

PHILIPPINE RUBBER INDUSTRY ROADMAP 2017-2022



**PHILIPPINE
RUBBER
INDUSTRY
ROADMAP
2017-2022**

FOREWORD

The Department of Trade and Industry and the Department of Agriculture have been since 2012 spearheading the formulation of Philippine Rubber Industry Roadmap. In 2012, both agencies did parallel initiatives by outsourcing the preparation of the rubber industry development plans to the University of the Asia and the Pacific (UA&P) for the upstream sector and the University of the Philippines – Institute for Small Scale Industries (UP-ISSI) for the downstream sector. In the same year, the Department of Science and Technology came out with its Rubber Research and Development Agenda manifesting the agency's strong support in the development of the rubber industry. The DOST's Rubber R&D Agenda was integrated in the annual Rubber Industry Cluster Action Plan since 2012. The two (2) development plans were used by the Philippine Rubber Technical Working Group (PHLRUBBER TWG) as basis in the preparation and implementation of an annual Rubber Industry Cluster Action Plan (Rubber InCup) starting 2013 until 2015.

It was in 2013 that the PHLRUBBER decided to integrate the two (2) industry development plans. After series of consultations and workshops, the integration was finalized in 2015 resulting to the crafting of the Philippine Rubber Industry Roadmap 2016-2022. By consolidating the roadmaps, all agencies allied to the development of the rubber industry are expected to work on the same vision, goals and objectives and harmonize all programs and projects designed to improve the growth of the industry as well as its contribution in poverty reduction most particularly among smallholders. A one roadmap for the industry also prevents confusion among industry stakeholders and effectively engages strong commitment from the private sector to collaborate for the speedier growth for the industry.

The integrated roadmap required further consultation with various stakeholders. From February 2016 to September 2017, the PHLRUBBER TWG met with various stakeholders including Philippine Rubber Industries Association (PRIA), recently organized Philippine Rubber Farmers Association (PRFA), local government units (LGUs), national government agencies (NGAs), regional rubber cluster groups, academes, financial institutions, processors, traders and exporters. The document was likewise presented during the meeting of the Philippine Council for Agriculture and Fisheries (PCAF) at the Department of Agriculture, Quezon City on May 25, 2016. The roadmap is now officially referred to as the **Philippine Rubber Industry Roadmap 2017-2022**.

The Philippine Rubber Industry Roadmap 2017-2022 is intended to foster continuing commitment to the collective effort of developing the Philippine rubber industry. The document includes a narrative on the general trends, development and opportunities in the rubber industry worldwide. It highlights the accomplishments of the joint efforts and initiatives of all stakeholders. It reflects the agreements on the areas where the efforts should be focused for optimal results, and likewise integrates and harmonizes

programs, projects, and activities of member-agencies supportive of the short and long-term rubber industry development agenda.

The Philippine Rubber Industry Roadmap shall serve as a guide to all industry stakeholders for optimal realization of the targets set for 2017-2022. A periodic review of the roadmap by the PHLRUBBER TWG shall be undertaken to ensure that commitment by member-agencies and institutions are effectively carried out and next steps are instituted to sustain the initiatives and ensure the continuous development and growth of the Philippine rubber industry ultimately realizing the industry vision.

Stronger Rubber Industry for a Stronger Philippine Economy

Rubber has been a global economic driver and will continue to do so in the coming years. The global demand will always be there as the needs of various sectors in the economy like automotive, industrial, construction, and consumers increase.

Therefore, it is imperative for the country to aggressively move towards the continuous development and improvement of the rubber industry as global demands continue to rise. The Philippine Rubber Industry Roadmap will be the cornerstone of this initiative as it will serve as the guide for our stakeholders to become globally competitive and become a major player in the global arena.



As this industry grows, we are determined to see it become one of the chief contributors in the growth of our economy. We envision our country elevating itself from just a producer and exporter of rubber to become manufacturers of rubber-based products as this would benefit more Filipinos by creating more jobs. Through the convergence of the government and the private sectors, and the synergy of focus, efforts, and resources, this vision will be within our reach.

More important, we see the growth of the industry go hand-in-hand with the growth and improvement in the lives of our farmers and other key players in the industry. This growth should be inclusive, where everybody reaps the fruit of their labor and where nobody is left behind, especially those at the bottom of the pyramid. Taking into consideration our farmers' labor, it is government's utmost concern that the benefits of the growth reach all players in the value chain.

I would like to acknowledge the efforts of the PHLRUBBER Technical Working Group for leading the way for a better Philippine Rubber Industry and making the Philippines relevant in the world market. The initiatives you have implemented have resulted in the improved quality of our produce, efficient and more productive stakeholders, and a stable and competitive price of our rubber.

Furthermore, I am hopeful that this partnership among stakeholders will become even stronger, and more solid and resilient. Together, we will reap the best for our industry, our people, and our country for greater inclusive development and shared prosperity for all.

A handwritten signature in black ink, appearing to read 'Raf'.

SECRETARY RAMON M. LOPEZ



Towards Competitive and Sustainable Rubber Industry

As the whole nation lends full support to the national leadership's initiatives towards change and renewal, we in the DA welcome the completion and publication of the Philippine Rubber Industry Roadmap 2017-2022.

Rubber is an amazing tree. Strong, long lasting, and water and heat resistant, rubber is the perfect material for making tires for bicycles, motorcycles, cars and trucks, and aircrafts. Soft, non-slip, and malleable enough to accommodate a large variety of colors, styles and textures, rubber is also ideal for manufacturing playground equipment, shoes, mats, flooring, healthcare supplies, household supplies, balls, toys and other products.

The statistics in this publication attest to the dynamic and ever-growing global market for rubber and rubber-based products, world demand for which increased at 3.1% average annual growth during the period of 2013 to 2016. Despite the projected oversupply in the next five years, rubber producing countries are confident that with the robust growth of the global economy and the continued diversification of rubber use, the rubber industry will continue to grow.

It is therefore mystifying that while the Philippines' soil and climate are well suited for rubber production, and the demand has been steadily increasing, there never was sufficient support for the rubber industry in the past. With the issuance of this roadmap, the time has come for rectification and change.

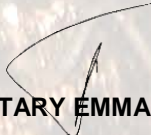
The roadmap envisions a competitive and sustainable rubber industry by setting concrete yearly targets of farm expansion, dry rubber farm production, export volume increase, and rubber import reduction. To ensure that all its stakeholders, particularly the small rubber farmers and workers, are given their fair share of the industry's growth, it prescribes (1) increased investments in rubber farming and processing, (2) efficient and eco-friendly technologies, (3) easy access to financing by farmers and entrepreneurs, (4) the organization of all rubber farmers nationwide and (5) the creation of a Philippine Rubber Board.

I must underscore the need to put up more rubber processing centers such as our own local rubber tire manufacturing plants in order to create local demand for our rubber products, reduce our over-dependence on imports and stabilize the price of rubber and rubber products.

I am particularly thankful that my initiative to organize the Philippine Rubber Farmers Association, Inc. (PRFA) has been included in the roadmap as one of the industry's urgent tasks. We in the DA are indeed organizing rubber farmers down to the barangay level in all rubber-producing regions nationwide. And I hope that other existing regional and provincial farmers associations will affiliate with PRFA in order to create a stronger, more empowered and more forceful rubber small holders group in the country.

After almost half a decade of drafting and later integrating disparate versions from various institutions, we now have a very promising and workable roadmap for fully developing the Philippine Rubber Industry. And for this I have to thank and congratulate DA's lead partner, the Department of Trade and Industry, and the other government agencies and industry stakeholders: the Department of Science and Technology (DOST), the Philippine Rubber Technical Working Group (the PHLRUBBER TWG), the Philippine Rubber Industries Association (PRIA), the recently organized Philippine Rubber Farmers Association (PRFA), the local government units (LGUs), national government agencies (NGAs), regional rubber cluster groups, the academe, financial institutions, processors, traders and exporters, who all eagerly contributed to the long and arduous task of completing this roadmap. I look forward to our stronger and sustained partnership in moving the rubber industry forward.

May the Force be with us!


SECRETARY EMMANUEL F. PIÑOL



ACRONYMS

ACCSQ-RBPWG	ASEAN Consultative Committee on Standards and Quality – Rubber Based Products Working Group
ADS	Air-dried sheet
AETS	Agreed Export Tonnage Scheme
AICCEP	ARMM Industry Cluster Capacity Enhancement Program
ANRPC	Association of Natural Rubber Producing Countries
ARMM	Autonomous Region in Muslim Mindanao
CMU	Central Mindanao University
CSR	Corporate Social Responsibility
DA	Department of Agriculture
DA-BAFS	DA-Bureau of Agriculture and Fisheries Standards
DA-BAR	DA-Bureau of Agricultural Research
DA-BPI	Department of Agriculture-Bureau of Plant Industry
DA-PhilMech	DA-Philippine Center for Postharvest Development and Mechanization
DAR	Department of Agrarian Reform
DBP	Development Bank of the Philippines
DENR	Department of Environment and Natural Resources
DENR-NGP	DENR-National Greening Program
DILG	Department of the Interior and Local Government
DLSU	De La Salle University
DOLE	Department of Labor and Employment
DOST	Department of Science and Technology
DOST-ITDI	DOST-Industrial Technology Development Institute
DOST-FPRDI	DOST- Forest Products Research and Development Institute
DOST-PCAARRD	DOST-Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development
DOST-PCIEERD	DOST-Philippine Council for Industry, Energy and Emerging Technology Research and Development
DR	Dry Rubber
DRC	Dry Rubber Content
DTI	Department of Trade and Industry
DTI-BPS	DTI-Bureau of Philippines Standards
DTI-EMB	DTI-Exports Marketing Bureau
GAP	Good Agricultural Practices
GRG	General Rubber Goods
IEC	Information, Education and Communication
IMF	International Monetary Fund
IRRDB	International Rubber Research and Development Board
IRSG	International Rubber Study Group
ISO	International Organization for Standardization
ISP	Industry Strategic Plan
ISU	Isabela State University
ITRC	International Tripartite Rubber Council
JICA	Japan International Cooperation Agency
JRMSU	Jose Rizal Memorial State University
KRDFI	Kasangyangan Rural Development Foundation, Inc.
LBP	Landbank of the Philippines
LGU	Local Government Units

LSM	Local Study Mission
MRE	Malaysian Rubber Exchange
MT	Metric Tons
NC	North Cotabato
NC II	National Certificate II
NICCEP	National Industry Cluster Capacity Enhancement Project
NR	Natural Rubber
PEZA	Philippine Economic Zone Authority
PESFA	Private Education Student Fund Assistance
PHIRMA	Philippine Rubber Manufacturers' Association
PHLRUBBER	Philippine Rubber Technical Working Group
PNS	Philippine National Standard
PPA	Projects, Programs and Activities
PPRPC	Pioneer Rubber Products Corp.
PRDI	Platinum Rubber Development, Inc
PRIA	Philippine Rubber Industries Association, Inc.
PRIME	Philippine Rubber Investment and Market Encounter
PRFA	Philippine Rubber Farmers' Association
PRRI	Philippine Rubber Research Institute
PRTC	Philippine Rubber Testing Center
PSA	Philippine Statistics Authority
PTIC	Philippine Trade and Investment Center
RDE	Research Development and Extension
RIAP	Rubber Industries Association of the Philippines
RICG	DTI-Rubber Industry Cluster Group
RPMC	Rubber Price Management Committee
RPMS	Regional Price Management System
SB	Stem Bleeding
SBCorp	Small Business Corporation
SET-UP	Small Enterprise Technology Upgrading Program
SKSU	Sultan Kudarat State University
SLSU	Southern Luzon State University
SPR	Standard Philippine Rubber
SSF	Shared Service Facilities
TBD	Tapping Panel Dryness
TESDA	Technical Education and Skills Development Authority
TSR	Technically Specified Rubber
TWSP	Training for Work Scholarship Project
USM	University of Southern Mindanao
UWARBMPC	United Workers Agrarian Reform Beneficiaries Multi-Purpose Cooperative
WESMAARRDEC	Western Mindanao Agriculture and Aquatic Resources Research and Development Consortium
WMSU	Western Mindanao State University
WPU	Western Philippine University
YTPI	Yokohama Tire Philippines, Inc.
ZamPen	Zamboanga Peninsula
ZamPen RUBBER	Zamboanga Peninsula Rubber Industry Cluster Team
ZDN	Zamboanga del Norte
ZSP	Zamboanga Sibugay
ZSP-RIDB	Zamboanga Sibugay Provincial Rubber Industry Development Board

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Industry Profile

I. RUBBER INDUSTRY PROFILE

A. World Rubber Industry Outlook

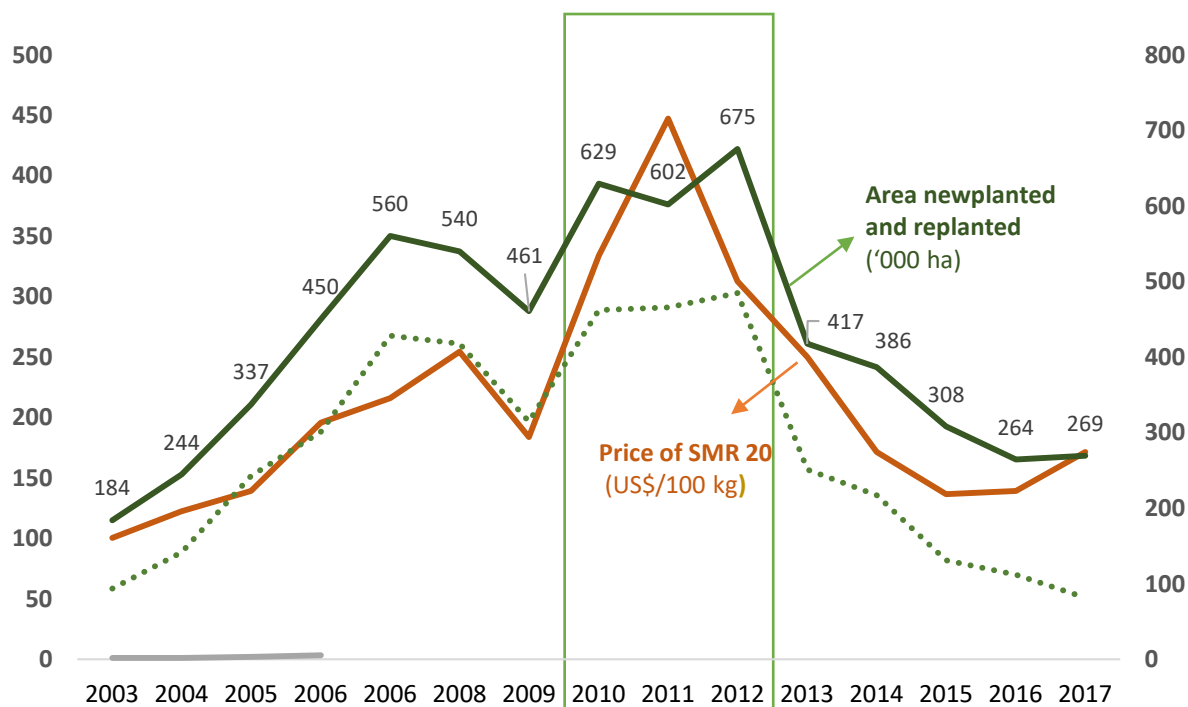
With the anticipated growth in the world economy, the Association of Natural Rubber Producing Countries (ANRPC) is optimistic on its positive impact on the natural rubber (NR) market.

On the demand side, a major development is that the outlook has improved for China in view of withdrawal of the US tariff on heavy commercial vehicle tires made in China. Improved economic outlook in the US and Europe suggests possibility of faster growth in demand for NR from these non-ANRPC regions (Mathew, 2017).

A.1 World Projected Production

Farm expansion is greatly influenced by the NR price. It is evident in 2010-2012 when there is an abrupt high price of NR, farmers expanded their rubber plantation in large-scale as shown in the figure below. These new area planted and replanted to rubber resulted to the increase in the world production in 2017-2019.

Figure 1: Average Annual Prices of SMR 20 and Area Planted (New Planted and Replanted)



Source: ANRPC Industry Matters Committee

For 2010-2012 alone, a total of 1.91 million hectares were newly planted and replanted to rubber in ANRPC countries of which 37.9% or 723.1 thousand hectares were contributed by Thailand. It was followed by Vietnam, Indonesia and China with a share of 14.8% (282.4 thousand hectares), 11.9% (226.5 thousand hectares), and 11.9% (226 thousand hectares), respectively. The remaining countries has less than 10% share to the new area planted and replanted.

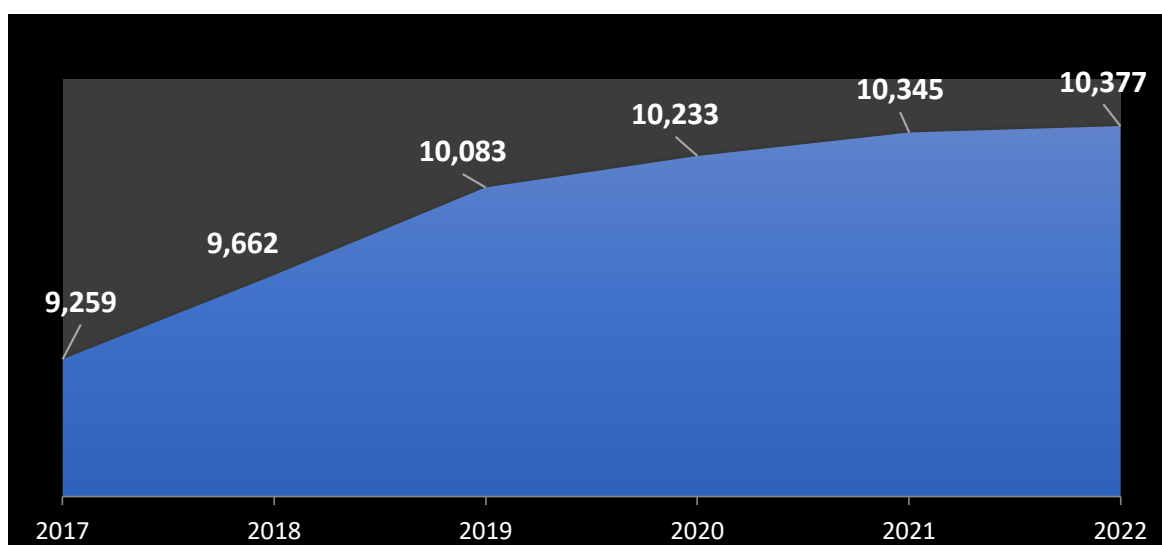
Table 1: 2010-2012 New Area Planted and Replanted ('000 hectares)

ANRPC countries	2010-2012 New Area Planted and Replanted ('000 hectares)	% Share
1. Thailand	723.1	37.9%
2. Vietnam	282.4	14.8%
3. Indonesia	226.5	11.9%
4. China	226	11.9%
5. Cambodia	162.9	8.5%
6. India	103.5	5.4%
7. Malaysia	101.7	5.3%
8. Philippines	58.7	3.1%
9. Sri Lanka	21.6	1.1%
Total	1,906.4	100%

Source: ANRPC Industry Matters Committee

Based on the ANRPC Industry Matters Committee Report, total mature rubber area in 2017-2022 is in upward trend. A total of 9.259 million hectares is expected to be tappable in 2017 of which will increase by 1.118 million hectares in 2022 as shown in the figure below.

Figure 2: Projected Mature Area 2017-2022 ('000 hectares)

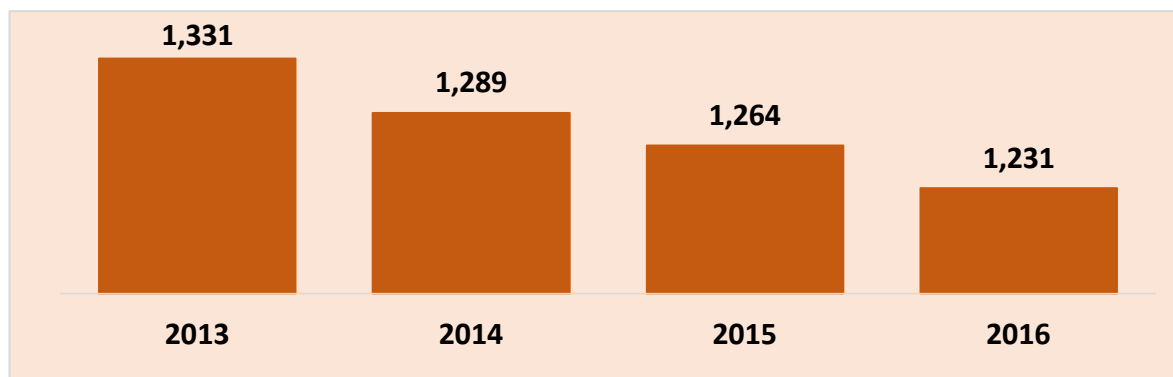


Source: ANRPC Industry Matters Committee

However, there are number of factors that are likely to drag the average yield or farm productivity from 2018 onwards which would affect the projected world production. One of these factors is poor quality of planting materials which was aggravated by the unexpected demand in 2010-2012. With this, it would result to poor girth of young trees, long gestation period, and lower yield potential and poor tolerance to diseases. Retention of senile trees, poor farm maintenance, increased share for new plantation in non-traditional areas, and contraction of area in traditional areas also contribute to the farm productivity. Another factor is the changing farmers' profile such as more number of farmers prefer not to hire tappers, thus, potential yield are not being exploited. Last factor is the climate change. Some rubber producing countries were affected by severe unseasonal rains and typhoon which lead to a decreased in production per hectare.

The above issues have already impacted on average yield as shown in Figure 3, from the average yield of 1.331 MT per hectare in 2013 to 1.231 MT per hectare in 2016.

Figure 3: Average Yield in 2013-2016 (Aggregate of all ANRPC countries)

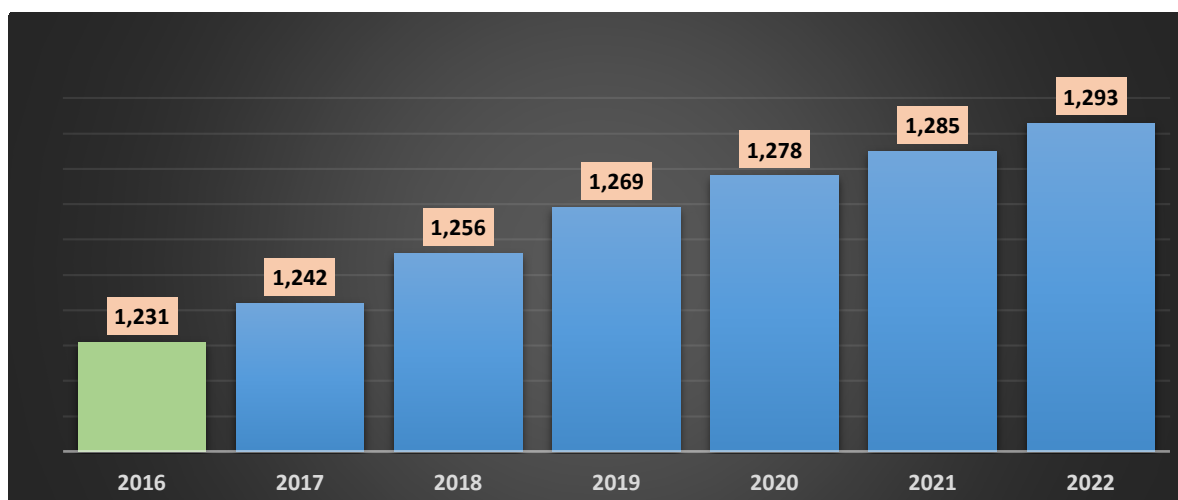


Source: ANRPC Industry Matters Committee

Despite these factors that drag the farm productivity, ANRPC is still optimistic and projected that average yield in member countries will increase from 1.231 MT/kg in 2016 to 1.293 MT/ha in 2022 or an average of 0.82% annual increase.

