	X	X	X
Development of Philippine National Standards and Codes of Practice concerning Oil Palm products.	BAFS PCA and Industry		X	X	X	X	X	X	X	X	X	X	X

Programs and Project Activities	Responsible Unit	2024				2025				2026			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Policy Review on costing (VAT, tariffs, commodity classification), land conversion, incentives, investments policy under BOI.	PCA DA PRC, BAI, BOC, DTI, PSA, ARTA, Tariff Commission, EDC, Phil Export, EMB			X	X	X	X	X	X	X	X	X	X
Proposed/Lobbied for the Construction and Rehabilitation of Farm-to-market Roads in collaboration with LGU, MRDP/PRDP and DPWH.	PCA LGU DPWH			X	X	X	X	X	X	X	X	X	X
Work for the inclusion of FMR requirements in oil palm areas in the DA FMR network map.				X	X	X	X	X	X	X	X	X	X
Formation and strengthening of oil palm farmers organization e.g. entrepreneurship/ enterprise development in collaboration with CDA, DA-ATI, Academe, DTI, and LGU.	PCA PPDCI	X	X	X	X	X	X	X	X	X	X	X	X
Promoting and enhancing access to capital, especially for smallholders thru special financing windows for planting/replanting in collaboration with LBP, DBP, DA- ACPC.	DTI PCA PPDCI LGU	X	X	X	X	X	X	X	X	X	X	X	X
Provision of technical advisory on appropriate machineries, processing equipment, etc. in adherence in RA 10601, AFMECH Law.	PCA PPDCI			X	X	X	X	X	X	X	X	X	X

Programs and Project Activities	Responsible Unit	2024				2025				2026			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Conduct of forum on tenurial policy issues in collaboration with DAR, DENR, NCIP, DA.	DAR PCA NCIP DTI			X	X								
Identification of Research Gaps.	PCA	X	X										
Development / Establishment of Oil Palm Germ Plasm for Seed Production Area.	PCA – ZRC DA Academe		X	X	X	X	X	X	X	X	X	X	X
Establishment of a Dura Grove from Dura mother palms from USM.	PCA USM			X	X	X	X	X	X	X	X	X	X
Conduct of farm-based researches thru Government-Private-Academe Partnership.	PCA COPDCI Academe PPDCI PCA DENR DA BAR		X	X	X	X	X	X	X	X	X	X	X
Policies on Institutionalization of Palm Oil Authority.	PPDCI PCA	X	X	X	X	X	X	X	X	X	X	X	X
Strict implementation of quarantine and certification rules and regulations in collaboration with NSIC, BPI, DA.	BPI PCA		X	X	X	X	X	X	X	X	X	X	X
Monitoring of Compliance to PNS.	PCA LGU	X	X	X	X	X	X	X	X	X	X	X	X
Conduct of awareness campaign or capability building for farmers on the recommended production protocols/GAP, product standards and regulations in collaboration with DAR, DENR, DTI – BPS, TESDA, PCA and ATI.	PCA	X	X	X	X	X	X	X	X	X	X	X	X

ACKNOWLEDGEMENT

The Philippine Coconut Authority would like to express their profound gratitude to everyone who actively participated in the series of consultation meetings and contributed greatly by sharing their technical knowledge in updating the Philippine Palm Oil Industry Roadmap 2024 - 2033.

Special mention to the following :

- Philippine Palmoil Development Council Inc.
- Department of Trade and Industry
- Bureau of Animal Industry
- Caraga Oil Palm Development Council Inc.
- Caraga State University
- Sultan Kudarat State University
- University of Southern Mindanao
- Local Government Unit of Tungawan Zamboanga Sibugay
- Kilambay Farms Agri Buy N'Sell
- Univanich Carmen Palm Oil Corporation
- Sirawai Plywood & Lumber Corporation (Zanorte)
- NGPI Multi Purpose Cooperative

Moreover to all PCA Representatives from different oil palm regions and research centers who have helped in crafting this roadmap. Above all, to Almighty God for His guidance.

REFERENCES:

US Department of Agriculture Foreign Agricultural Service International Production Assessment Division Palm Oil 2021 World Imports. October 2023

US Department of Agriculture Foreign Agricultural Service International Production Assessment Division Palm Oil 2021 World Exports. October 2023

US Department of Agriculture Foreign Agricultural Service International Production Assessment Division Global Palm Oil Production. October 2023

Food and Agriculture Organization of the United Nations 2021

Philippine Statistics Authority Open Stat 2022

N.S. Sulaiman, M.D. Sintang, S. Mantihal, H.M. Zaini, E. Munsu, H. Mamat, S. Kanagaratnam M.H.A. Jahurul, W. Pindi "Balancing functional health and benefits of food products formulated with palm oil as oil sources. 2022, https://doi.org/10.1016/j.heliyon. 2022.e11041

Monton, Sammy L. 2nd National Palm Oil Investment & Financing Forum. September 2004

Malaysian Palm Oil Council & Malaysian Palm Oil Board. Fact Sheets Malaysian Palm Oil M. 1997. Reprint 2011

US Department of Agriculture. A Global Overview of vegetable oils, with reference to biodiesel June 2009

Basiron, Yusof. Global Market Challenge: Impact on Palm Oil and Other vegetable oil s 2012

Shean, Michael. Indonesia Palm Oil Production Growth to Continue. US Department of Agriculture 2009

Abbai Belai, Daniel Boakye, John Vrakas, Hashim Wasswa. The Malaysian Palm Oil Cluster Final Report May 2011

Malaysian Palm Oil Council. Oil Palm Tree of Life. 2006. Reprint 2011

Philippine Palmoil Development Council Inc.

Department of Agriculture
PHILIPPINE COCONUT AUTHORITY

Department of Trade and Industry