The projections of aggregate average yield are based on average yield separately obtained from each member country. Average yield is also projected with the assumption of having favourable weather condition.

Figure 4: Projected Average Yield in ANRPC Region (Aggregate of all ANRPC Countries in kg/ha)



Source: ANRPC Industry Matters Committee

As a result of the total tappable or mature areas and projected average yield, world supply of NR is expected to increase from 12.279 million tonnes in 2016 to 15.352 million tonnes in 2022 or an average growth rate of 3.8% annually.

As mentioned earlier and observed in the table below, NR production growth rate in 2017-2019 is high because of the large-scale farm plantation of farmers due to the abnormal high price of NR in 2010-2012.

Table 2: Projected World NR Production 2017-2022 (in '000 tonnes)

	2017	2018	2019	2020	2021	2022
World Total	12,937	13,717	14,505	14,886	15,174	15,352
Growth (%)	5.4%	6.0%	5.7%	2.6%	1.9%	1.2%

Source: ANRPC Industry Matters Committee

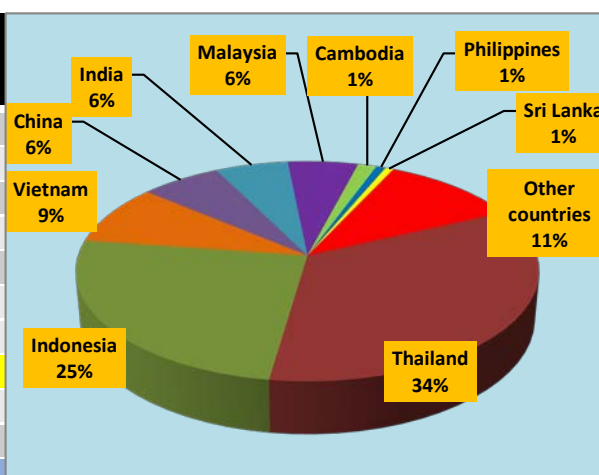
In terms of distribution of the projected world production by country, Thailand is the major contributor at 34% or 4.429 million tonnes in 2017. It is followed by Indonesia and Vietnam at 25% and 9%, respectively. Other countries have less than a million tonne production.

Moreover, among countries, Cambodia has the highest expected production growth for 2017 at a rate of 33.1%. Then, Malaysia and Vietnam come next at 21% and 11.3%, respectively.

Table 3: Expected Production of Different Countries in 2017 ('000 tonnes)

Countries	Actual Production in 2016	Expected Production in 2017	Expected growth in 2017 (%)
Thailand	4,347	4,429	1.9
Indonesia	3,208	3,230	0.7
Vietnam	1,032	1,149	11.3
China	774	833	7.6
India	624	755	8.4
Malaysia	674	730	21.0
Cambodia	145	193	33.1
Philippines	91	98	8.6
Sri Lanka	79	84	6.8
Others	1,306	1,435	9.9
World	12,279	12,937	5.4

Figure 5: World NR Share per Country (2017)



Source: ANRPC Industry Matters Committee

A.2 World Projected Consumption

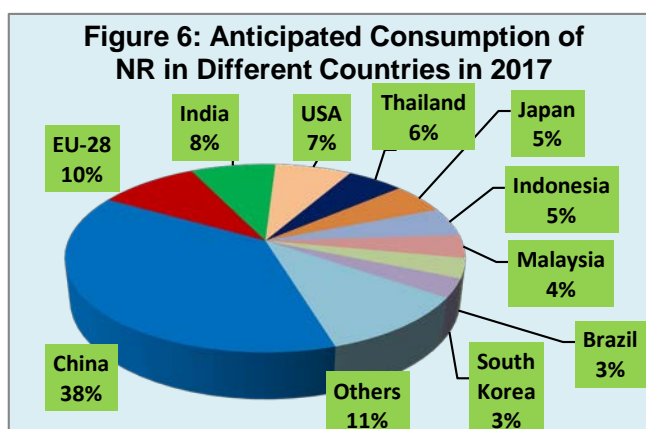
As shown in the table below, world consumption of NR is expected to increase from 12.678 million tonnes in 2016 to 15.238 million tonnes in 2022. It has an average growth rate of 3.12% for the period of 2017 to 2022. The increasing trend in the world's consumption is due to the anticipated improvement in the world economic outlook.

Table 4: Projected World NR Consumption 2017-2022 (in '000 tonnes)

	2016 Actual	2017	2018	2019	2020	2021	2022
Consumption	12,678	12,887	13,279	13,744	14,225	14,723	15,238
Growth (%)	4.21	1.65	3.04	3.5	3.5	3.5	3.5

Source: ANRPC Industry Matters Committee

In terms of consumption by country, China continues to be the top user of natural rubber in the world contributing 38% of the total global consumption as shown in Figure 6. It is followed by EU at 10% and the remaining countries consume at less than 10% of the global consumption.

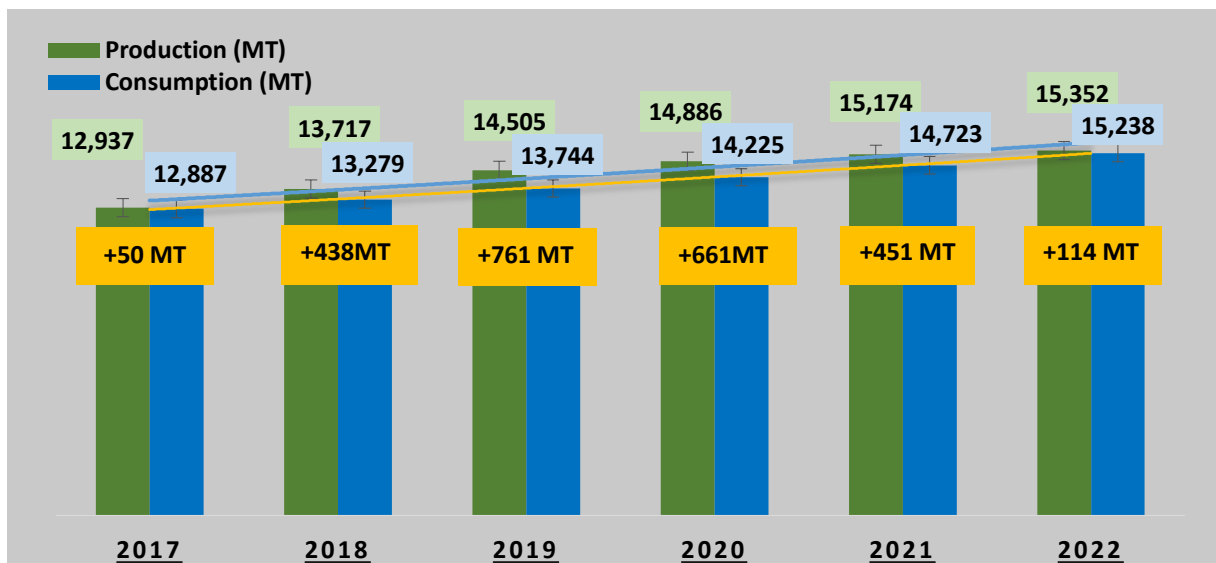


Source: ANRPC Industry Matters Committee

A.3 World Projected Production & Consumption

Based on ANRPC's projected NR production and consumption, there will be a surplus in production from 2017 to 2022 as shown in Figure 7. Though, the projected supply will not be realized in the event there will be an unfavourable climate or abnormal fall in prices. The report of ANRPC asserts further that member countries must have a reliable stock inventory of NR to correspond with the realities observed in markets.

Figure 7: Anticipated NR Production and Consumption in '000 tonnes (2017-2022)



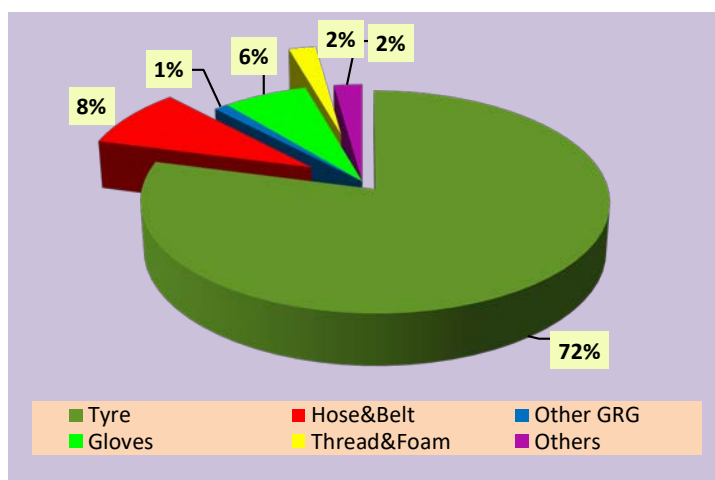
Source: ANRPC Industry Matters Committee

A.4 Uses of Natural Rubber

Tire being the major product of natural rubber accounts 72% of the global demand as shown in Figure 8. Tires are used in large numbers of bicycles, motorcycles, automotive, aircrafts, and trucks (IRSG, PRIME 2015).

For non-tire applications, hose and belts registered 8% share followed by gloves with 6%, thread & foam with 2%, general rubber goods (GRG) with 2% and other non-tire products with 1% share.

Figure 8: Natural Rubber Usage, 2014



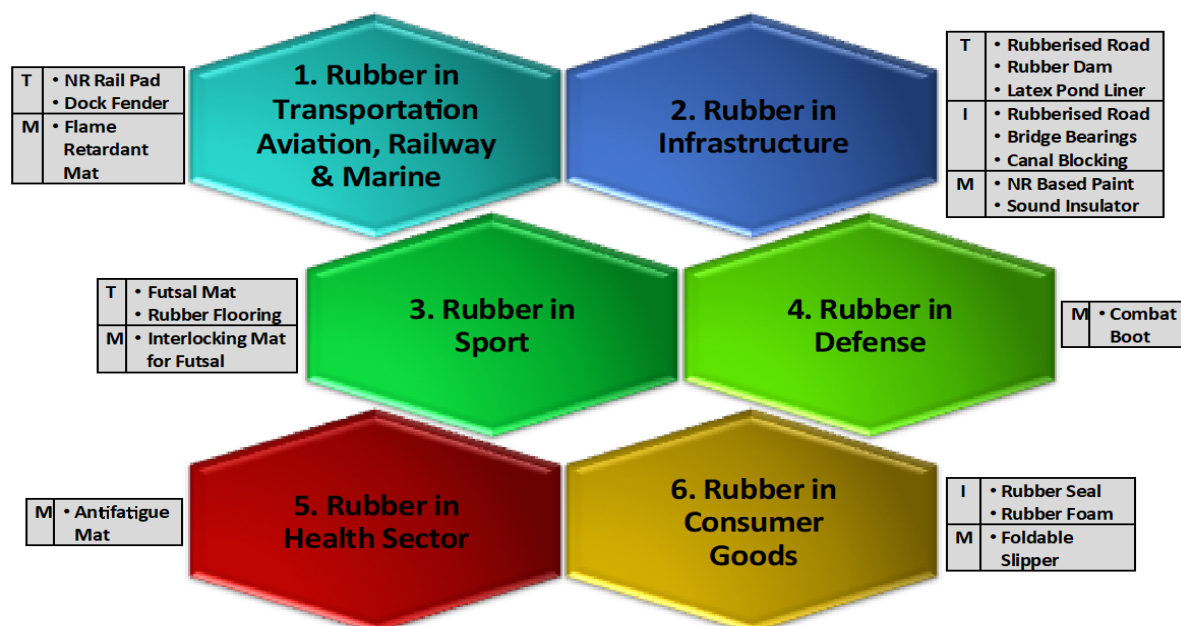
Rubber utilized in non-tire applications registered stronger market gains, but remain the smaller segment of the rubber market. Based on Industrial Rubber Market: Global Industry Analysis and Opportunity Assessment 2015-2025, the global industrial rubber market is expected to boost demand due to growing automotive industry, rising construction output (roads, bridges, buildings, and race tracks to name a few) and manufacturing activities (Future Market Insights 2015).

A.5 International Price Stabilization Initiatives

The International Tripartite Rubber Council (ITRC) which is composed of the three (3) top producers and exporters of natural rubber: Thailand, Indonesia, and Malaysia, came out with the Agreed Export Tonnage Scheme (AETS). The initiative is aimed at voluntary control on exports to help stabilize the prolonged low price of natural rubber. ITRC agreed to cut exports of NR to boost prices and help rubber producers address economic difficulties. The council will study the impact during the implementation period and review the decision whether to continue the AETS or not.

The three countries also agreed to expand domestic consumption of natural rubber through development of new products and explore new usage such as the use of natural rubber for road pavements and construction (Bangkok Post.com2016 & Global Rubber Markets March 2016). Thailand is set to commercialize the Rubberized Asphalt which was experimented in Bangkok as well as in other areas in Thailand. Other commercial uses of natural rubber are being explored and promoted to expand domestic consumption of rubber.

Figure 9: Areas under DPSC



Source: ITRC Presentation (IRRDB International Rubber Conference, Oct. 18-20, Jakarta)

Figure 9 shows some of the rubber-based product sectors that the ITRC’s Demand Promotion Scheme Committee (DPSC) has identified for promotion and areas of opportunities that rubber-producing countries can explore to increase the domestic consumption of natural rubber:

A.6 IMF Forecasts

Despite prevalence of uncertain global economic conditions, world demand for NR increased at 3.1% average annual growth during the period of 2013 to 2016. The International Monetary Fund (IMF) in April 2017 has revised the global economic outlook. Accordingly, world economy is anticipated to grow 3.5% in 2017 and 3.6% in 2018. Economic growth projected for 2019-2022 is 3.7%

Table 5: World Economy

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average 2019-22
World	-0.1	5.4	4.2	3.5	3.4	3.5	3.4	3.1	3.5	3.6	3.7
Advanced economies	-3.4	3.1	1.7	1.2	1.3	2.0	2.1	1.7	2.0	2.0	1.7
Emerging market and developing economies	2.9	7.4	6.3	5.4	5.1	4.7	4.2	4.1	4.5	4.8	5.0

Source: ANRPC, Draft Report of 4th Experts Group Meeting on May 23-25, 2017 at Thailand

The IMF in its “Commodity Outlook” released in February 2017 is looking at 18% increase in the prices of all globally-traded commodities in 2017 compared to 2016. NR prices, according to IMF, are expected to increase by 50% in 2017 compared to 2016. The prices from 2018 onwards for all commodities as well as NR are projected to stagnate as shown in Table 6.

**Table 6. Indices of commodity prices anticipated by IMF
(Base: 2005=100)**

Year	All Commodities	NR Price
2016	100	109
2017	118	163
2018	116	158
2019	115	158
2020	114	158
2021	115	158
2022	116	158

Source: ANRPC, Draft Report of 4th Experts Group Meeting on May 23-25, 2017 at Thailand

A.7 ANRPC Proposed Measures

During the Fourth Meeting of Expert Group on NR Price Stabilization conducted by ANRPC on May 23-25, 2017 at Buri Sriphu Boutique Hotel, Hat Yai, Thailand, the group proposed the following measures to generate positive outlook in the market and to support the livelihood of farmers during the low prices:

- 1) Forecasts which can have adverse effect on market may be kept confidential but to be shared among member countries only;
- 2) When rubber prices sharply fall, ANRPC may organize suitable meeting to evaluate the situation and formulate appropriate measures to reverse the downtrend;
- 3) ANRPC may explore possibility to generate short-term positive market sentiments by designing and launching a suitable export curtailment measure with the active participation of all NR exporting countries within ANRPC;
- 4) Whenever Member Governments offer support price to farmers and procure rubber at guaranteed price, the price offered to farmers should not be above the market price. This is to avoid farmers increasing the production due to the guaranteed price offered by government;
- 5) In countries where rubber holdings are scattered, development of transport and other infrastructure facilities can facilitate easier movement of rubber and thereby help farmers to realise better farm-gate price;
- 6) Member Governments may consider encouraging farmers to observe “lay-off to tapping”, at least one day in a month, uniformly across countries. The resultant higher price can offset the loss in income arising from lower output;
- 7) ANRPC may design and organize suitable training on the concept on “Central Rubber Market” and similar efficient marketing models to address the low farm-gate price realised by farmers in a few countries;
- 8) Member Governments may introduce strict regulations to restrict import of inferior quality cup lump. Lack of buyers for low quality cup lump can compel farmers to produce good quality cup lump;
- 9) Member governments may initiate suitable measure to promote value addition of cup lump and latex into processed forms of NR. Value addition within the country, rather than exporting cup lump, can help farmers to realise better farm-gate price.
- 10) Member governments may initiate suitable measures to popularise non-conventional uses of NR, such as use of rubber in construction sector, rubberised roads, and rubber electric poles in high ways.
- 11) ANRPC may organize a workshop/seminar to gather economic aspects of rubberised roads and their economic viability.

In response to the call of ANRPC for each of the member-countries to explore possible uses of NR in the construction sector, the Department of Trade and Industry is planning to introduce to the Department of Public Works and Highways

the use of Rubberized Asphalt as overlay pavement in existing road networks requiring maintenance and in the future maintenance of roads that are expected to be constructed under the Build, Build, Build Infrastructure Program of the Duterte Administration. The DTI will organize a Technology Briefing and Study Mission to Thailand and Malaysia in November 2017 for the DPWH officials and local government executives to introduce to them the technology and conduct an ocular inspection of existing roads in both countries.

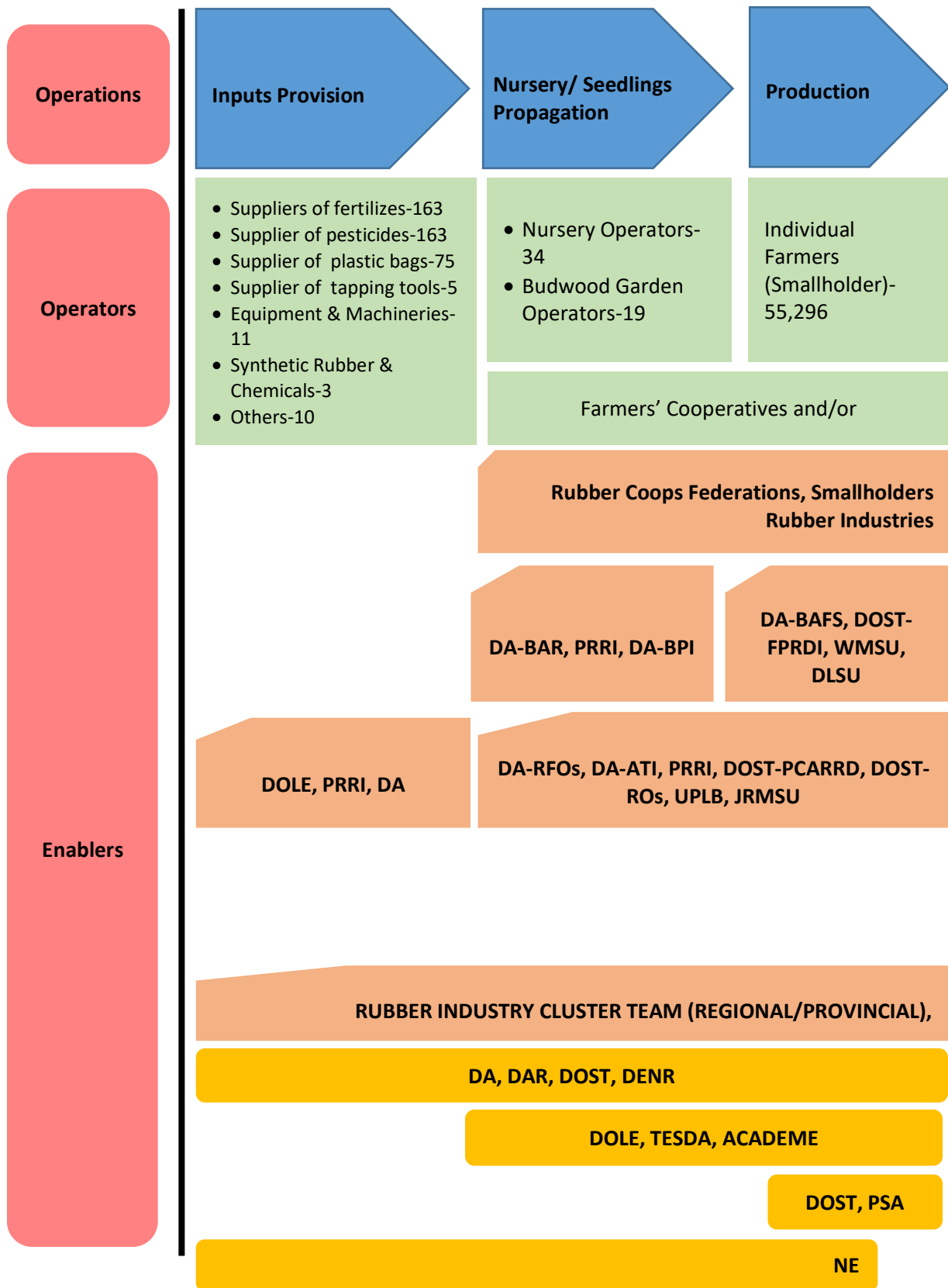
B. Philippine Rubber Industry Situationer

B.1 Structure of the Industry

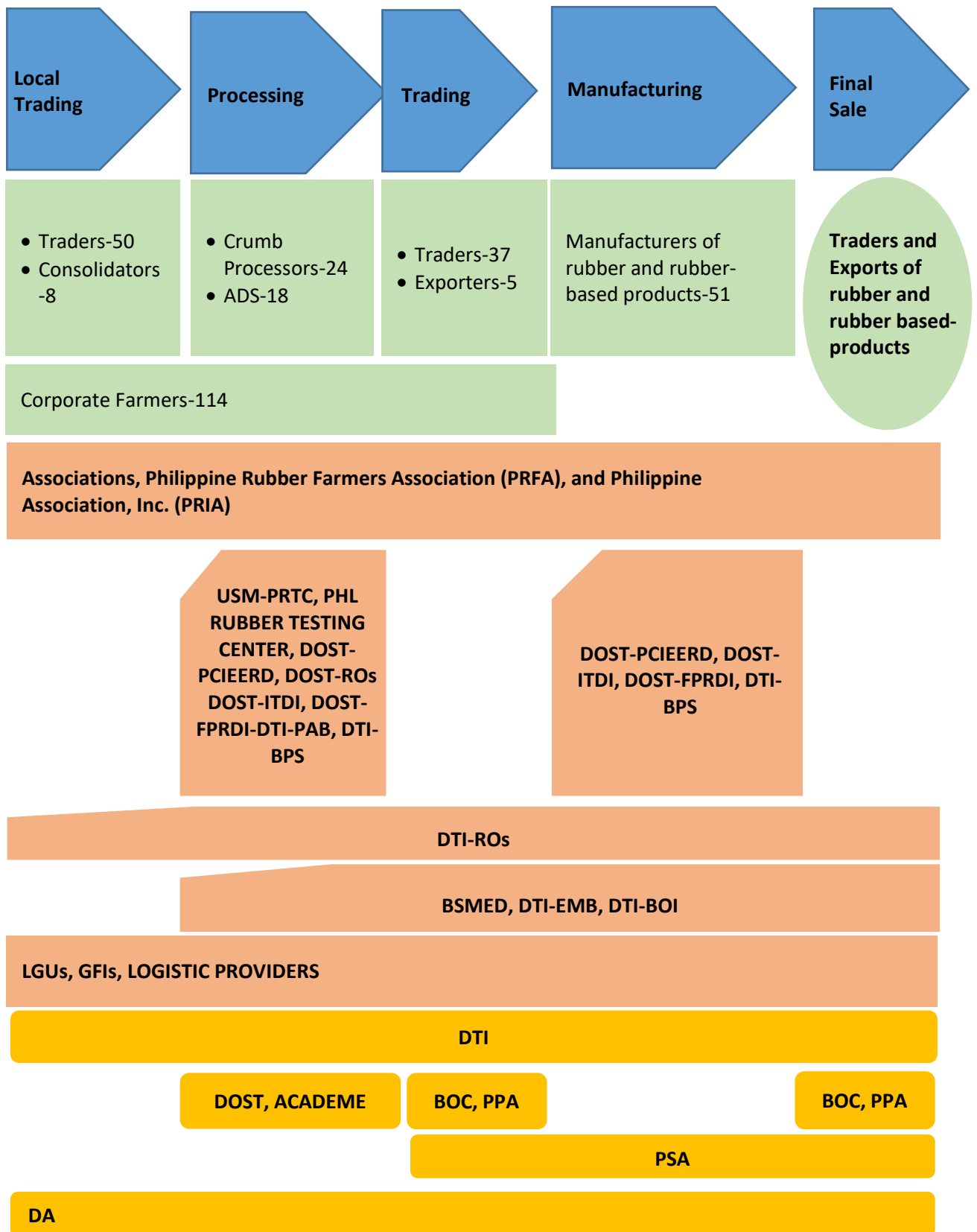
The industry is composed of the upstream, midstream and downstream sectors. The upstream and midstream sectors are largely Mindanao-based. The upstream activities include nursery and bud wood garden operations and budded seedling distribution, plantation operation and management, production of latex and cup lumps, and trading of cup lumps. Midstream activities are the processing of cuprum's into crumb rubber Standard Philippine Rubber (SPR) for processors that are ISO certified/aligned, and trading and export of SPR. Downstream activities are manufacturing of rubber-based products for domestic and export market. Manufacturers are mostly located in NCR, Central Luzon, and in Calabarzon.

The industry is composed of different rubber holdings. Over 90% of rubber farms are small growers and the rest are rubber-based cooperatives (Agrarian Reform Communities), privately-owned and corporate plantations. The industry is composed of key players ranging from suppliers of inputs for production and maintenance to manufacturers of rubber-based products. As reflected in the value chain below, players include nursery and bud wood garden operators, planters who are more than 90% small farmers, traders of cuplumps and operators of trading centers in strategic areas, processors of crumb rubber and air-dried sheets (ADS), traders and exporters of crumb rubber or Standard Philippine Rubber (SPR), and manufacturers of tires, automotive parts, sports products, and footwear.

Figure 10: Value Chain Map of Rubber



and Rubber-based Products



There are two (2) major national industry associations. The Philippine Rubber Industries Association, Inc. (PRIA) based in Manila, and the newly organized Philippine Rubber Farmers Association, Inc. (PRFA) based in North Cotabato.

Philippine Rubber Industries Association, Inc. (PRIA)

Some of the manufacturers in the country are member of the Philippine Rubber Industries Association, Inc. (PRIA). It has 62 members of which industry players of the rubber value chain are well-represented. The following are the classification of PRIA members:

- 3 Tire Manufacturers/Suppliers & Retreaders
- 17 Automotive, Industrial Parts & Sporting Goods Manufacturers
- 16 Natural Rubber Processors/Traders
- 3 Footwear Manufacturers
- 3 Latex-based Product Manufacturers
- 17 Synthetic Rubber & Chemicals
- 3 Other Suppliers

PRIA was formed in 1979 with the merger of the Philippine Rubber Manufacturers' Association (PHIRMA) and the Rubber Industries Association of the Philippines (RIAP) by prominent personalities in the rubber industries. The Philippine Rubber Industries Association, Inc. (PRIA) has become a single voice of the rubber industries in the country since then. The membership of PRIA is composed of companies from diverse fields in the manufacturing, trading, input and chemical suppliers, producers and processors (www.priainc.org).

Philippine Rubber Farmers Association, Inc. (PRFA)

The PRFA is organized by Sec. Emmanuel Piñol during the Rubber Farmers' Assembly in Kidapawan, North Cotabato on January 21, 2017. The Department of Agriculture intends to organize the rubber farmers down to the barangay level in all rubber-producing regions nationwide. Existing regional and provincial farmers associations are expected to affiliate with PRFA creating a stronger and more empowered rubber small holders group in the country.

Yokohama Tire Philippines, Inc. (YTPI)

Yokohama Tire Philippines, Inc. (YTPI) is the only car tire manufacturing company in the Philippines. YTPI is considered as the largest individual user of natural rubber in the country. With its expansion from 20,000 tires in 2012 to 50,000 tires per day in 2017, this makes the company the second largest Yokohama tire manufacturing plant in the world.

Rubber-based Manufacturers located in PEZA Export Processing Zones

There are 24 registered enterprises engaged in the manufacture for export of rubber products that are located in the Philippine Economic Zone Authority (PEZA). The following are the distribution:

Table 7: Number of Registered Enterprises into Manufacturing of Rubber Products located in PEZA

Economic Zone	Number of Registered Enterprises
Carmelay Industrial Park	1
Mactan Economic Zone	2
Calamba Premiere International Park	1
Lima Technology Center	3
First Philippine Industrial Park	2
People's Technology Complex	2
Laguna International Industrial Park	1
Laguna Technopark	4
Daiichi Industrial Park	1
Light Industry and Science Park	2
Cavite Economic Zone	5
Total	24

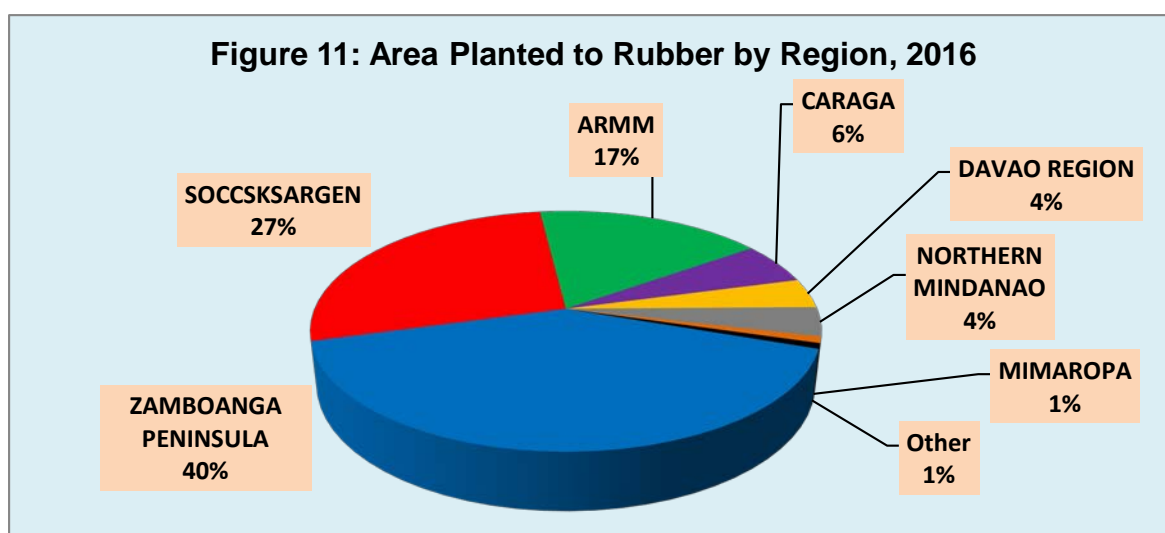
Source: Philippine Economic Zone Authority

B.2 Area Planted to Rubber

Based on the Philippine Statistics Authority (PSA) data, area planted to rubber in the Philippines continuously increasing from 2012-2016 by 47,039.17 hectares or an average growth rate of 5.34%.

Among regions, Zamboanga Peninsula recorded the largest area planted to rubber in 2016 with 90,297 hectares or 40% of the total area of 223,283.17 hectares. Next is SOCCSKSARGEN with 61,026 hectares (27%), ARMM with 38,315 hectares (17%), and CARAGA with 12,519 hectares (6%). The rest of the regions registered an area of less than 10,000 hectares planted to rubber or less than 5% of the total area planted to rubber.

Some industry players questioned the accuracy of the data presented by PSA, but in the absence of an industry study or primary data on the actual hectares planted to rubber; this document relies plainly on the official statistics published by PSA. This is also for consistency purposes since the same data is also being supplied by PSA to international organizations like ANRPC and IRSG.



Source: Philippine Statistics Authority, July 2017 (PSA)

Table 8: Area Planted to Rubber by Region, 2012-2016 (in hectares)

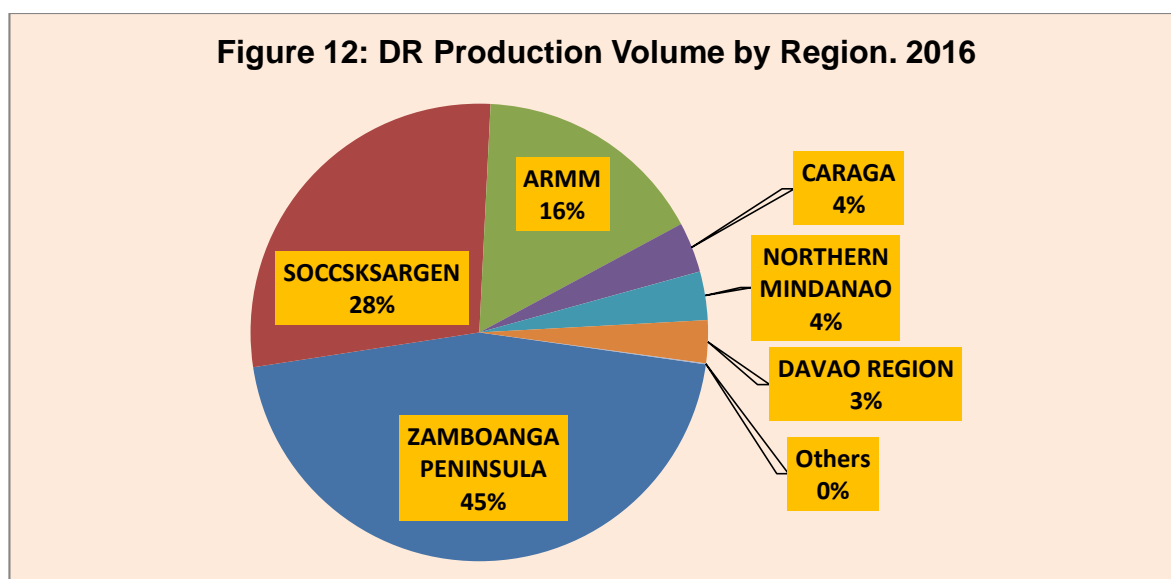
Regions	2012	2013	2014	2015	2016
1. Zamboanga Peninsula	80,375	86,033	86,452	89,837	90,297
2. SOCCSKSARGEN	36,713	40,916	60,516	60,966	61,026
3. ARMM	32,079	34,115	38,115	38,275	38,315
4. CARAGA	11,528	11,548	11,837	12,450	12,519
5. Davao Region	6,693	3,533	8,518.30	8,872	8,831.96
6. Northern Mindanao	6,851.25	6,929.20	8,876.31	8,776.31	8,776.21
7. MIMAROPA	741.75	766	1,766.25	1,778.25	1,876
8. Central Visayas	1,015	1,018	1,018	978	966
9. CALABARZON	221	435	435	435	435
10. Cagayan Valley		152	122	203	210
11. CAR	27	27	27	27	27
12. Bicol Region		4	4	4	4
PHILIPPINES	176,244.00	185,476.20	217,686.86	222,601.56	223,283.17
Percentage Increase (Decrease)	9.09%	5.24%	17.37%	2.26%	0.31%

Source: Philippine Statistics Authority, July 2017 (PSA)

B.3 Dried Rubber Production

In terms of production volume, data reported by PSA is in wet form/cup lump. Thus, to be aligned with international statistics, it is converted into dried rubber (DR) which is assumed to have a 50% dry rubber content (DRC). Based on the available data, Philippine has a total 181,312.99 MT of DR in 2016 which is 8.92% lower than the output in 2015. Moreover, as shown in Figure 12, still Zamboanga Peninsula is the biggest producer of DR in 2016 in the country which contributed 45% to the country's output. It is followed by SOCCSKSARGEN at 28% or

51,188.24 MT of DR and ARMM at 16% or 29,682.05 MT of DR. Other regions produce less than 10,000 MT of DR.



Source: Philippine Statistics Authority (PSA), July 2017

Furthermore, from 2012-2014, there was an increasing trend in the country's production but dropped in 2015-2016. The dropped in production is attributed to the declined in NR price and to the unfavourable climate in the country.

Table 9: Production Volume of DR by region from 2012-2016 (in MT)

Regions	2012	2013	2014	2015	2016
1. Zamboanga Peninsula	94,427.34	97,678.52	95,804.91	88,385.97	82,206.94
2. SOCCSKSARGEN	84,872.71	86,476.96	86,988.26	63,132.09	51,188.24
3. ARMM	20,424.30	23,416.67	27,025.67	29,679.58	29,682.05
4. CARAGA	8,305.42	5,015.42	5,254.54	6,003.01	6,422.62
5. Northern Mindanao	5,395.83	5,630.50	5,936.30	6,070.95	6,201.09
6. Davao Region	8,035.05	4,120.40	5,424.47	5,703.44	5,514.08
7. MIMAROPA	20.97	29.63	51.05	58.85	61.09
8. Central Visayas	-	4.58	9.08	17.10	19.29
9. CALABARZON	17.48	36.18	31.98	17.36	17.61
PHILIPPINES	221,499.09	222,408.85	226,526.25	199,068.32	181,312.99
Percentage Increase (Decrease)	4.06%	0.41%	1.85%	-12.12%	-8.92%

Source: Philippine Statistics Authority (PSA), July 2017

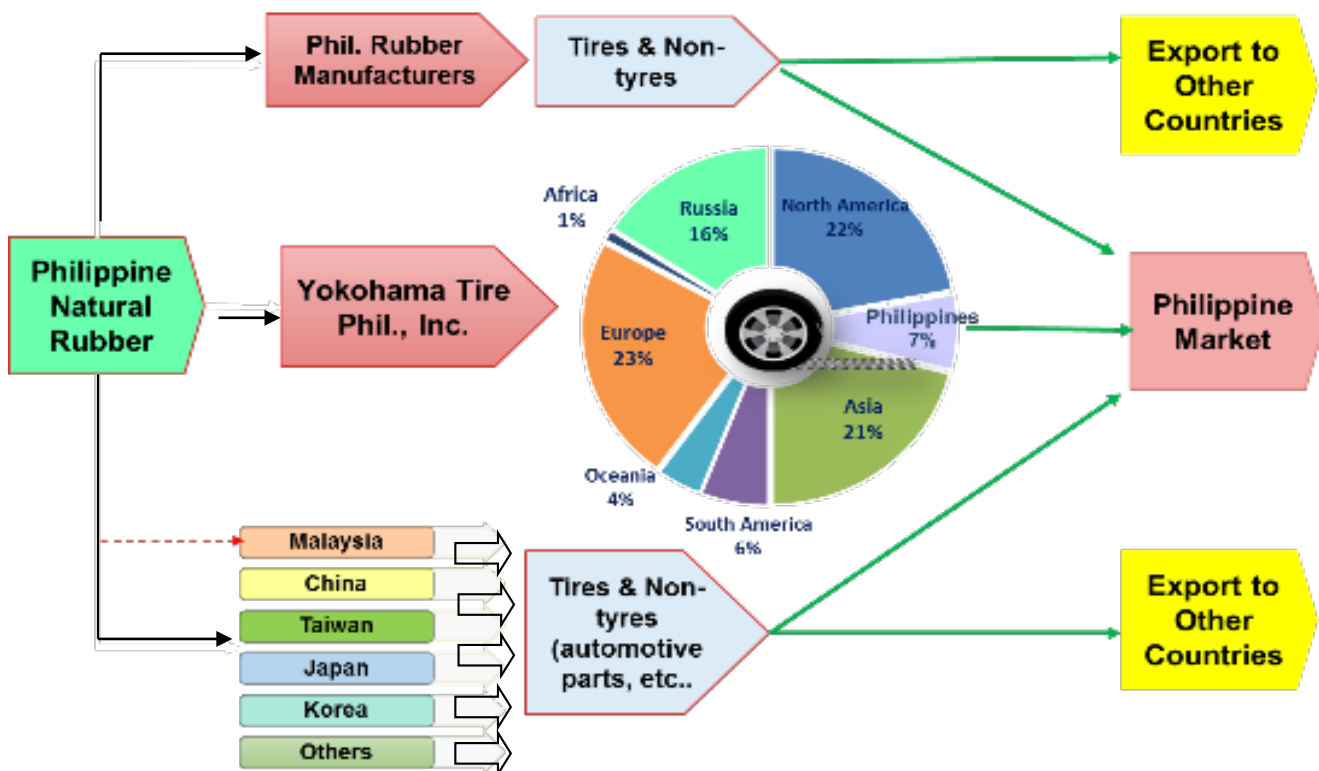
B.4 Market of Rubber and Rubber Products

B.4.1 Supply Chain of Philippine Natural Rubber

Figure 13 shows the movement or flow of Philippine NR products. It is either marketed locally, Philippine Rubber Manufacturers and/or Yokohama Tire Philippines, Inc. (YTPI), or exported to Malaysia, China, Taiwan, Japan, Korea and others.

The rubber manufacturers in the country produce tire and non-tyres products which are sold locally or exported. Meanwhile, only three (3) rubber processing plants in the country are able to market its crumb rubber to YTPI. YTPI is the only car tire manufacturing in the country of which 7% of its product are sold in the Philippines while the remaining 93% are sold outside the country. Moreover, there are various market for cuplumps, but, according to Dr. Rolando Dy, Executive Director of the Center for Food and Agri Business of University of Asia and the Pacific, majority of the cup lump is exported to Malaysia.

Figure 13: Philippine Natural Rubber Global Link




Note: Dr. R. Dy, UAP, PRIME 2015. Exports mainly cuplump (70%) to Malaysia.

Source: Dr. R. Dy, PRIME 2015, exports mainly cuplump (70%) to Malaysia

B.4.2 Domestic Market

Currently, the total estimated domestic consumption of natural rubber of local manufacturers amounts to 35,000 metric tons. Of this volume, 51% or 18,000 MT is consumed by YTPI and the remaining is equally used by PRIA and non-PRIA members.

Figure 14: Estimated Consumption of Local Manufacturers (MT)



QUICK FACTS

NR Annual Estimated Consumption of Local Manufacturers (MT)

Particulars	Est. Annual Consumption
Yokohama Tires Phil. Inc	18,000
PRIA Members	8,500
Non-PRIA Members	8,500
Total	35,000

Source: Mr. Elpidio Carlota of Philippine Rubber Industries Association, Inc. (PRIA)

B.4.2.1 Processing Plants

In the country, there are forty-two (42) processors of which twenty-four (24) are producing crumb rubber and eighteen (18) are producing air-dried sheet (ADS).

Total annual capacity of air-dried sheet processors is 1,629.60 MT of which most of the processing plants are located in Region VII as shown in Table 10.

Table 10: Annual Capacity of Air-Dried Sheet (ADS) Processing Plants

Regions	Number of ADS Processing Plants	Annual Capacity (MT)
MIMAROPA	3	204
Region VII	9	129.60
Region X	2	288
Region XII	3	48
CARAGA	1	960
Total	18	1,629.60

Source: DTI

On the other hand, Table 11 shows the total annual capacity of the crumb rubber processing plants is 124,200 MT of which 61% are contributed by ZamPen where most processing plants are located.

Table 11: Annual Capacity of Crumb Rubber Processing Plants

Regions	Processing Plants		Annual Plant Capacity (MT)
Region IX	1	CTK Asia Rubber Corp	30,000
	2	DLC/Amaresa	2,400
	3	FJC Agro Industries	3,600
	4	MJ Saha Rubber	3,600
	5	Philippine Pioneer Rubber Products Corporation (PPRPC)	7,200
	6	Standard Rubber Development Corporation	12,000
	7	Tire King Rubber Products	3,600
	8	United Workers Agrarian Reform Beneficiaries MPC (UWARBMPC)	3,600
	9	ZANORTE Palm-Rubber Plantation, Inc	3,600
	10	Amaresa Rubber Company	2,400
	11	Cerilles Rubber Plantation and Processing Plant	3,600
		75,600	
Region X	1	Pioneer Amaresa	2,400
		2,400	
Region XII	1	AO Rubber	2,400
	2	DAVCO Development Corporation	3,600
	3	FARMA Rubber Industries, Inc	7,200
	4	Kian Tek Rubber Factory Corp	7,200
	5	Pioneer Amaresa	4,800
	6	Platinum Rubber Development Inc	3,600
	7	Supreme Solutions Strategist, Inc-Olmecs & Co. Devt. Corp	3,600
	8	Banisilan Agrarian Reform Community	2,400
		34,800	
CARAGA	1	VPO Rubber Processing Plant	2,400
		2,400	
ARMM	1	EJN Processing Plant	3,600
	2	Sta. Clara Agrarian Reform Beneficiaries Integrated Dev't Corp.	2,400
	3	Cawley Processing Plant	3,000
		9,000	
Total			<u>124,200</u>

B.4.2.2 Manufacturing Sector

The processed rubber is either sold to manufacturers in the country or exported. The manufacturing sector in the country consists of four sub-sectors:

1. Tires – Car, motorcycle, bicycle
2. Automotive, industrial parts and sporting good, transmission belts, rubber conveyor, radiator and fuel hoses, rubber rings, gaskets, linings, bearing pads, OEM parts, tennis balls
3. Footwear – Rubber soles, sandals, boots
4. Latex –baby feeding nipples, balloons, medicine droppers, and hoses

The other sub-sectors are engaged in the manufacturing of synthetic rubber, chemicals and other supplies needed as inputs by the industry.

Based on initial data from PRIA, a total of 23 firms are using natural rubber requiring about 8,500 metric tons annually. The DTI is however experiencing difficulty in collecting data on domestic consumption not just from the members of PRIA but more so from non-members who are located in the Philippine Economic Zone Authority (PEZA) accredited export processing zones.

Yokohama Tire Philippines, Inc. (YTPI)

As part of its commitment to help develop the Philippine Rubber Industry, YTPI declared to support the rubber industry cluster by expanding the use of local NR as raw materials.

Furthermore, as a result of the efforts of the DTI in cooperation with JICA in several meetings with YTPI, the latter increased their local sourcing from 11% in 2010 to 49% in 2017 as shown in Table 12. The increase is attributed to the improvement of the quality of natural rubber processed by local processors who took bold steps in seeking ISO certification or alignment to meet the requirements of the market.

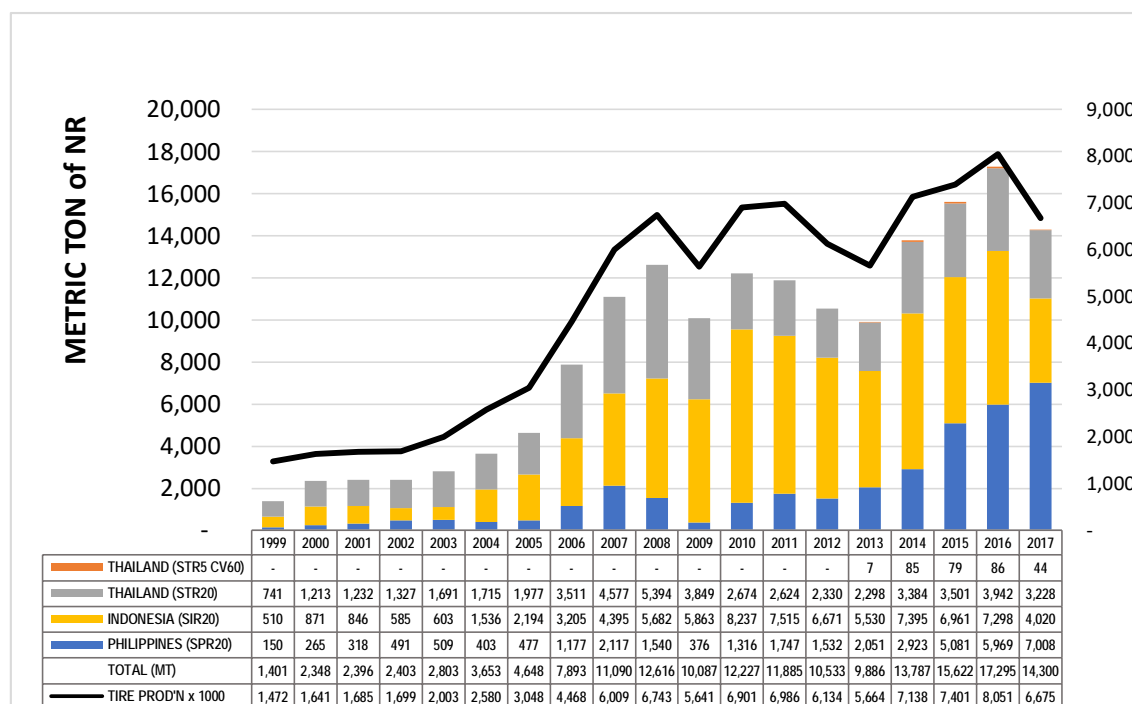
Table 12: Percentage Share of YTPI NR Consumption by Country Source

Sources	2010	2011	2012	2013	2014	2015	2016	2017
THAILAND (STR5 CV60)	0%	0%	0%	0%	1%	1%	0%	0%
THAILAND(STR20)	22%	22%	22%	23%	25%	22%	23%	23%
INDONESIA(SIR20)	67%	63%	63%	56%	54%	45%	42%	28%
PHILIPPINES(STR20)	11%	15%	15%	21%	21%	33%	35%	49%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%

Source: Yokohama Tire Philippines, Inc. (YTPI), 2017

As shown in the figure below, the tire production of YTPI is fluctuating, thus, raw material requirements also fluctuates. However, as observed, YTPI increases the NR consumption from 1,401 MT of NR in 1999 to 7,008 MT of NR in 2017. Out of this consumption, YTPI expanded their use of local NR as raw materials from 150 MT in 1999 to 7,008 MT or an average of 254% annual increase of consumption.

Figure 15: YTPI NR Consumption in MT (2007-2017)



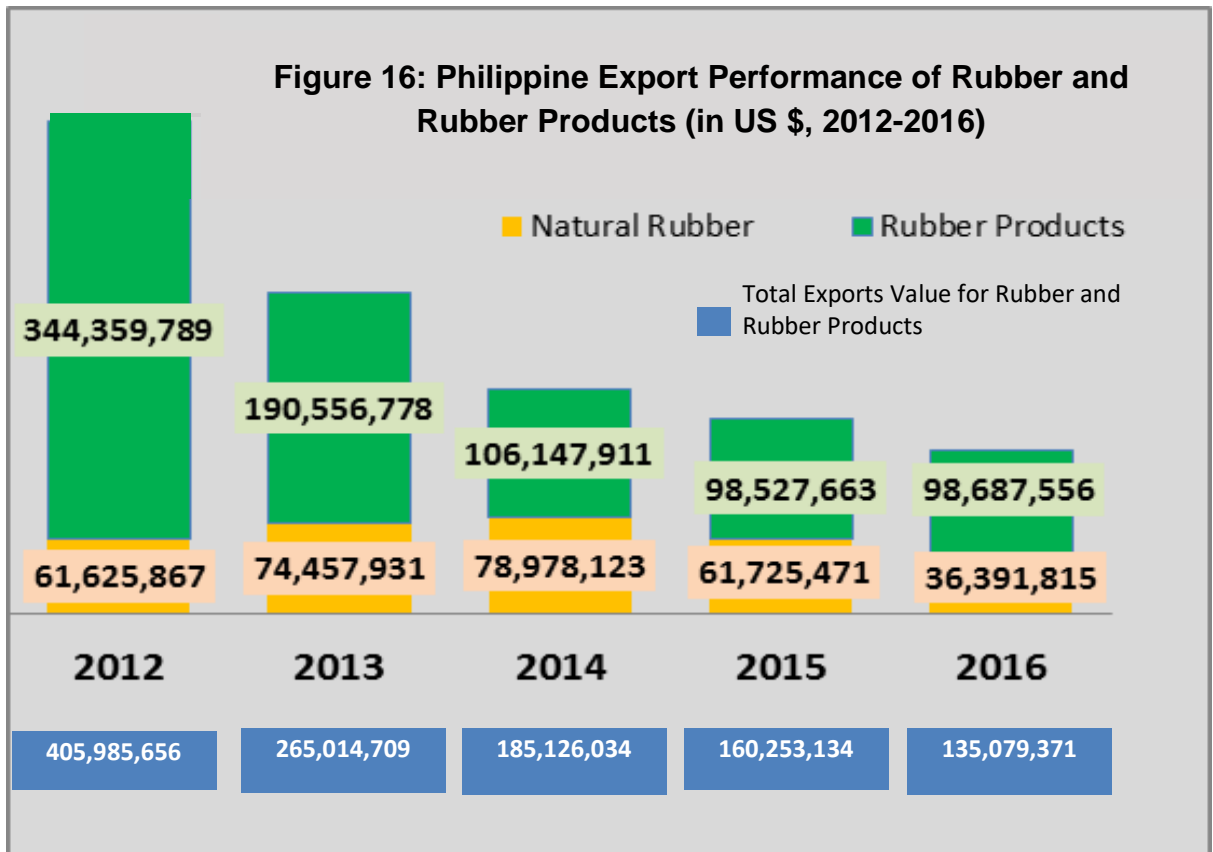
Source: Yokohama Tire Philippines, Inc. (YTPI), 2017

B.4.3 Export Market

Based on the data of the Philippine Statistics Authority (PSA), processed by Exports Marketing Bureau (EMB), the Philippine NR Export performance of rubber and rubber products continuously to decline from 405.99 M US \$ in 2012 to 135.08 US \$ in 2016.

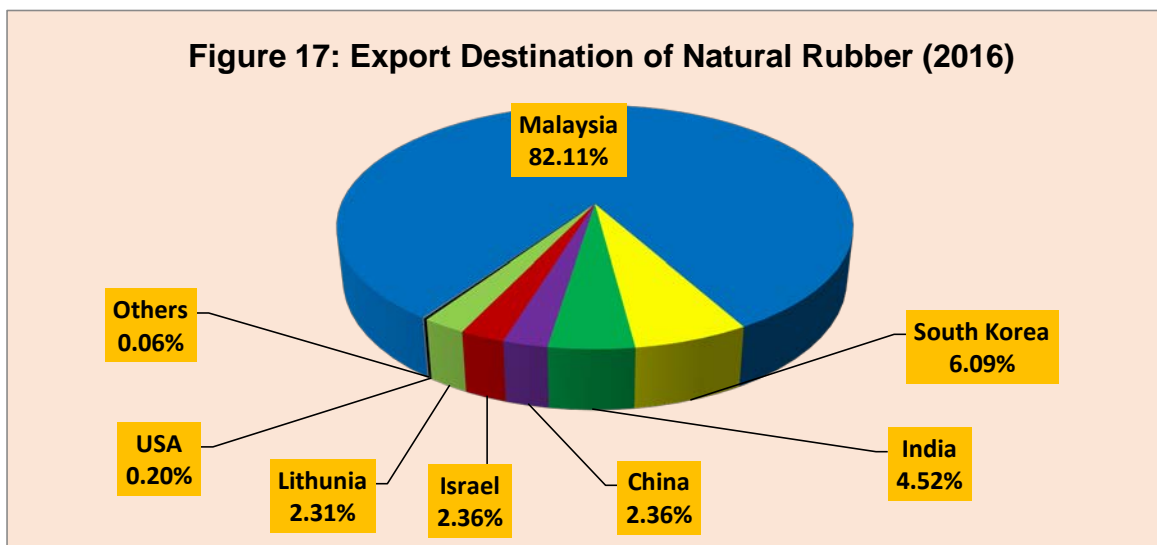
The declined in export performance of rubber and rubber products is attributed to the decreasing exports value of rubber based products.

However, export performance of NR shows an average growth rate of 9.39% from 2012-2014 but dropped by 21.84% and 41.04% in 2015 and 2016, respectively. The decrease in exports value of NR is due to the declining NR price in the world market.

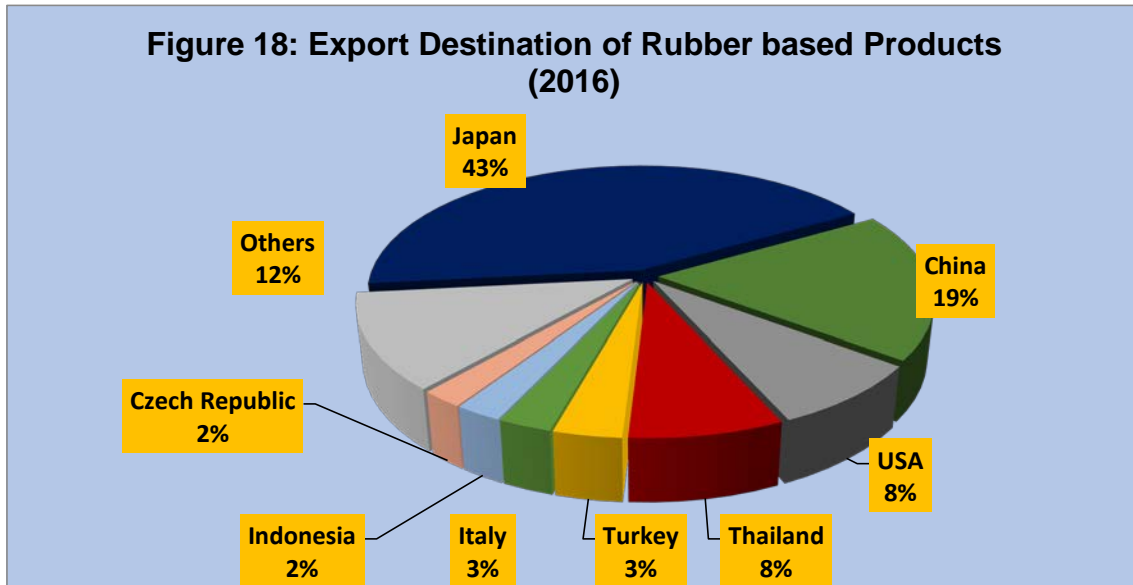


Source: Philippine Statistics Authority (PSA) and processed by DT-EMB

Figure 17 and 18 shows the export destination of rubber and rubber-based products in 2016. Based on Figure 17, most of the country's NR is exported to Malaysia which accounted for 82.11% of the total export of NR. On the other hand, Japan is the destination for rubber-based products of the Philippines which contributed 43% of the exports value of rubber-based products.



Source: DTI-EMB



Source: DTI-EMB

B.5 Logistic Concerns

Presently, the cost of transporting semi-processed rubber to Manila is not competitive. The transport cost within the country (e.g. Davao to Manila) is more expensive than outside the country (e.g. Davao to Port Klang, Malaysia).

With the Implementing Rules and Regulation of R.A. 10668 otherwise known as Foreign Ships Co-Loading Act were signed by President Aquino in 2015, it will pave the way for rubber producers, traders and exporters a reduction in marketing costs. It will provide an ease of doing business in maritime transport industry, as well as decongest Manila port. It will also leverage the country's strategic location in the ASEAN market.



The picture sourced from the Facebook account of Sen. Bam Aquino who authored R.A. 10668 depicts the benefits accruing to entrepreneurs in terms of shipping cost and other advantages.



**Industry
Performance
(2012-2016)**

II. INDUSTRY PERFORMANCE (2012-2016)

The Philippine Rubber Technical Working Group (PHLRUBBER) was formally organized in 2012 which is composed of public and private entities. The PHLRUBBER is a convergence of agencies and private stakeholders that is committed to help promote and sustain the development of the rubber industry and drive competitiveness for inclusive growth as well as sustainable practices.

PHLRUBBER is chaired by a private sector, and co-chaired by Department of Agriculture (for upstream sector) and Department of Trade and Industry (for downstream sector).

The 2012 to 2016 Consolidated Rubber Industry Performance is the product of the collective initiatives and contributions of the members of PHLRUBBER. The performance covers the six major development strategies namely: 1) Production & Productivity Improvement; 2) Processing & Manufacturing; 3) Domestic & Export Marketing; 4) Research, Development and Extension; 5) Finance & Investment and 6) Information/Policy Formulation and Advocacy.

A. Five-Year Milestones

Since the creation of the PHLRUBBER, various projects, programs and activities (PPAs) were initiated and conducted by its members that have resulted to the performance of the industry as shown on Table 13.

For the period from 2012-2016, the industry was able to generate a total of 170,452 incremental jobs, PhP 15.56 B investments, PhP 7.81 B domestic sales and an export of 1,151.46 M US \$. Out of the total export sales, 72.80% or 838.28 M US \$ are rubber-based products and the 27.20% or 313.18 m US \$ is natural rubber.

Table 13: Rubber Industry Five-Year Milestones (2012-2016)

Performance Indicators	2012	2013	2014	2015	2016	Total
*Jobs	40,274	32,289	70,336	18,082	9,471	170,452
*Investments (in PhP B)	4.05	2.28	6.86	1.52	0.87	15.56
**Exports (M US \$)	405.99	265.01	185.13	160.25	135.08	1,151.46
⬇️ Natural Rubber (M US \$)	61.63	74.46	78.98	61.73	36.39	313.18
⬆️ Rubber-based Products (M US \$)	344.36	190.56	106.15	98.53	98.69	838.28
***Domestic Sales (in PhP M)	2,505.00	1,378.31	1,160.16	1,442.25	1,328.59	7,814.31

*Source: RICG Accomplishment Report and World Bank Study (Jobs- 2 jobs/hectare; and Investments @P200,000.00/incremental hectare)

**Source: Based on International Trade Data of Philippine Statistics Authority (PSA) and processed by DTI-EMB

***Source: RICG Accomplishment Report

B. Performance Highlights

Production and Productivity Improvement

The Production and Productivity Improvement Strategy achieved remarkable performance in responding to the issues and concerns low productivity of rubber plantation particularly those that are operated by the smallholders. Efforts of the team were focused on seeds selection and distribution, certification of bud wood gardens, establishment and accreditation of rubber nurseries, expansion of areas in traditional and non-traditional areas, and the distribution of planting materials giving priority as much as possible on high yielding clones.

Various trainings and seminars on production and productivity improvement were also conducted. Benchmarking missions both foreign and local were also done to facilitate transfer of new and improved production technology and replicate good agricultural practices of countries or regions visited.

The Production and Productivity Improvement Action Team is composed of DA (ATI/PRRI/BAR/BPI), DENR, DAR, PRFA, DOST, LGUs, Academe, rubber producers, NGOs (KRDFI) and other support institutions.

❖ Incremental Increase in the Area Planted to Rubber

The cumulative increase in terms of area from 2012-2016 registered a total of 61,717.92 hectares recording an average increase of 5.34% annually. The growth was attributed to expansion of plantation areas in the period of 2012 and 2014.

Table 14: Incremental Areas Planted to Rubber (2012-2016)

Particulars	2012	2013	2014	2015	2016	Additional Areas (2012-2016)
Total Area Planted to Rubber in Philippines (in hectares)	176,244.00	185,476.20	217,686.86	222,601.56	223,283.17	
New Area Planted (in hectares)	14,678.75	9,232.20	32,210.66	4,914.70	681.61	61,717.92

Source: Philippine Statistics Authority (PSA), July 2017

❖ Budwood Garden and Nurseries

The Department of Agriculture through Bureau of Plant Industry (DA-BPI) accredited thirty-two (32) rubber nurseries. Table 15 shows the distribution of nurseries per region. With these accredited nurseries, farmers, either smallholder or corporate are assured that the procured seedlings are high yielding clones.



Table 15: Accredited Rubber Nurseries

Particulars	Number of Accredited Nurseries
Region II	1
Region IV-B	5
Region IX	5
Region XI	7
Region XII	13
CARAGA	1
Total (As of 2017)	32

Source: DA-Bureau of Plant Industry (DA-BPI), 2017

❖ Distribution of Planting Materials and Supplies

The Department of Agriculture through its regional offices and Philippine Rubber Research Institute (PRRI) distributed a total of 562,348 planting materials in 2013 to 2015 in different regions.

During the same period, the Kasanyangan Rural Development Foundation, Inc. (KRFDI) dispersed 184,143 seedlings in collaboration with HEKS (Swiss Funding institution). KRFDI in partnership with LGUs funded and developed 225 hectares of rubber farm for 225 households in CARAGA region. A total of 1,493 hectares of new rubber areas were developed during the period.



In the Province of Basilan, the Lamitan City Rubber Industry Cluster Team in collaboration with JICA also distributed tapping tools to 180 small rubber growers. The province is part of the ARMM Industry Cluster Capacity Enhancement Program (AICCEP) of JICA. The rubber industry is one of the priority sectors covered by the program

❖ **Good Agricultural Practices (GAP) on Quality Standards**

In 2016, DA-BAFS started drafting the GAP on Quality Standards. GAP is production and farm level approaches to ensure the safety and quality of agricultural products. These voluntary procedures can be tailored to any production system.

❖ **Capability Building**

Convergence of resources and commitment among support institutions resulted in the conduct of various trainings and seminars on production and productivity improvement.

These initiatives inculcated the needed knowledge, skills and desirable attitudes geared towards the increase of production and productivity transforming into best practices.



Rubber Tapping and Bark Management Skills Training held last at Brgy. Kalamtukan, Bayawan City, Negros Oriental

Table 16. Some of the Trainings Conducted by various PHLRUBBER Members

Some of the Trainings Provided to Rubber Producers		
Rubber Nursery Management and Maintenance	Rubber Tapping and Bark Management	Training on Rubber Production and Proper Harvesting of Latex
Productivity and Quality Enhancement, and Nursery Management and Development Training	Rubber Based Farming Systems Development & Intercropping Practices	Establishment & Management of Immature Rubber Farms
Farm Inputs and Crop Maintenance and Rubber Nursery Establishment and Management	Training/Orientation on Proper Agronomic Practices	Skills Capability Enhancement on Rubber Tapping & Competency Assessment

TESDA is one of the key agencies in providing capability building supporting the industry by promulgating the Training Regulations for Rubber Production NC II and subsidized trainings through its scholarship program: Private Education Student Fund Assistance (PESFA) and Training for Work Scholarship Project (TWSP). The trainings served as avenue for validation of their current practices and competency standards.

❖ **National Greening Program Support to the Rubber Industry**

For the National Greening Program (DENR-NGP), from 2011 to 2014 a total of 54,198 hectares were planted to rubber mixed with budded and potted seedlings. DENR has to fully implement the geo-tagging system in all NGP areas for monitoring and evaluation purposes.

DENR – FMB

- ✓ 54,198 hectares under NGP
- ✓ 562,348 planting materials distributed

Site Assessment of the rubber areas under NGP

- maintenance and protection of existing rubber plantation from forest fire
- Replanting done for seedlings which did not survive
- Geo-tagging & Monitoring of planted areas



NGP Projects in Picanan, Kumalarang, ZDS



NGP Projects in Diongan, Siayan, Zamboanga del Norte

❖ Foreign Benchmarking and Technology Missions

Two (2) Foreign Bench-marking Missions were conducted.

First mission was organized by DTI on March 23-29, 2014 in Mumbai, India. This activity was conducted in coordination with the India Rubber Board and the Philippine Trade and Investment Center (PTIC) in New Delhi. Plantations, processing facilities

including rubber wood manufacturing, manufacturing plants, and testing centers were visited. It was participated by thirty-one (31) PHLRUBBER members and industry operators both from downstream and upstream sectors.

The other foreign benchmarking mission was organized by DOST-FPRDI to Bogor, Indonesia on April 22-25, 2014. It was attended by nine (9) participants from the government and the private sector.

The missions were aimed at providing the government sector representatives, academe, producers, processors, traders, rubber product manufacturers, and industry enablers an opportunity for exposures, as well as learn the experience and successful development practices of India and Indonesia in developing the rubber industry.



Visit to Rubber Producers' Society Plantations and Nursery in Kerala, India – foreign benchmarking mission held on March 23-29, 2014



Delegates of the Rubber Benchmarking Mission in India on March 23-29, 2014



Foreign benchmarking mission – Visited at the Indonesia Rubber Research Institute and smallholders rubber plantation in Bogor, Indonesia

❖ Local Study Missions

There were thirteen (13) Local Study Mission (LSM) conducted by different rubber producing regions. These LSM exposed missioners to a more advanced rubber production plantation, observed/learned market system and encourage producers/traders to establish market linkages to other regions/provinces.

As a result of the LSM, participants were able to appreciate the best practices of different areas.



Undersecretary Evelyn Laviña of USEC of DA for High value crops visit at Platinum Rubber Development Inc. in North Cotabato on August 27, 2016



Design Mission of International Fund for Agricultural Development (IFAD) and DTI RGMS for Rural Agri-Enterprise Partnership for Inclusive Development and Growth (RAPID Growth) on the Rubber Industry of Cotabato Province.



ZamPen RICT & S. Espanola Mun., Palawan Benchmarking in Makilala, North Cotabato on October 21, 2014

✚ Processing and Manufacturing

Rubber processing involves the transformation of latex and cup lumps to rubber sheet, crumb or crepe rubber for use as intermediate raw materials in the manufacturing of various rubber-based products. Semi-processed products are pale crepe and crumb rubber are generally classified as Standard Philippine Rubber (SPR 5L, SPR 10 & SPR 20) pressed into bales at 33.33 or 35 kilograms and packed in a translucent plastic to protect the product from dirt and other contaminants. Market requirement dictates that processed natural rubber should be compliant to ISO 2000:2015, standards for Technically Specified Rubber (TSR) or PNS/ISO 2000.2015, product standards for Standards Philippine Rubber (SPR).

The downstream sector concentrates on the manufacturing of processed rubber into finished products such as tires, automotive rubber-based parts, footwear, sports items and other industrial manufactures.

Campaign for ISO certification for the existing rubber processing plants and rubber testing laboratories are being conducted to comply with the requirements of the market and to improve the competitiveness of the rubber industry in the country.

The Processing and Manufacturing Resurgence Action Team is composed of the PRIA, PRFA, Traders, Processors, DTI, DOST, DA- PhlMech and other support institutions.

❖ ISO Certified/Aligned Processing Plants

Out of the twenty-four (24) crumb rubber processing plants, there are five (5) processing firms that are ISO certified/aligned.

The following processors are:

1. FARMA Rubber Industries in Bulakanon, Makilala, North Cotabato
2. Pioneer Amaresa in Maramag, Bukidnon and
3. CTK Asia Rubber Corp at ECOZONE, Zamboanga City.
4. DAVCO Dev't. Corp. in Makilala and
5. Olmecs & Company Development Corp. in Kidapawan City

An ISO certified/aligned processing plant entails for a greater market niche/share in the industry and an opportunity to penetrate better market.

❖ Upgrading of Processing Plants

There were two (2) rubber processing plants that embarked on upgrading its facilities in 2015, one is in Isabela City, Basilan Province which is owned/managed by United Workers Agrarian Reform Beneficiaries Multi-Purpose Cooperative (UWARBMPC) with assistance from the Land Bank of the Philippines (LBP), and the Philippine Pioneer Rubber Products Corp. (PPRPC) in Naga, Zamboanga Sibugay funded by DOST-IX under its Set-Up Program.



Upgraded processing plant of United Workers ARB MPC, located in Menzi, Isabela City, Basilan. Funded by LBP

The upgrading of rubber processing facilities is part of the campaign to enhance the efficiency and productivity of the facilities but also to improve the quality of natural rubber. Good quality rubber facilitates easier access to both domestic and export markets, not to mention premium in the price paid by satisfied users. The

upgrading of processing facilities is also expected to result in increased capacity of natural rubber compliant to ISO/PNS 2000:2015:

1) United Workers Agrarian Reform Beneficiaries Multi-Purpose Cooperative (UWARBMPC), – LBP Assisted Project worth PhP 20 Million, Isabela City y, Basilan Province.



Upgraded processing plant of Philippine Pioneer Rubber Products Corp., located in Naga, Zamboanga Sibugay. Funded thru DOST- Set Up Project

2) Philippine Pioneer Rubber Products Corp. (PPRPC), - DOST under SET-UP at PhP8.276, Naga, Zamboanga Sibugay Province.

❖ **Establishment of Village-Type Rubber Sheet Processing Facility**

To augment farmers’ income and promote value-adding, DTI turned over equipment for the establishment of Village-Type Rubber Sheet Processing under the Shared-Service-Facility (SSF) Program to four beneficiaries from different rubber producing regions as shown in Table 17. With these facilities, new jobs were created and investments were generated.



Village level rubber sheet processing facilities established in rubber regions thru the Shared Service Facility Project of DTI, jointly implemented by LGUs

Table 17: Village-Type Rubber Sheet Processing Facilities in the Country, by Region

Particulars	Number of Rubber Sheet Processing Facility
Region VII	1
Region XII	3
Total	4

❖ **Standards for Rubber and Rubber Products**

The Philippines is an active member of the ASEAN Consultative Committee on Standards and Quality – Rubber Based Products Working Group (ACCSQ-RBPWG). The group meets twice a year to discuss and decide on the adoption and harmonization of various standards for rubber and rubber products.

Harmonized 53 standards out of the 64 standards identified by ASEAN

Aligned priority products

identified by ASEAN:

- *Natural latex foam*
- *Bridge and seismic bearing*
- *Rubber teats and nipples*
- *LPG rubber hose*
- *Hoses other than LPG*
- *Non-UNECE automotive parts*
- *Test methods*

- **ISO 2000:2015- Standard Philippine Rubber**
- **PNS 44: 2015-** Guidelines for the specification of SPR
- **PNS ISO 24-2:2015-** Determination of volatile-matter content – Part 2: Thermo gravimetric methods using an automatic analyser
- **PNS ISO 17278:2015-** Determination of the gel content of technically specified rubber (TSR)
- **PNS ISO 249:2015** – Rubber, raw natural – Determination of dirt content
- **PNS ISO 1656:2015** – Rubber, raw natural, and rubber latex, natural – Determination of nitrogen content
- **PNS ISO 2007:2015** – Rubber, unvulcanized – Determination of plasticity – Rapid plastimer method
- **PNS ISO 289-1:2015** –Rubber, unvulcanized -- Determinations using a shearing-disc viscometer -- Part 1: Determination of Mooney viscosity
- **PNS ISO 1795:2015** – Rubber, raw natural and raw synthetic – Sampling and further preparative procedures

Domestic and Export Marketing

Traditionally, the market structure of the rubber in the Philippines allows local rubber traders, middlemen, and consolidators to dictate and manipulate the rubber price resulting farmers with no other market options and a loss/decrease of possible income.

With the various interventions of the PHLRUBBER such as establishment of bagsakan centers, formulation of Regional Price Management System (RPMS) and introduction of NR Price computation, and provision of calibrated weighing scales, farmers were: educated on proper calculation of NR resulting to a transparent trading system in bagsakan centers; reduced transportation cost for remote-based rubber farmers; and eradicated the manipulation of traders/middlemen.

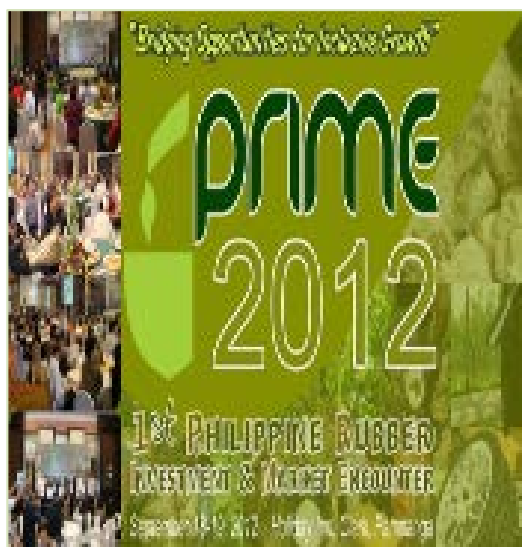
Moreover, with the rubber quality improvement activities, farmers' awareness on the importance of producing quality rubber products was intensified. It was emphasized that quality comes with increased in rubber prices that consequently translates to additional sales/income.

Furthermore, selling missions and other market development initiatives have made it possible for rubber farmers and processors to establish themselves both in the local and international markets have greatly accelerated the growth of their rubber businesses.

The Domestic and Export Market Action Team is composed of DTI, DA, LGUs, PRIA, Producers, Processors and other support institutions.

❖ Market Development Initiatives

- ✓ PHLRUBBER conducted two Philippine Rubber Investment and Market Encounter (PRIME). The 1st PRIME was held at Holiday Inn, Clark, Angeles City on September 18-19, 2012. This was participated by 473 participants coming from both upstream and downstream sectors of the rubber industry and industry enablers. This activity was focused on providing access to investments, market prospects and opportunities.



On the other hand, the 2nd PRIME was conducted in SMX Convention Center, Davao City on November 10-11, 2015. It was participated by 728 participants. PRIME 2015 was an avenue where experts and rubber industry stakeholders converged and discussed wide spectrum of manufacturing trends and developments, shared experiences, and provided the latest on the status of the Rubber Industry.



- ✓ The selling Missions at Yokohama Tire Philippines, Inc. (YTPI) last May 14, 2014 and July 23, 2014 were initiated by JICA in cooperation with DTI. These undertakings were part of the activities under the National Industry Cluster Capacity Enhancement Project (NICCEP) and ARMM- Industry Cluster Capacity Enhancement Project (AICCEP).

As a result of the efforts, YTPI committed to increase its local consumption of natural rubber.



One of the selling missions facilitated by DTI IX and PHLRUBBER together with crumb rubber processors at the Yokohama Tire Philippines Inc.

❖ Establishment of Rubber Trading/Bagsakan Centers

Rubber Trading/Bagsakan Centers serve as venue for producers, traders and consolidators to transact business under the supervision of the local government units. Market transaction is transparent and is done through bidding system. LGUs provided the site wherein bagsakan centers are located and oversee the operation of the bagsakan center every rubber trading day.



Rubber Bagsakan Center in Titay, Zamboanga Sibugay

Currently, there are 23 Bagsakan Centers in the country of which 17 were established in Zamboanga Peninsula. Of these centers, 9 were located in Zamboanga Sibugay and 8 in Zamboanga Del Norte. In addition, 6 bagsakan centers were located in Cotabato Province. The establishment of rubber trading centers is thru Executive Order No. 42 dated October 24, 2016 by Governor Emmy Lou Taliño- Mendoza – An Order Establishing the Cotabato Rubber Trading Center, Otherwise Known As “Bagsakan ng Rubber Cup lump” In Strategic Areas of Cotabato Province.



Rubber trading day (every Thursday) at Titay Bagsakan Center

Table 18. List of LGUs with Bagsakan Centers

Zamboanga Peninsula		
<i>Kabasalan, ZSP</i>	<i>Alicia, ZSP</i>	<i>Malila, Tampilisan, ZDN</i>
<i>Ipil, ZSP</i>	<i>Buug, ZSP</i>	<i>Balugo, Tampilisan, ZDN</i>
<i>Titay, ZSP</i>	<i>Tungawan, ZSP</i>	<i>Galingon, Tampilisan, ZDN</i>
<i>Malangas, ZSP</i>	<i>Situbo, Tampilisan, ZDN</i>	<i>Conception, Kalawit, ZDN</i>
<i>RT.Lim, ZSP</i>	<i>Camul, Tampilisan, ZDN</i>	<i>Godod, ZDN</i>
<i>Naga, ZSP</i>	<i>Poblacion, Tampilisan, ZDN</i>	
Cotabato Province		
<i>Tamped, Matalam, NC</i>	<i>New Panay Aleosan, NC</i>	<i>Alameda, NC</i>
<i>Pangao-an, Magpet, NC</i>	<i>Luhong, Antipas, NC</i>	<i>Arakan, NC</i>

❖ Regional Price Management System

The Regional Price Management System (RPMS) was institutionalized in 2014 as a major program of the Zamboanga Peninsula Rubber Industry Cluster Team (ZamPen RUBBER). The RPMS was benefiting thousands of small farmers who were taught to calculate the rubber price reference using their smart phones. The rubber price reference serves as basis for the farmers to negotiate with the traders and buying agents who in the past several years were the ones dictating the price offered to the farmers, thus, taking advantage of the latter's lack of access to market information.



One of the meetings of ZSP-RIDB discussing the implementation of the rubber price stabilization in Zamboanga Sibugay

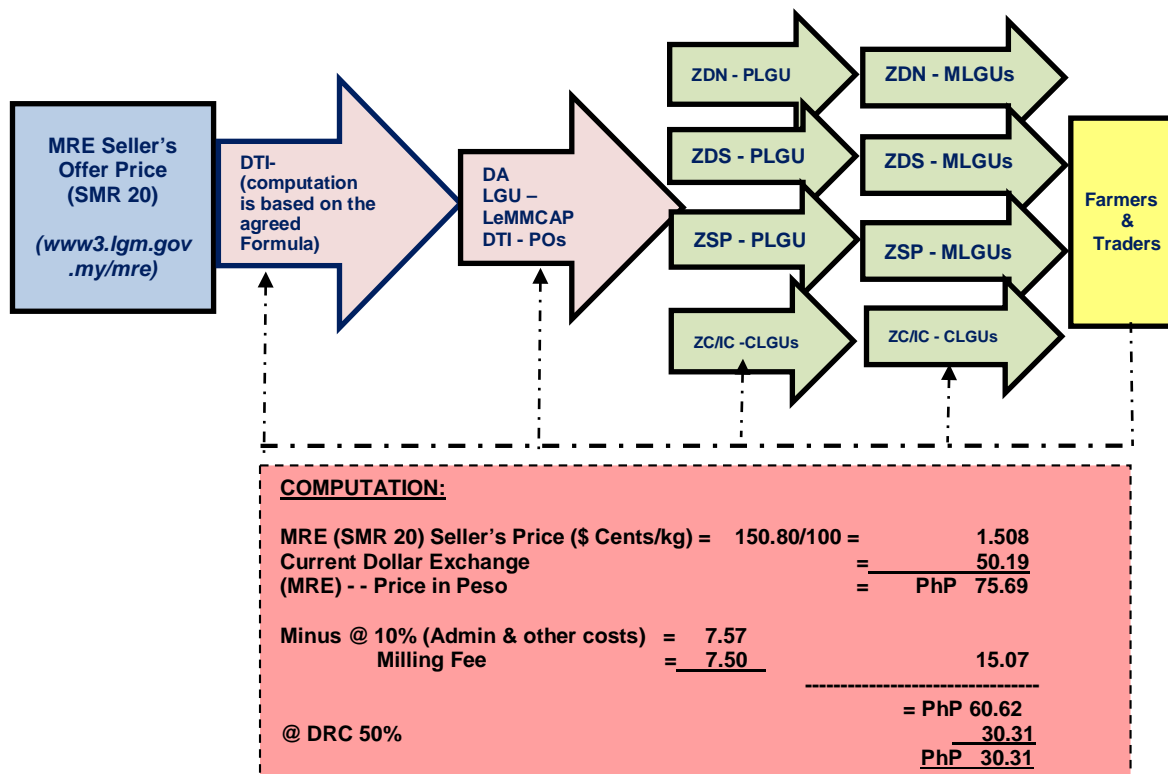
In 2015, DTI in partnership with the ZamPen RUBBER and the Provincial Government of Sibugay formalized the creation the Rubber Price Management Committee (RPMC) which is composed of representatives from traders, processors, smallholders association, federation of cooperatives, DTI, DA, DOST, and LGUs.

The RPMC is chaired by a private sector. It is one of the committees under the Zamboanga Sibugay Provincial Rubber Industry Development Board (ZSP-RIDB). The RPMC is responsible for the analysis of rubber price trend, compute for the daily /weekly price reference and disseminate to key areas for reference purposes. The rubber price reference is also posted at the Bagsakan Centers.

✓ Rubber Price Computation

In the calculation of the Rubber Price Reference, the ZAMPEN RUBBER came out with a formula based on the results of a series of meetings, consultations, and agreements with the industry stakeholders. The price reference is based on the Malaysian Rubber Exchange (MRE-SMR 20, Seller's Offer Price) which is accessible at www3.lqm.gov.my/mre

Price Reference Flow



❖ Rubber Quality Improvement Program

The Department of Trade and Industry launched the Rubber Quality Improvement Program in 2012 after a meeting with the Yokohama Tire Philippines, Inc. (YTPI) and various consultations conducted among stakeholders in the country.



Signing of commitment among rubber farmers adhering to the mission of "Oplan Pagbabago" held at Tampilisan, Zdn

In support to the Rubber Quality Improvement Program, the DTI in Zamboanga Del Norte in coordination with the Provincial Rubber Industry Federation conceptualized and implemented the Oplan Pagbabago as one of the strategies to address the quality problems besetting the industry in Zamboanga Peninsula. The program is intended to increase the level of awareness and reform the practices of local producers in adulterating rubber and in using inappropriate coagulant resulting in low DRC of rubber coming from the region.

Advocacy on the adoption of PNS/ISO 2000:2013 was conducted in all rubber-producing regions particularly among processors in coordination with the Bureau of Philippine Standards and the Department of Science and Technology. The Importance of Standards Compliance and Testing of Rubber and Rubber-based Products were emphasized in all the campaign for quality improvement.



Ms. Ann Fernando of BPS presented the PNS/ISO 44:2015, a standard for Standard Philippine Rubber (SPR) and presentation of ACCSQ-RBPWG accomplishments



Briefing and consultation on ISO 17025, standard of rubber testing laboratories, given by Ms. Sonora Buñag of DOST 9.

❖ Nano sensor Equipment

The rubber nanosensor technology, which can differentiate cup lumps formed using battery solution from the recommended formic/acetic acid, was invented by the De La Salle University (DLSU) and the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (DOST-PCAARRD).

Rubber cup lumps coagulated with battery solution absorb water, thus making the field lumps heavier and more expensive when sold. This is a malpractice that the rubber industry aims to eradicate. Battery solution not only weakens the quality of rubber when processed, but also threatens human health and our environment.



Testing of rubber nanosensor gadget at PPRPC



Nanosensor gadget

❖ Laboratory Testing Centers

There are two rubber testing laboratories in the countries:

- ✓ DOST 9 Rubber Laboratory Testing Center in Zamboanga City; and
- ✓ Philippine Rubber Testing Center (USM-PRTC) in Kabacan, Cotabato.



Rubber Laboratory Testing Center of DOST 9 in Zamboanga City

Laboratory testing provides objective evidences on the state and quality of rubber and rubber products. It is a scientific approach to ensure compliance to industry regulations and market requirements.

Analytical data of rubber crumb are obtained from chemical and mechanical testing using fit-for-purpose methodology, instrumentation, appropriate management system, and employing competent and skilled manpower.



Some of the equipment in DOST Rubber Laboratory Testing Center in Region 9

❖ Support Facilities

DTI distributed the following to help farmers improve the quality of their product that would demand a higher rubber price and reduce manipulation of traders:

- ✓ 585 weighing scales (digital and platform)
- ✓ 3,945 coagulating tabs
- ✓ 8 coagulating tanks
- ✓ 4 aging tanks





SSF Launching in Ipil, Zamboanga Sibugay



Coagulating and aging tank provided to Maasin Rubber and Coco Farmers Association by DTI-9 thru SSF Project

✚ Research and Development Extension

The Research, Development and Extension initiatives are handled by different research institutions. The Department of Agriculture (DA) implements its RDE programs through the Bureau of Agricultural Research (BAR), the Bureau of Plant Industry (BPI), the Philippine Rubber Research Institute (PRRI), and its regional field offices and research centers.

R & D projects implemented by the Academe are funded by the Department of Science and Technology (DOST) through the Philippine Council for Agriculture, Aquatic and Natural Resources Research Development (PCAARRD). Rubber is one of the priority commodities under the Industry Strategic S&T Plan (ISP). The DOST - Rubber ISP is aimed to address the supply chain problems of the industry through S&T solutions. Other support institutions are the Philippine Council for Industry, Energy and Emerging Technology Research and Development

(PCIERD), *Forest Products Research and Development Institute (FPRDI)* and Industrial Technology Development Institute (ITDI).

Extension services are provided by the Local Government Units (LGUs) through the Offices of the Provincial, City and Municipal Agriculturist with coordination and assistance from the Department of Agriculture and other support organizations.

Research, Development and Extension Action Team is composed of DA (PRRI, BAR, & BPI), DOST (PCAARRD, FPRDI, ITDI, PCIERRD), Academe (USM, JRMSU, WMSU/WESMAARRDEC), PRFA, PLGU, other state universities & colleges), LGUs of rubber-producing regions and provinces, and the private sector.

❖ Integration of Testing Services for Rubber and Rubber-based Products

There were equipment delivered to Industrial Technology Development Institute – Department of Science and Technology (ITDI-DOST) in order to test the rubber and rubber-based products. To equip the staff of DOST-ITDI, they were trained to operate the different machines and equipment.



Training Course on Ozone Testing, March 2-5, 2016 in Academy Hevea Malaysia, Selangor, Malaysia – 4 Project Staff



Training on the operation of Kiethley Digital Electrometer High Resistance Meter, April 27, 2016 at the STD-Rubber Testing Lab, conducted by Clean World Trading and Supplies Inc. – 10 Project Staff



Training on the Operation and Maintenance of Brittleness Point Test Apparatus June 16 - 17, 2016 at Yasuda Seiki Seisakusho, Ltd. 121-1, Shimoyamaguchi, Yamaguchi-cho, Nishinomiya-city, Hyogo 651-1412, Japan – 4 Project Staff



Training for Universal Testing Machine (UTM) Shimadzu Autograph Machine August 10-11, 2016 at 79 Science Park Drive #02-01/08, Cintech IV Singapore Science Park 1 Singapore 118264 – 3 Project Staff



❖ **Research and Development**

The R & D agenda covered both the upstream through the Industry Strategic Plan (ISP) of the DOST-PCAARRD and downstream through the S & T Intervention Program of PCIEERD.

Among the issues or constraints in the upstream sector that the R & D is addressing, are the productivity of farms, efficiency of supply chain in farm inputs, accreditation of testing facilities, and sufficiency of supply of quality natural rubber. For the downstream sector, S&T projects implemented are directed at enhancing of products with new features and properties through the National R&D

Program for NR Processing and Rubber Products Manufacturing which is anchored on the country's National Rubber R&D Agenda.

There are eleven (11) R & D projects implemented in collaboration with partner state universities and colleges in rubber-producing provinces. Of these, eight (8) projects focused on the upstream sector and the remaining three projects (3) concentrated in the downstream sector.

✓ **Validation of Varietal Integrity thru DNA finger printing of DOST PCAARRD**

DNA barcoding and analysis assures farmers that the rubber varieties purchased and to be planted results in higher yield and income.



RESULTS/ACCOMPLISHMENTS

- Inventory of 161 rubber plantations and nurseries with high yielding rubber clones from the target nurseries
 - Zamboanga Peninsula (13)
 - North Cotabato (06)
 - SOCSARGEN (11)
 - Davao del Sur (1)
 - Bukidnon (1)
 - Palawan (7)
 - Compostela Valley (3)
 - CARAGA (20)
 - Quezon (1)
 - Kalinga (1)
 - Nueva Vizcaya (1)
 - Maguindanao (5)
 - Basilan (1)

- identified 35 clones planted in these nurseries (**PB 260, RRIM 600, PB 330, PR 207, S 2020, S 2023, TJIR 1, S 2025, S 2001, S, 2009, S 929, S 202, S 2024, S 2000, PR 107, GA 237, GT 1, PB 235, RRIM 701, RRIM 712, RRIM 717, RRIM 901, RRIM 703, USM 1, PB 255, RRIM 15, PB 200, PB 86, IAN 873, KT 35/95, TK 800, Malaysian 1**)
- Collection of leaf samples (3,708) from 161 rubber nurseries.
- SSR analysis of the 3,708 leaf samples collected from 161 nurseries.



✓ **Etiology and Management Strategies for Tapping Panel Dryness and Stem Bleeding for rubber**

The project is being implemented by the joint research team led by Dr. Ana Liza Lopez of Jose Rizal Memorial State University (JRMSU) Tampilisan, Zamboanga Del Norte Campus and Engr. Roger O. Bagaforo of the

Department of Agriculture Regional Field Office (DA RFO) Region 9. The project started in August 2016 with duration of 2.5 years.

This research project aims to understand the causes of tapping panel dryness (TPD) and stem bleeding (SB) in rubber trees as well as to formulate strategies in managing these physiological disorders.



Rubber trunks in Zamboanga Del Norte showing signs of tapping panel dryness a stem bleeding

✓ **Root Trainer**

Modern rubber nursery establishment using root trainer planting technique is being introduced in the country as an alternative to the traditional rubber nursery which used polybag. Rubber seedlings produced in root trainer produce large number of lateral roots into the well-aerated potting medium. The vertical ridges provided in the container wall direct these lateral roots downwards and thus prevent their circular growth within the container. As a result, the enhanced production of lateral roots influences growth of the rubber plant positively during the juvenile phase.

In addition to improving quality, rubber seedlings raised in root trainers are found to be cost effective. Root trainer cups could be utilized twice a year and can be reused for a maximum of 10 years. Further, due to the compact size and easy handling of root trainer plants, the cost required for transport and distribution could be saved compared to polybag plants. Moreover, root trainer planting technique is environment friendly, because polybags used are replaced by reusable root trainers.

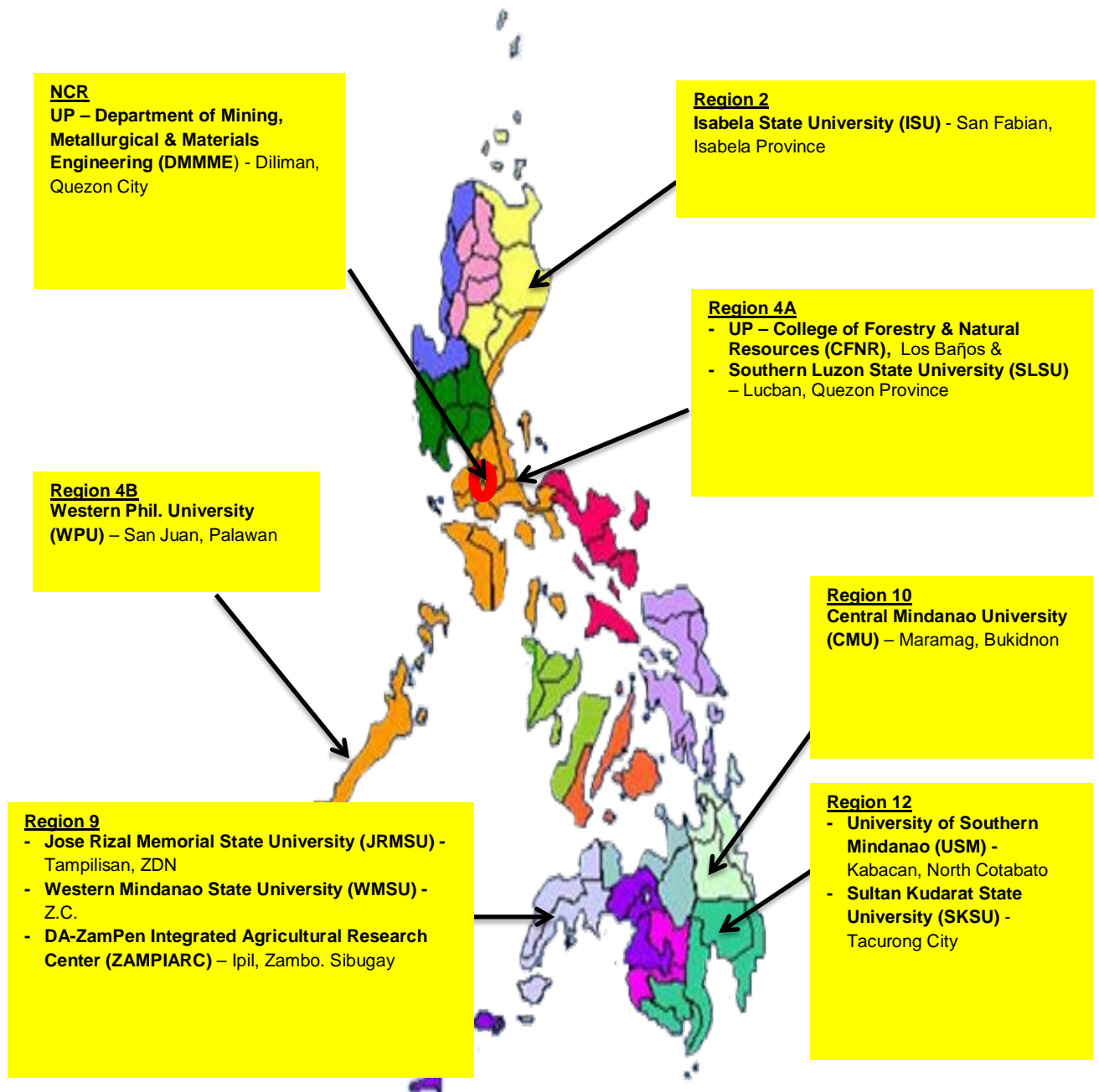
Given by the abovementioned advantages of using root trainer, nursery operators are highly encourage to use it as new potting medium for rubber nursery. It will not only add income to them, but it will also contribute in enhancing the competitiveness of the Philippine rubber industry.

✓ **Multilateral Clone Exchange Trial (IRRDB/PRRI)**

As member of the International Rubber Research and Development Board (IRRDB), the Philippines is party to the Multilateral Clone Exchange Program. The country is set to receive 51 Class a Rubber Clones under the Multi-Lateral Clone Exchange Program of the IRRDB.

Initially acquired new and high yielding rubber clones for nationwide trials from Thailand (RRIT 251), Malaysia (RRIM 928; RRIM 929; RRIM 2023; RRIM 2027); France (IRCA 331) are planted for multiplication in selected bud wood gardens of DA and its partners in the regions. Established clonal trials plots with ready replicate clones of newly acquired HY clones in ISU, WPU, SLSU, CMU, USM, and DA.

✓ **R&D Project Sites with Partner Implementers**



Financing and Investment

One of the major constraints cited by rubber stakeholders particularly the smallholders is to access finance either for additional working capital or acquisition of equipment or machineries. Thus, it hinders the stakeholder's plan to expand their production and increase market penetration both local and abroad.

The PHLRUBBER from its inception already includes government financing institution to address the industry's concerns for lack of financing facilities. The Land Bank of the Philippines (LBP) and Development Bank of the Philippines (DBP) supported the development of the industry by providing specific financing portfolio for rubber business from plantation to manufacturing. The facilities are of course subject to regular loan requirements. With the improved access to financing, it enhances the ability of the industry to expand production capacities, improve productivity, and ultimately increase income. Strong support from the banking sector also contributes to the national government's goal of promoting inclusive growth.

The Financing and Investment Action Team is composed of LBP, DBP, LGUs, DTI – Small Business Corporation (SBCorp), DA and other institutions with financing assistance.

❖ Loans Assistance

As of 2016, LBP provided a total of PhP 1,063.88 loans to rubber growers and manufacturers/processors. Of this amount, PhP 342.20 or 32.17% was released in 2013 which is intended for rubber plantation (PhP 274.50M) and rubber manufacturing (PhP 67.70M). In 2015, PhP 437.059M or 41.08% was approved for rubber processing (PhP 52.579M) and for rubber credit program (PhP384.48M) and in 2016, PhP 284.62M was approved or 26.75% of the loan exposure.



Upgraded processing plant of United Workers ARB MPC, located in Menzi, Isabela City, Basilan. Funded by LBP

While, the Development Bank of the Philippines (DBP) provided PhP 125.85M to rubber growers, traders and processors. Of this approved amount, 83.83% (PhP 105.50M) was released for rubber plantation, 3.97% (PhP 5M) is for rubber trading, and 12.20% (PhP15.35 M) is for processing.

❖ Investment Opportunity Seminar

Aside from loan assistance, continuous promotion of investment opportunities were also conducted that would eventually lead to additional investment and generate additional employment. A total of eight (8) Investment Opportunity Seminars (IOS) were conducted for 344 MSMEs providing them opportunity for networking and for establishment of business contact.



Investment Opportunity Seminar in Palawan City on February 12-13, 2015

✚ Information & Policy Formulation & Advocacy

Ensuring the maximum awareness and involvement of all stakeholders in each rubber producing regions, industry clusters and sub-clusters were organized. Industry clusters oversee and monitor the implementation of programs and projects and institutionalize convergence among enablers in different regions. This is also to assure that PHLRUBBER can carry out its programs harmoniously with different institutions through policies and advocacies implemented. It allows the five other Action Teams to operate under a supportive and appropriate institutional framework and in an environment of convergence.

Supporting the Information & Policy Formulation Advocacy Action Team are the LGUs, DTI, DA, TESDA, DOST, DOLE, DILG, DAR, DENR, Academe, PSA, PRIA, PRFA, DKKT, Inc., private sector and other support institutions.

❖ Institutionalization of Industry Clusters

To date, a total of twenty-nine (29) Clusters/sub-clusters were organized in rubber-based regions.



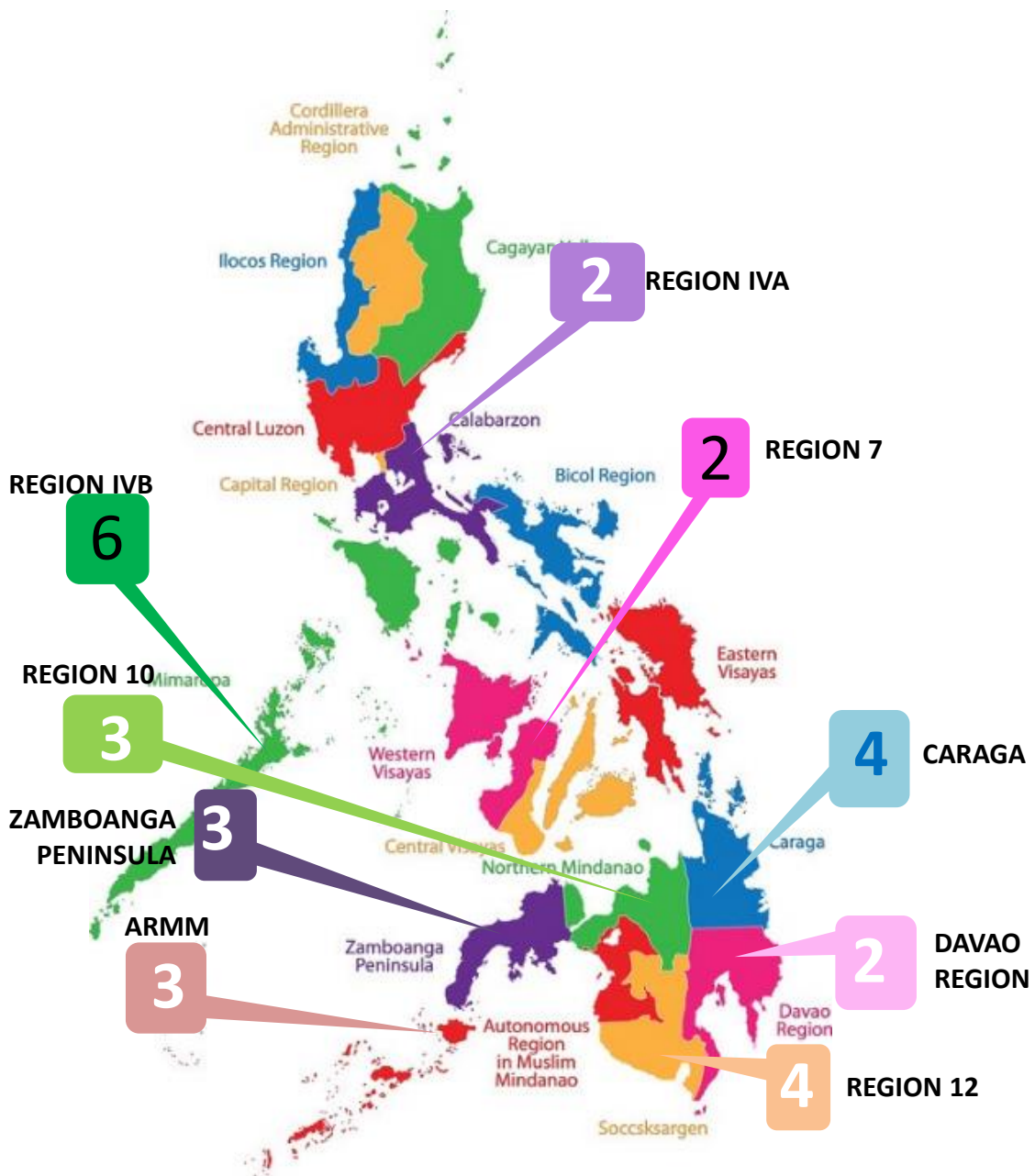
At the national level, the PHLRubber Technical Working Group was formally organized on June 22, 2012 as a public and private group. The group is the only organization formed to promote and sustain the development



of the rubber industry. It has been responsible for the crafting and implementation of the Philippine Rubber Industry Cluster Programs.

It is the core group that facilitated the integration of rubber development plans into the Philippine Rubber Industry Development Roadmap, which already charted the future of the industry until year 2022.

29 Clusters/Sub-Clusters Organized



❖ Information, Education and Communication (IEC)

Information, Education and Communications (IEC) materials on rubber farm management were produced and distributed in the form of CDs, posters, tarpaulins and comics by Western Mindanao Agriculture, Aquatic and Natural Resources Research and Development Consortium (WESMAARRDEC) in collaboration with DA-RFU IX, DTI Region 9. The project was funded by JICA as part of its assistance to the rubber industry under the National Industry Cluster Capacity Enhancement Program (NICCEP). These IEC materials contributed to the awareness of the rubber producers regarding good agricultural practices.

Continuing advocacy on the development of the rubber industry is being carried out including provision of easier access to market and technology information. The DTI in North Cotabato developed a webpage (philrubber.org) for the rubber industry. It contains vital information of the industry as well as updates on the programs and activities of agencies and institutions supportive of the development of the industry.

KASAGARAN NGA MGA SAKIT SA TANUM NGA GOMA

Mga Hulagway ug Pagsugpo Pinaagi sa Kemikal

Bird's Eye Spot  -Difenoconazole -Captan 50 -Mn-Zn-ethylene bisdithiocarbamate	Anthraxnose Leafspot  -Difenoconazole -Captan 50 -Mn-Zn-ethylene bisdithiocarbamate	Powdery Mildew  -sulfur, -neem oil -triforine
Leaf Blight  -Fosetyl-Al	Pink Disease  -Copper fungicides	Stem Bleeding 
White and Brown Root  -Mancozeb -Maneb -Copper hydroxide -Hexaconazole -Difenoconazole	Black Stripe  -Mancozeb -Metalaxyl -Oxadixyl -Benomyl	Brown Bast 

ANG SAKIT NGA WHITE ROOT ROT (Rigidiporus lignosus) SA GOMA

RIGIDIPORUS LIGNOSUS

Unsa ang Sakit nga Gitawag og White Root Rot?

- Ang hinungdan sa sakit nga white root rot mao ang fungus nga gitawag og "Rigidiporus lignosus".
- Ang sakit nga white root rot mao ang pinakamakaduta nga sakit sa gamut sa tanum nga goma.
- Matakbuy kini sa mga gamut ug mopatay sa kahoy pinaagi sa pagkalata sa gamut.

PAGMATIKUD SA SAKIT: 2 KA PAMAAGI

Ang pagmatikud sa presensya sa ilugos diha sa kahoy, medyo malisud, tungod kay malubo kini ilalum sa yuta, ug tungod kay ang kahoy nga atakihan niini, maghinayhinay og kadugla ang ilalum sa punoan nga walay timailhan nga makita sa lawas sa kahoy.

- Pagsuta sa mga timailhan nga makita ibabaw sa yuta.
Timailhan:
 - Hinay nga pagtubo sa tanum nga goma.
 - Pagkabughaw ug pagkalaya sa dahon, sanga ug punuan sa kahoy.
 - Pagdaut sa mga liso.
- Paghawan sa yuta ug pagsusi sa mga gamut.
Timailhan:
 - Presensya sa "rhizomorphs" ug "basidiocarps" sa "Rigidiporus lignosus".
 - Nalata nga gamut.

PAGLIKAY UG PAGSUMPO

- Kinahanglan likayan sa mga trabahante and pagsamad sa gamut sa mga tanum nga goma aron malikayan nga mataptan kini sa sakit.
- Kon mahimo, kauhaon ang mga kahoy nga natakbuyan sa sakit.
- Ang mga natakbuyan sa sakit, ilabi na sulod sa usa nga hingkad nga gomahan, kinahanglan kuralon sulod sa usa ka trenseras aron dili matakdan ang mga himsug nga kahoy.
- Siguraduhon nga kanunay'ng limpyo ang gomahan.
- Bubuan o yab-an og fungicide ang palibot sa namatay nga punuan nga gitatae sa sakit nga white root rot.

KARAANG PAMAAGI <ul style="list-style-type: none"> • Pagbutang sa kahoy og baliog nga PCNB. 	BAG-ONG PAMAAGI <ul style="list-style-type: none"> • Pagbutang og baliog sa kahoy nga may PHENOL ang mas dili makaduta nga pagsumpo sa sakit.
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UBAN PANG KEMIKAL NGA GIGAMIT:

-Mancozeb -Maneb -Copper hydroxide	-Hexaconazole -Difenoconazole
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RUBBER POSTER
WESTERN MINDANAO STATE UNIVERSITY
Rubber & Coco Advocacy Research Team



RUBBER POSTER
WESTERN MINDANAO STATE UNIVERSITY
Rubber & Coco Advocacy Research Team

Sample of IEC of Western Mindanao Aqua- Agricultural Research and Development Council (WESMAARRDEC)

❖ Ordinances & Resolution Approved & Issued

The following 15 ordinance or resolutions were approved and/or supported by PHLRUBBER:

*Approved/ supported
PHLRUBBER 15 Ordinances/
Resolutions*

Table 19. Ordinances/Resolutions Approved and/or Supported by PHLRUBBER

Resolution Number	Title
Res no. 1 s 2013	Urging DA Sec to approve the IRR for RA10089
Res no. 2 s 2013	Acknowledging the commitment and support of the DA Sec on the approval and signing of the IRR
Res no. 3 s 2013	Urging Sec. Alcala to fast track the implementation of RA10089, to appropriate budget for its operation and to consider DA-ZAMPIARC to be its permanent location
Res no. 4 s 2013	Requesting Dir. Gen of TESDA to review the Training Regulation for NC 2 for rubber workers
Res no. 5 s 2013	Addressed to Engr. Merly Cruz for her support and initiative in pushing for the development of the Rubber Industry in the Phil
<i>ZamPen RUBBER</i> Res no. 1, s 2013	Requesting the Hon. Governor of Sibugay Province to issue an EO creating the Sibugay Rubber Price Management Team
Municipal Ord.No. Y-09-268-A s 2009	Also known as the Raw Rubber Products Quality Control Ordinance of the Municipality of Tampilisan that was later amended on September 29, 2014 known as The Raw Rubber Control Ordinance.
Ord. No. 2014-422	An Ordinance Creating the Zamboanga Sibugay Rubber Industry Development Board
Ord. No. 2014-423	An Ordinance strictly prohibiting the use of Earth materials and Fruit as Stuffing to Rubber Lumps in the Province of Zamboanga Sibugay
Ord. No. 2014-424	An Ordinance strictly prohibiting Raw Rubber Traders and Millers to Purchase Dirty/Adulterated Raw Rubber Products in the province of Zamboanga Sibugay
	Requesting the PRRI to prepare a full-blown project proposal with detailed WFP for the implementation of the International Rubber Research and Development Board (IRRDB) Multi-Lateral Clone Exchange Program
Res no. 1 s 2016	Encouraging LGUs in major rubber producing regions (10,11,12, CARAGA and ARMM) to allocate funds for the establishment of Rubber Bagsakan/Trading Center in strategically located municipalities
Res no. 3 s 2016	Requesting Small Business Corp (SBCorp) to consider increasing the grace period of its loan fund for farm development
Res no. 4 s 2016	Requesting the DOST-IX and PRTC in USM to reduce the fee for NR sample testing and advocate among rubber processors to utilize the testing facilities
ZamPen Res no. 2 s 2016	Requesting DSWD to accommodate the affected rubber farmers in Zamboanga Peninsula due to low rubber price in their Conditional Cash Transfer (CCT) Program

❖ Planning Workshops, Meetings and Conferences

Various planning workshops and seminars were also conducted. This is to make sure that the organization is clear about the initiatives to be done. It would also help to get all the commitment of members and other stakeholders and to develop concrete plans and directions for achieving organization's purpose and objective.



*PHLRUBBER TWG during the **Rubber National Planning Convergence** in Davao City on May 23-24, 2013 which was facilitated by Ms. Rita Pilarca.*



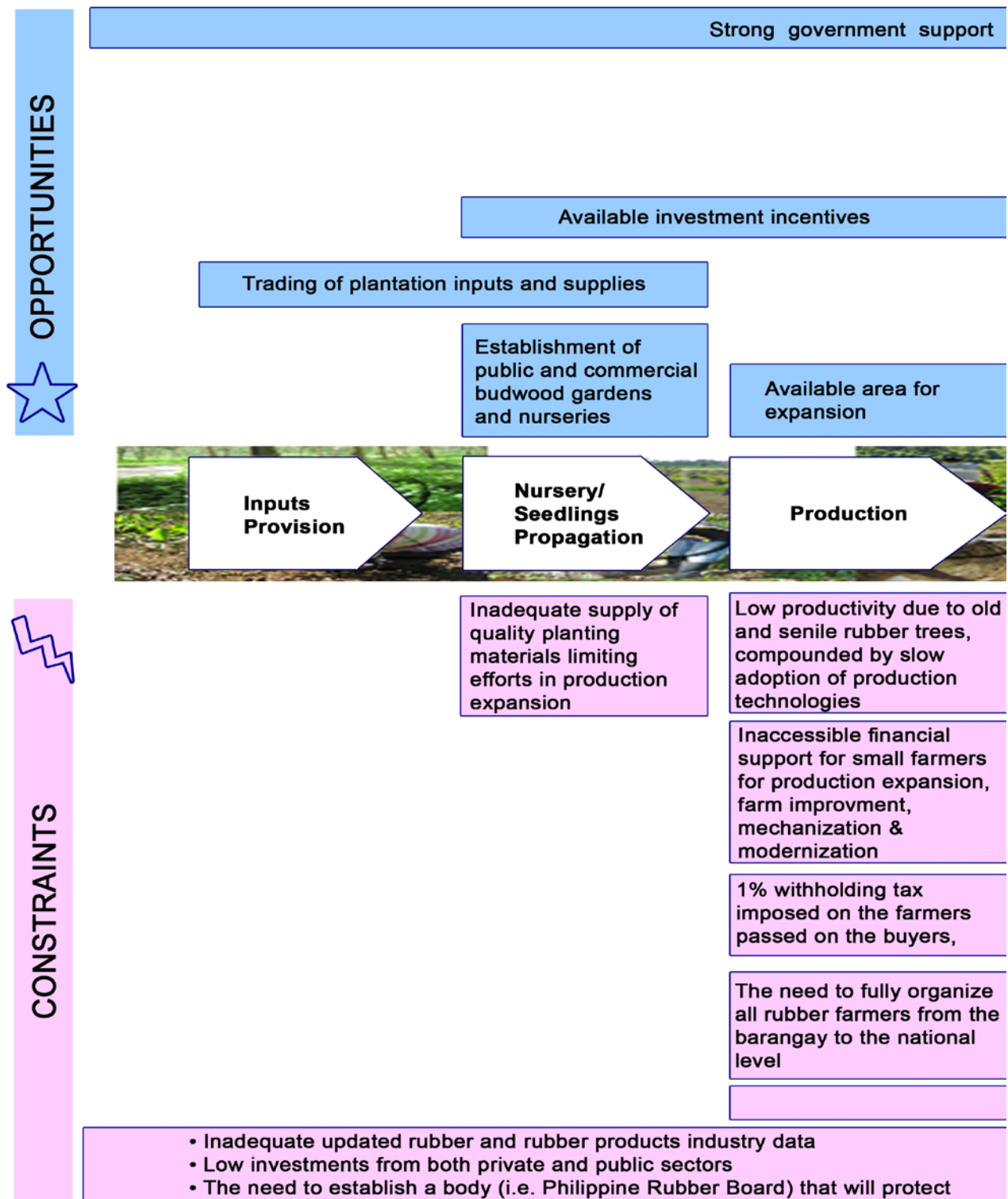
*PHLRUBBER TWG in an **Action Planning Workshop** activity held on February 10-11, 2015 at The Legend Palawan, Puerto Princesa City, Palawan. The workshop was facilitated by Dr. Lorenzo Templonuevo.*

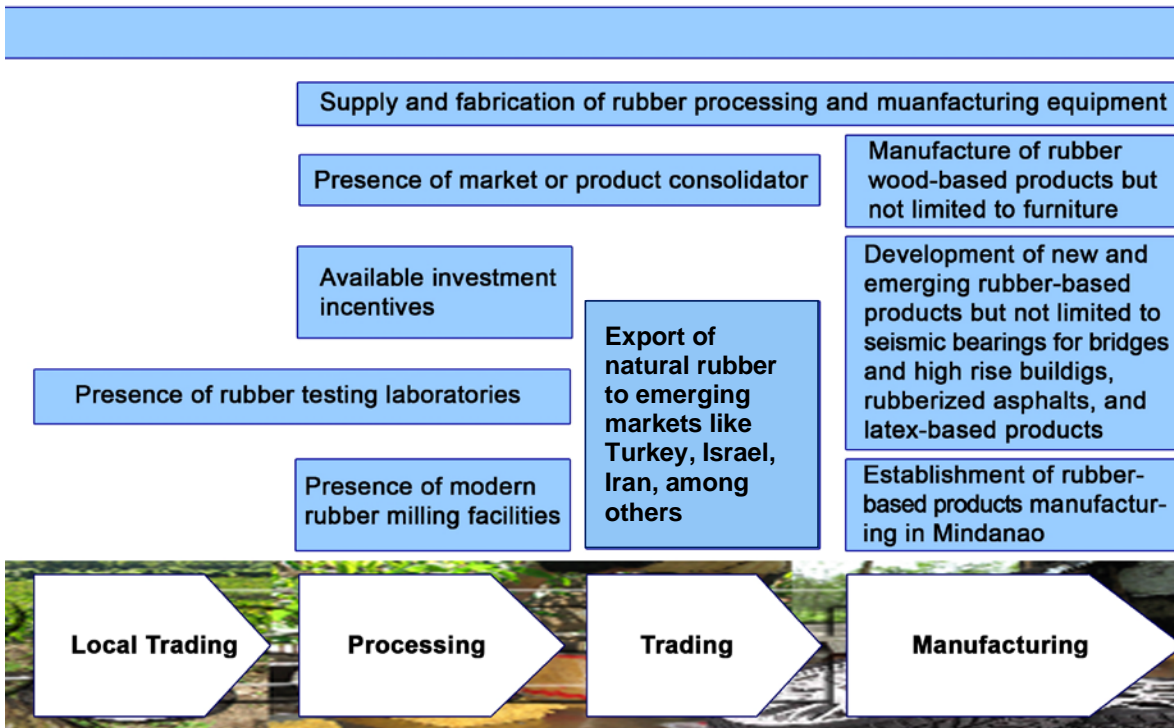
A woman wearing a white long-sleeved shirt, a blue apron, and a blue cap is working in a textile mill. She is seen from the side, looking towards a large industrial machine. The machine has several large rollers and is processing a thick, greyish-white material, likely wool or cotton. The background shows the interior of a factory with wooden beams and large windows letting in natural light. The overall scene is one of industrial labor.

**Industry Action
Plan
(2017-2022)**

III. RUBBER INDUSTRY ACTION PLAN 2017-2022

A. Industry Opportunities and Constraints





Out of the current 24 crumb rubber processors, only 5 are ISO certified/aligned

The need to establish farmer-owned rubber processing plant

Low quality of NR attributed to the non-adoption of PNS

thus, reducing farmers' income

Inadequate marketing research and assistance for rubber products

Inadequate promotional activities for rubber products both in the domestic and international markets

Logistics concerns in Zamboanga re: high cost of transportation, absence of foreign vessels, and lack of empty containers

Inadequate farm-to-market roads and bridges

Unstable price of natural rubber

and promote the interest of the rubber industry

- Inadequate policy support and enabling law

B. Vision



C. Mission



D. Goals

This Roadmap is formulated with the over-all goal of distributing the benefits to all stakeholders in the rubber industry thereby spreading the gains down to the smallholders in the remote barangays in all rubber producing provinces in the regions, and ultimately increasing the income of rubber farmers above the poverty threshold.

E. Objectives

By end of year 2022, the industry should have achieved the following:

1. Expand total area planted to rubber to at least 300,000 hectares;
2. Improve farm productivity from average of 800 kgs to 1,200 kgs dry rubber per hectare/year;
3. Accelerate capacity building for industry operators and workers;

4. Increase investments in rubber plantations, processing plants and rubber products manufacturing;
5. Promote the adoption of new, efficient and environment-friendly technologies in the production of natural rubber and rubber-based products;
6. Increase the export volume of processed and manufactured rubber products by 10% annually; and
7. Reduce importation of natural rubber by 70% by major rubber-based products manufacturers.

F. Development Strategies

The development of the rubber industry is anchored on an improved business climate, enhanced productivity and its capacity to adopt new technology and innovation. Parallel efforts in improving access to finance should also be enhanced, market access should be expanded, and industry policies should be put in place in order to provide an environment conducive to business development.

The different industry action teams formulated and agreed to pursue the following development strategies:

1. Expand production and improve plantation/farm productivity by adopting new technologies and good agricultural practices;
2. Provide support to rubber farmers in the form of farm expansion, farm mechanization, modernization and quality production through the leadership of Department of Agriculture and other concerned government agencies and stakeholders;
3. Enhance the production of latex-timber clones planting materials;
4. Support the establishment of bud wood gardens and rubber nurseries;
5. Establish a “Tappers Pool” to guarantee timely availability of tappers and job security for tappers;
6. Support the establishment of farmer-owned natural rubber processing plant;
7. Increase local production while reducing the importation of natural rubber by 70%;
8. Promote and advocate for compliance with product standards and market requirements in order to increase export of rubber and rubber products;
9. Intensify research, development and extension services to improve technology in production and in manufacturing particularly on new and emerging products;
10. Promote investment in the manufacture of rubber-based products resulting in the increase of domestic consumption of natural rubber;

11. Develop industry financial services to facilitate access to financing by farmers and entrepreneurs;
12. Establish institutional policies supported by a wide information network to ensure sustainability of assistance and provide access to new markets and technologies;
13. Support the creation of a Philippine Rubber Board that will enforce policies and set the direction in all aspects of the rubber industry value chain; and
14. Create ASEAN Rubber Industry Network to serve as a platform for the exchange of information and technology, and market.

G. Major Industry Development Projects

Based on the attached Industry Development Action Plan (2017-2022), the following are identified as major projects for implementation during the next five years by the members of the PHLRubber TWG:

1. Organization of rubber farmers association in all rubber-producing provinces and municipalities nationwide by the Department of Agriculture;
2. Formulation and implementation of Good Agricultural Practices in rubber plantations;
3. Creation of business development service providers (e.g. tappers pool);
4. Distribution of Nano Sensor to the farmers group and LGUs;
5. Adoption of root-trainer in nursery operation and rain guard in latex production;
6. Accreditation of rubber laboratories for natural rubber and rubber based products to ISO 17025;
7. Certification/alignment of rubber processing plants to ISO 9001:2015;
8. Promotion of local manufactured rubber products for the Comprehensive Automotive Resurgence Strategy (CARS) Program;
9. Introduction and promotion of Natural Rubber in government infrastructure projects such as rubberized asphalt in road pavements, the use of rubber bearing in bridges and high-rise buildings constructions;
10. Conduct of PRIME 2018;
11. Hosting of 27th ACCSQ-RBPWG Meeting in August 2018;
12. LBPs implementation of integrated rubber industry financing scheme in partnership with the private sector group; and
13. Passage of HB 2912 – creation of the Philippine Rubber Board.

H. Industry Performance Indicators

Indicators	2017	2018	2019	2020	2021	2022
New Jobs Created (Per WB Research Data, 2 jobs per additional hectare)	11,200	13,440	19,040	24,640	30,240	35,840
Productivity: Average Yield per hectare per year (DR) (WB Research Data)	800 kilos	800 kilos	800 kilos	800 kilos	800 kilos	1,200 kilos
Farmers' Income (PSA 2015-Poverty Threshold @ PhP 9,064.00/Month) Note: <ul style="list-style-type: none"> ▪ Average Area @ 2 hectares per Farmer ▪ 5 year Average Price of DR (Php 80.00 per kilo) ▪ Php 10,666.67 per month (800 kg/ha per year, 2 hectares/farmer, average price for 5 years Php80.00 kilo of Dry Rubber) *if farmer is also the tapper ▪ If not, with 60:40 sharing, monthly income of farmer/owner is PhP6,400.00 						
Expansion of primary production areas (PSA 2016- 223,283 has.)	228,883	235,603	245,123	257,443	272,563	290,483
Investments in Plantation development & Manufacturing (PHP) <ul style="list-style-type: none"> • For production (P 200,000/hectare, 5 year gestation period) • For Manufacturing 	1.12 B	1.34 B	1.9 B	2.46 B	3.02 B	3.58 B
Import substitution In MT (Yokohama Data Only)	15,378 MT	16,916 MT	18,454 MT	19,991 MT	21,529 MT	23,067 MT
Domestic Sales (in PhP M) *RICG 2016- 1,328.59 M, 10% increase annually	1,461.45	1,607.60	1,768.36	1,945.20	2,139.72	2,353.69
Exports Sales (in US \$ M) (DTI-EMB 2016-135.08 M US \$), 10% increase annually	148.59	163.45	179.80	197.78	217.56	239.32

1) Physical Targets for Rubber Planting, 2017-2022

TARGETS	2017	2018	2019	2020	2021	2022
New Planting and replanting (ha), based on available good quality planting materials	5,600	6,720	9,520	12,320	15,120	17,920
Establishment of bud wood gardens	10	10	10	10		
Nursery Accreditation and Bud wood Garden Certification	20	30	30	30	20	20
Establishment of model farms on strategic areas	9	18	27	36	54	63
Techno-caravan / seminars / training	18	18	18	18	18	18

2) Source of Planting Materials, 2017-2022

TARGETS	2017	2018	2019	2020	2021	2022
Bud wood Garden (has.) establishment	10	10	10	10		
Cumulative new BWG	20	30	40	50	50	50
Budded Seedlings (pcs)	800,000	2,800,000	4,800,000	6,800,000	8,800,000	10,000,000
Planting (has.)		1,120	3,920	6,720	9,520	12,320
Existing BWG (has)	20	20	20	20	20	20
Budded Seedlings(pcs)	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Planting (has.)	5,600	5,600	5,600	5,600	5,600	5,600
Total Area (Has)	5,600	6,720	9,520	12,320	15,120	17,920

3) Rubber Targets & Growth Rates, 2013-2022

Rubber Inputs (based on Roadmap)					TARGETS						
Item / Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Yield (MT/ha)	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	1.2	
Volume of Production ('000 MT)	73,956	77,002	97,097	129,252	140,979	148,381	174,150	178,082	178,626	274,660	
Area Harvested (hectares) <i>*5 year gestation period</i>	123,260	128,337	138,710	161,565	176,224	185,476	217,687	222,602	223,283	228,883	
GROWTH RATE (%)											
Item / Year		2014	2015	2016	2017	2018	2019	2020	2021	2022	average
Yield		0%	17%	14%	0%	0%	0%	0%	0%	50%	9%
Volume of Production		4%	26%	33%	9%	5%	17%	2%	0%	54%	17%
Area Harvested (hectares)		4%	8%	16%	9%	5%	17%	2%	0%	3%	7%

I. Budgetary Requirements for Rubber Plantation and Production

TARGETS	2017	2018	2019	2020	2021	2022
New Planting and Replanting areas (ha)	5,600	6,720	9,520	12,320	15,120	17,920
Budwood Gardens (hectares)		30	9	9		
BWG establishment cost (PhP M)		9	2.7	2.7		
Total No of Baggings ('000 pcs)				5,865	7,395	8,160
Cost per Bagging is P 50.00 (PhP M)				293.25	369.75	408.00
Equipment (in units:						
1) Heavy Machinery Needed						
-Bulldozer			22	33	14	7
-Backhoes			22	33	14	7
2) Small Bulldozers			22	33	14	7
3) Tractor			22	33	14	7
For financial requirement per hectare, Php 250,000 is needed (provided that the land prep is subsidized (in Php M)	1,400.00	1,680.00	2,380.00	3,080.00	3,780.00	4,480.00
Techno demo farms (PhP M)	3.6	5.4	7.2	9	10.8	12.6
Credit facilitation						
Techno Caravan and Training (PhP M), P1600/pax/day, 3 days, 50pax @ 2 sets/year/province(9)	4.32	4.32	4.32	4.32	4.32	4.32
Total Costs (PhP M)	1,407.92	1,698.72	2,394.22	3,389.27	4,164.87	4,904.92

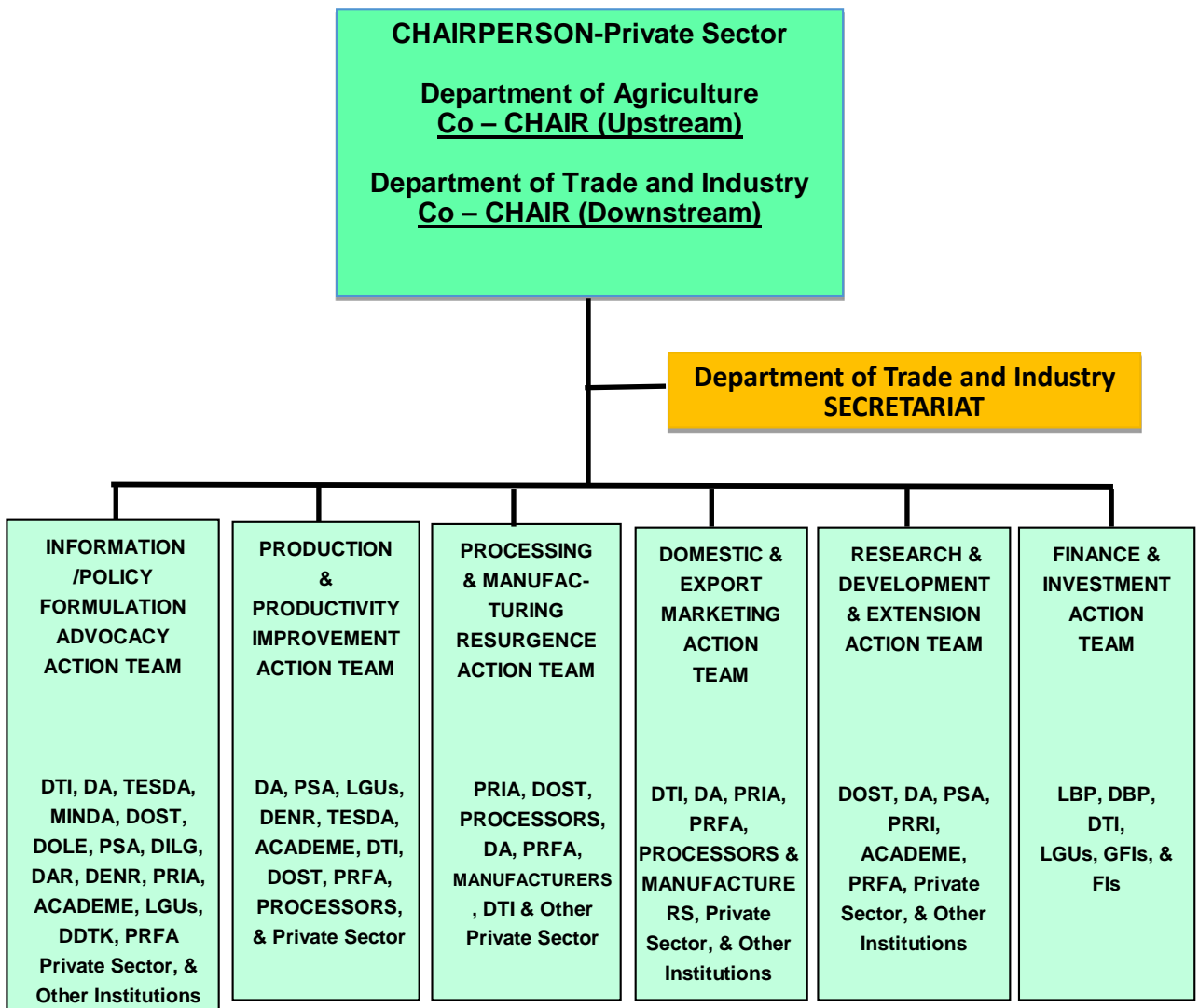
J. Implementing Organization

The different programs, projects and activities for the development of the rubber industry are initiated and conducted by the Philippine Rubber Technical Working Group (PHLRUBBER).

PHLRUBBER was formed on June 22, 2012 and is a convergence of government agencies, LGUs, academe, GFIs, private sector, and other institutions that is committed to help promote and sustain the development of the rubber industry and drive competitiveness for inclusive growth as well as sustainable practices.

During the 15th meeting of PHLRUBBER hosted by the Bureau of Plant Industry (DA-BPI) in Malate, Manila on May 18, 2016, the body decided that a private sector must lead the PHLRUBBER TWG to push for the development of the rubber industry. Below is the organizational structure of the Technical Working Group.

PHLRUBBER Technical Working Group



Listed below are the original and current members of the PHLRUBBER. These personalities have contributed so much to the different initiatives and interventions vital to the development of the Philippine rubber industry:

ORIGINAL AGENCY REPRESENTATIVES	CURRENT AGENCY REPRESENTATIVES
Department of Trade and Industry (DTI)	
<ol style="list-style-type: none"> 1. Usec. Merly Cruz – ROG (ret.) 2. RD Sitti Amina M. Jain – DTI-IX 3. ARD Edwin O. Banquerigo- DTI-XI 4. PD Anacleto Blanco – ROG 5. PD Anthony P. Bravo – DTI-North Cotabato 6. Dir. Nestor Arcansalin – BOI 7. Mr. Dexter Pajarillo – BOI 8. Ms. Raquel Echague – BOI 9. Ms. Grace Juan – EMB 10. Ms. Nora Torralba – EMB (ret.) 11. Ms. Ledilla Papa – BPS (ret.) 12. R/ASEC. Abubacar Datumanong – DTI ARMM 	<ol style="list-style-type: none"> 1. Usec. Zenaida C. Maglaya – ROG 2. ASec. Blesila A. Lantayona - ROG 3. RD Sitti Amina M. Jain – DTI IX 4. PD Anthony P. Bravo – DTI-North Cotabato 5. Dir. Nestor Arcansalin – BOI 6. Mr. Dexter Pajarillo - BOI 7. Dir. Ernani M. Dionisio - PAB 8. Ms. Ann Fernando – BPS 9. Ms. Grace Juan – EMB 10. Mr. Jaworski Rifareal – BSMED 11. R/Sec. Anwar A. Malang – DTI ARMM 12. R/ASEC. Abubacar Datumanong – DTI ARMM
Department of Agriculture (DA)	
<ol style="list-style-type: none"> 1. Dir. Jennifer Remoquillo – HVCDP 2. Ms. Jallyne Remoquillo – HVCDP 3. Dr. Andrea Inocencio – BPI 4. Dir. Nicomedes Eleazar – BAR 5. OIC-Dir. Rodolfo Galang – PRRI 6. Engr. Roger O. Bagaforo – ZAMPIARC 7. Mr. Ernie Camacho – ZAMPIARC 8. Ms. Aleli Maguilin - NABCOR 	<ol style="list-style-type: none"> 1. Usec. Evelyn G. Laviña – HVC & Rural Credit 2. Dir. Jennifer Remoquillo – BPI 3. Dir. George Culaste – BPI 4. Dr. Andrea Inocencio – BPI 5. Ms. Jallyne Remoquillo – BPI 6. Dir. Sarah Cayona – PCAF 7. Dir. Dennis Palabrica – PRRI 8. Dir. Karen S. Bautista – BAFS 9. Dir. Luz Hofilena Taposok – ATI 10. Mr. Manuel Dimaluluan – ATI 11. Dir. Nicomedes Eleazar – BAR 12. Mr. Ricarte Castro – BAR 13. Engr. Roger O. Bagaforo – Research Center, DA RFO 9 14. Mr. Ernie Camacho – Research Center, DA RFO 9
Department of Science and Technology (DOST)	
<ol style="list-style-type: none"> 1. Dr. Rowena Cristina L. Guevara – PCIEERD 2. Dir. Maria Patricia Azanza – PCIEERD 3. Ms. Russell Pili – PCIEERD 4. Ms. Paula Jean Cansino –PCIEERD 5. Ms. Ma. Grace Buenavides – PCIEERD 6. Dir. Reynaldo Eborá - PCAARRD 7. Dr. Johnny Batalon – PCAARRD 	<ol style="list-style-type: none"> 1. Dir. Carlos Primo David – PCIEERD 2. Dir. Maria Patricia Azanza – PCIEERD 3. Dir. Raul Sabularse – PCIEERD 4. Engr. Niñaliza Escorial – PCIEERD 5. Ms. Bianca Ignacio – PCIEERD 6. Dir. Reynaldo Eborá - PCAARRD 7. Dr. Marcelino Siladan - PCAARRD 8. Dir. Romulo Aggangan - FPRDI 9. Engr. Belen Bisana – FPRDI

ORIGINAL AGENCY REPRESENTATIVES	CURRENT AGENCY REPRESENTATIVES
8. Dr. Jocelyn Eusebio – PCAARRD 9. Dr. Marcelino Siladan - PCAARRD 10. Dir. Romulo Aggangan – FPRDI 11. Engr. Belen B.Bisana – FPRDI 12. Engr. Reynaldo Esguerra – ITDI	10. Dr. Ma. Cielito Siladan – FPRDI 11. Ms. Ner Rodriguez – ITDI 12. Ms. Adelaida Senica – ITDI
Department of Environment and Natural Resources (DENR)	
1. Dir. Ricardo Calderon - FMB 2. Mr. Jun Barit –FMB 3. Ms. Michelle Ojeda –NGP 4. Ms. Felicitas Martin –NGP 5. Mr. Alex Lauricio - NGP	1. Dir. Nonito M. Tamayo – FMB 2. Mr. Leo Paulo Ferrer –FMB/NGP 3. Ms. Jinia D. Yaneza –FMB/NGP
Department of Agrarian Reform (DAR)	
1. Dir. Susana Leones – BARBD 2. Mr. Chris Rolan Hebron – HO 3. Ms. Delia Gabales – HO	1. Dir. Celerina G. Atable – PMS 2. Ms. Susuna Perez – PMS 3. Mr. Leroy Ladao – PMS 4. Dir. Susana Leones – BARBD 5. Ms. Soledad Peralta – BARBD
Technical Education and Skills Development Authority (TESDA)	
1. Dir. Marissa Legaspi – Planning Office 2. Mr. Pamfilo Tabu – TESDA HO 3. Ms. Charlyn Justimbaste – TESDA HO 4. Ms. Jocelyn Wee – TESDA 9 5. Ms. Alexandra Lipio – TESDA HO	1. Dir. Marissa G. Legaspi – Planning Office 2. Ms. Ursula Mendoza – TESDA Planning Office 3. Bryan Bathan – TESDA HO
Department of Labor and Employment	
1. Mas. Julieta Boquia - BSWC	1. Dir. Chona M. Mantilla – NRCO 2. Ms. Liza Zambarrano – NRCO 3. Ms. Leslie Uyguanco – NRCO
Philippine Statistics Office	
1. Ms. Imelda Ormos – PSA HO	1. Ms. Abella Regala – PSA HO 2. Ms. Marivic de Luna – PSA HO 3. Mr. Reynaldo Vallesteros – PSA HO
Mindanao Development Authority	
	1. Ms. Anelyn G. Binancilan – Dev’t. Mgnt. Officer
Academe	
1. Dr. Jesus Antonio Derije – Pres. 2. USM 3. Dr. Romulo L. Cena – USM 4. Dr. Rolando Dy – UA&P 5. Ms. Florence Sevilla – UA&P	1. Dr. Francisco Gil Garcia – Pres. USM 2. Dr. Romulo L. Cena – USM-PICRI 3. Dr. Emma K. Sales - USM 4. Dr. Rolando Dy – UA&P 5. Ms. Annette Dacul – UA&P
Financing Institutions (FIs)	
1. Mr. Jose Pepito Yusingbo – DBP HO 2. Ms. Lina Soriano – LBP HO 3. Mr. Diosdado Domingo – LBP HO (ret.)	1. Ms. Emelie Tamayo – Vice President, Lending Program Management Group, LBP 2. Mr. Edgardo de Guzman – LBP HO

ORIGINAL AGENCY REPRESENTATIVES	CURRENT AGENCY REPRESENTATIVES
	3. Mr. Edison Reyes – LBP HO 4. Ms. Elaine B. Pagkanlungan – DBP Agribusiness Dev't. Unit
Private Stakeholders	
1. Mr. Alfonso Jack F. Sandique COO PRDI 2. Mr. Gabriel Igot – SMRC Managing Director 3. Mr. Christopher Chan – PRIA President 4. Mr. Jerry Murao – Agro-Ventures 5. Mr. Marvin Ho – SMRC 6. Ms. Rhodora Medalla –RHODECO 7. Ms. Josie Ladao – King's Rubber 8. Mr. Tony Jose – KRDFI 9. Ms. Basilisa Ho – MBH Trading	1. Mr. Alfonso Jack F. Sandique – PRDI/Chairperson PHLRUBBER 2. Mr. Gabriel Igot – PRIA President/ SMRC 3. Engr. Elpidio L. Carlota – PRIA 4. Engr. Merly Cruz – Adviser, MSME Dev't. PCE-Go Negosyo 5. Mr. Armando Pedregosa – PRFA President 6. Mr. Bonifacio Tan – Farma Rubber Industries 7. Mr. Jose Emmanuel Pacheco – STANDECO 8. Mr. Vicente B. Matugas – PZSRFA President 9. Engr. Cynthia P. Tamayo – Vice President, DDT Konstruct 10. Ms. Natalia C. Jambaro – Chairperson, ZAMPEN Rubber 11. Dr. Ismael Elevazo – Chairperson CRIFI
Secretariat	
1. Ms. Jennilyn D. Velasquez- DTI IX	1. Ms. Rossana E. Garcia - DTI-IX 2. Mr. Rodolfo M. Mabalot- DTI IX 3. Ms. Angelie A. Jikiri - DTI-IX

K. Action Plan 2017-2022

The Action Plan contains the six major strategies being implemented by the member-agencies under the six action teams.

For nursery development, the table below contains the computation for the nursery requirement and output. Information in this table is used as basis in projecting the target seedling requirement for 2017-2022.

Table 20: Computation for Nursery Requirement and Output

Targets	2016	2017	2018	2019	2020	2021	2022
Budwood Garden (has.) establishment	10	10	10	10	10		
Cumulative new BWG	10	20	30	40	50	50	50
Budded Seedlings (pcs.)		800,000	2,800,000	4,800,000	6,800,000	8,800,000	10,000,000
Planting (has)			1,120	3,920	6,720	9,520	12,320
Existing BWG (has)	20	20	20	20	20	20	20
Budded Seedlings (pcs)	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Planting (has)	5,600	5,600	5,600	5,600	5,600	5,600	5,600
Total Area (has)	5,600	5,600	6,720	9,520	12,320	15,120	17,920

Details on the activities of each of the member-agencies are reflected in Table 21.

Table 21: PHILIPPINE RUBBER INDUSTRY CLUSTER ACTION PLAN 2017-2022

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (Php)		TIMELINE
		LEAD	COLLABORATOR	AMOUNT	SOURCE	
PRODUCTION & PRODUCTIVITY IMPROVEMENT	Establishment of Additional Budwood Gardens	Cooperatives, Associations, Private Sectors, DA-RFOs, DA-BPI, PRFA	LGUs, Private Sectors, USM and other SUCs, KRDFI		DA-BPI, DOST-PCAARRD, Private sector, LGUs	2017-2022
	Intensify/Strengthen the Nursery Accreditation and Budwood Garden Certification					2016-onwards
	Establishment of Demo Farms	DA-BPI, PRRI	Coops and Farmers Assoc.	P1 M per site	DA	2018
	Establishment of Seedling Nursery using the PB260, PB330 and USM 1 clones			7M for production of 450K bags good for 900 ha plantation	DA-BPI, PRRI	2019-2020
	Procurement/Provision of heavy equipment	DA	Coops and Farmers Assoc., PRFA		DA	2019
	Review the training regulations for Rubber Production NC II	TESDA	DA-ATI, LGUs, Private Sector, DA-RFOs Research Division		TESDA, ATI & LGUs	2016-2022
	Trainors' Training, Assessment and Certification of Workers on Rubber Production (Rubber Tapping, Budding, etc.)		DOST-FPRDI, Extension Workers, LGUs, SUCs, Accredited Rubber Tapping Trainors , PRFA		DOST (PCAARRD; PCIEERD); DA-BPI; DA-ATI; LGUs	
	Quality Improvement Seminar/Forum for producers and processors	DTI	DA, DOST, TESDA, DOLE producers and processors, PRFA		DTI Industry Cluster Enhancement (ICE) fund and line agencies	2017
	NGP Expansion Program under EO 193 Indicate/identify areas by region	DENR-FMB	Cooperatives, Associations, Private Sectors, LGU, PRFA	*Ongoing reprogramming of budget and activities	DENR	2017-2028
	Mindanao Sustainable Agrarian & Agri Devt Project. (MINSAAD) & ConVERGE	DAR	ARBOs, LGUs, Line Agencies, POs		Cost Sharing among DAR, ARBO and LGU	2016-2021
	Development of Rubber GAP: Coordinate to ensure use of international accepted standards	BAFS/BPI	PRRI, KRDFI, Private Sector, SUCs , PRFA	P420 K (2017)	DA-BAFPS/BPI	2016 -2017
	Implementation of developed GAP for rubber	Private Stakeholders	PRFA, LGUs, DA, DTI			2018-2022
	Initiate Model & Techno Model Farms in strategic areas	DA-PRRI	DA-RFOs, Private Sector, SUCs		DA-PRRI; DOST-PCAARRD	2016-2022
	Techno-caravan to promote transfer of technology / seminars / training	DA, DOST	PHLRubber TWG, DA-ATI, PRFA		DA, DOST, PRRI	2016-2022
	Standardization on the utilization of harvesting paraphernalia (tapping knives etc.)	DA-PhilMech	PRRI, KRDFI, Private Sector, SUCs , PRFA		DA-PhilMech	2016-2022
	Organize farmers' group/association	PRFA	Private Sector			2017
	Distribution of farm management software and mobile apps to farmers	DA	PRFA, LGUs, DICT			2018-2022
	Provision of education, technical exposure and technology transfer to farmers in educational institutions	TESDA	PRFA, Small holders, DA, LGUs			2017-2022
Creating business development service providers who are knowledgeable in the industry	DA-ATI				2017	

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (PhP)		TIMELINE
		LEAD	COLLABORATOR	AMOUNT	SOURCE	
PROCESSING & MANUFACTURING	Continuous harmonization of standards	DTI	PRIA/ Rubber Processors DOST, PRRI		DTI	2016-2022
	ISO 17025 Accreditation of at least 3 laboratories for natural rubber with PAB (DOST-IX, USM/PRTC and PRRI)	Rubber Laboratory Testing Centers	DTI-PAB		Rubber Laboratory Testing Centers	2016-2022
	ISO 17025 Accreditation of at least 1 laboratory for rubber based products with PAB	DOST-ITDI	DTI – PAB		DOST-ITDI & PCIEERD	June-October 2017
	ISO 9001:2015 Orientation Seminar for crumb rubber processors	DTI	Crumb rubber processors	P200 K	Industry Cluster Enhancement (ICE) Fund	2017
	Certification/Alignment of at least 3 Rubber Processing Plants to ISO9001-2015	Rubber Processors	DTI, Certifying Body		Rubber Processors	2017-2022
	Continue Financial Assistance Program of DOST under SET-UP	DOST	LGUs, DTI, DA & Private Sector		DOST	2016 onwards
	Mechanization/Fabrication of Small Scale Processing Facilities	DA, DA-BAFS DOST, Small Cooperatives	PhilMech, LGUs, DTI, & Fabricators		DA	2016 onwards
	Advocacy for the integration / adoption of renewable energy among rubber processing plants	BOI	DTI enrolled Regions (IV-B, IX, X, XII, Caraga), Private Sector		BOI, DTI	2016-2022
	Promotion of clean and green technologies and practices among rubber processing plants (energy efficient, less wastages, recycling)	BOI	DTI rubber enrolled Regions (IV-B, IX, X, XII, Caraga), Private Sector Processors DOST, PRRI		BOI, DTI	2016-2022
	Promotion of investment for new and modernization of processing and manufacturing plants for inclusion to the Annual Investment Priorities Plan	BOI	Some DTI enrolled regions (Regions IX, X, XII, Caraga), BPS, DOST		BOI, DTI	ongoing
	Quality Improvement Seminar/Forum for the producers and processors	DTI enrolled regions	Rubber-Based Regions, PRRI, LGUs, DA		DTI Industry Cluster Enhancement (ICE) Fund, DA, PRRI and LGUs	2016-2022
	Develop high value products from rubber wood – Private Sector to assist DOST on inputs on information	DOST-FPRDI, PRRI	Rubber Cooperatives at DOST Region IX, Phil Chamber of Furniture, CITC	P31M	DOST-GIA	ongoing
	Compilation of rubber manufacturers' sources for domestic and international materials suppliers (raw rubber, chemicals, tool & die machinery, etc)	PRIA /DTI- BOI	DTI enrolled regions, FTSC		DTI - BOI	2017
	Linking rubber processors with rubber products manufacturers	DTI- BOI	DTI enrolled region		DTI - BOI	2016-2022
	Campaign for greater availment of BOI incentives	BOI, DTI enrolled regions	DTI ROs (IX, X, XII, Caraga)		DTI- BOI	2016-2022
	Enhancement of rubber manufacturers' knowhow on materials outsourcing	PRIA /DTI- BOI	DTI enrolled regions		DTI - BOI	2016-2022
	Facilitate initial talk between PRIA and chemical associations	DTI- BOI	Chemical Associations, private sector, PDEA, PNP, FDA		DTI - BOI	2016-2022
	Campaign for higher conformance to product standards among rubber manufacturers	DTI-BPS	PRIA & other Tyre/non-tyre manufacturers		DTI	2016-2022
Conduct Global Value Chain (GVC) on rubber & rubber-based products	BOI	DTI enrolled region		DTI- BOI	2016-2022	

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (PhP)		TIMELINE
		LEAD	COLLABORATOR	AMOUNT	SOURCE	
PROCESSING & MANUFACTURING	Conduct of Benchmarking visits to foreign rubber manufacturing firms	PRIA/PHLRUBBER	BPS/ DTI enrolled regions		PRIA/PHLRUBBER	2016-2022
	Conduct of cross visits between crumb processing and rubber manufacturing companies					
	Assessment of quality consciousness among rubber-based product manufacturers	DTI-BPS	PRIA & other Tire/non-tire manufacturers		DTI-BPS	2016-2022
	Inclusion of Rubber in the Investment Priorities Plan (IPP) to provide incentives to investment in machinery upgrading	DTI- BOI	Private Sector		BOI	2016-2022
	Promotion of the adoption of labor occupational safety standards and practices	DOLE / BPS, DTI enrolled regions	DOST-NCR, Private Sectors		DTI- BOI	2016-2022
	Tapping Tool and Die industry in the production of rubber product manufacturing machines	BOI/ DOST-MIRDC	Rubber Products Manufacturers		DTI- BOI	2016-2022
	Conduct of public consultations on trade related negotiations and tariff review	DTI- BOI	DTI enrolled Regional Office		DTI- BOI	2016-2022
	Conduct of public consultation on mandatory standards	BPS/ BOI	PRIA & other Tire/non-tire manufacturers/ DTI enrolled Ros		BOI	2016-2022
	Preparation of Industry Study for Rubber and Rubber Products (seismic bearing, rubberized asphalt, and other latex products etc)	DTI	Processors and Manufacturers	P1.3 M	DTI-ICE Fund	2017
	Industry preparedness survey	DTI- BOI	Line Agencies & Private Sector		DTI- BOI	2016-2022
	Conduct of Feasibility Study on the Establishment of tire and condom manufacturing in Mindanao	PRRI	PRIA & other Tire/non-tire manufacturers/ DTI Ros		PRRI	2017
	Training Workshop on Rubberize Asphalt in Thailand and Benchmarking Mission	DTI	DPWH, big contractors, manufacturers, LGUs, PRFA	P200 K	DTI-ICE Fund	November 2017
	Greening the NR Value Chain Seminar	DTI National, DTI ARMM	Regions IVB, IX, X, XI, XII, CARAGA, ARMM	P90 K	DTI-ICE Fund and DTI-ARMM	2017
	Advocacy on the establishment/management of a village level rubber processing facilities	DTI National, DTI ARMM	Regions IVB, IX, X, XI, XII, CARAGA, ARMM	P330 K	DTI-ICE Fund and DTI-ARMM	2017
	Establishment of Rubber Processing Plant owned/run by farmers.	PRFA	DA		DA	2017-2022

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (Php)		TIMELINE
		LEAD	COLLABORATOR	AMOUNT	SOURCE	
DOMESTIC AND EXPORT MARKETING	Conduct Trainings/ Seminars on Costing and Pricing	PTTC	DTI-Regional Offices	P450 K	PTTC	2016- 2022
	Conduct Trainings/ Seminars on Rubber Marketing	DTI/DA	LGUs, Farmers Association and Cooperatives, PRFA	P900 K	DTI/DA	2nd to 4th Quarter 2017
	Regional Rubbers Forum/Fora	DTI/DA	LGUs, Farmers Association and Cooperatives, PRFA	P600 K	DTI/DA	3 rd Quarter 2017
	Participation to Trade Promo Activities (ANRPC, ASEAN etc.)	DTI	DA, DOST, LGUs	P360 K	DTI	3 rd Quarter 2017
	Advocacy on the establishment of Rubber Trading Centers (Dissemination of NR Price Reference and Price Monitoring)	DTI Regional Offices	DA, LGUs, Industry Associations, Farmer Associations and Processors		DTI Industry Cluster Enhancement (ICE) Fund , LGUs and other agencies	2017
	Participation in Regional Trade Fairs	DTI Regional Offices/ EMB/PTTC	Rubber Industry Cluster Teams, DA-AMAS	P180 K	DTI ROs	2016 - 2022
	Promotion of Rubber Products Manufacturing for the Comprehensive Automotive Resurgence Strategy (CARS) Program	BOI	Rubber Industry Cluster Teams/ Association, PRIA & other Tire/non-tire manufacturers	P200 K	BOI	2017 - 2022
	Preparation of Directory of Suppliers	DTI Regional Offices	DA, BPI, DENR	P100 K	DTI ROs	2016 - 2022
	PRIME 3	DTI/DA/ PhilRubber	PRIA	P3 M	DTI, DA	2018
	Come-up/Develop rubber cup lumps price index considering all Factors in all Rubber-based regions and possible organize Price Monitoring Committee	DTI, DA	LGUs/ Private Sector, DTI- Regions: IX, X, XII, Caraga , PRFA		DTI, DA	2016 onwards
	Conduct Info Sessions on : a.DBFTA – AEC b.Market Opportunities c.Direction of Export Trade	DTI-EMB	DTI- Regional Offices, Rubber Industry Cluster Teams/ Associations	P200 K	EMB	2016 onwards
	Conduct of Investment Opportunities Seminars	BOI	DTI-Regional Offices, Rubber Industry Cluster Teams/ Association/Other Agencies, PRFA	P500 K	BOI	2016 - 2022
	Promotion of Manufactured Rubber Products for the CARS Program	BOI	DTI Regional Offices, Rubber Industry Cluster Teams/ Associations	P200 K	BOI	2016 onwards
	Conduct Outbound Business Matching Mission in Target Markets for Natural and Manufactured Rubber	EMB	With Private Sector Participation (At least 10 companies, PRIA & Regional Offices)	P300 K	EMB	2016 - 2022
	Production of Information and Promotion Collaterals for use during OBMs	EMB	Identified OBM Participants	P50 K	EMB	2016 - 2022

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (PhP)		TIMELINE	
		LEAD	COLLABORATOR	AMOUNT	SOURCE		
RESEARCH, DEVELOPMENT AND EXTENSION	On-Going						
	PROGRAM: Nationwide Clonal Adaptation Trial and Innovation of Propagation Techniques of Newly Introduced High-Yielding and Promising Rubber Clones:						
	Project 1. Technology Adaptation and Performance Trial of Recommended Rubber and Other Promising Rubber Clones in the Philippines/Dr. Romulo Cena/USM	USM, Kabacan, N. Cotabato/ISU, Echague, Isabela; WPU, Aborlan, Palawan; SLSU, Lucban, Quezon; CMU, Maramag, Bukidnon; DA-RFO IX, Ipil, Z. Sibugay	Local Government Units and Local Farmers of Echague, Isabela; Aborlan, Palawan; Lucban, Quezon; Maramag, Bukidnon; Ipil, Zamboanga Sibugay	P20.5 M	DOST-PCAARRD (GIA)	March 2015-February 2018	
	Project 2. Innovation of Root Trainer Technique and Precision Grafting Technology for Rapid Propagation of Quality Planting Materials of Rubber/Ms. Marisa Garcia/USM	USM, Kabacan, N. Cotabato/DA-RFO IX, R.T. Lim, Zamboanga Sibugay	DA-RFO IX, Surabay Rubber Research Center, R.T. Lim, Zamboanga Sibugay	P6.6 M	DOST-PCAARRD (GIA)	March 2015-February 2017	
	Project 3. Development of Efficient Techniques on Tissue Culture, Somatic Embryogenesis and In Vivo for Rapid Propagation in Rubber/Prof. Harem Roca/USM	USM, Kabacan, N. Cotabato/DA-RFO IX, R.T. Lim, Zamboanga Sibugay	DA-RFO IX, Surabay Rubber Research Center, R.T. Lim, Zamboanga Sibugay	P7.5 M	DOST-PCAARRD (GIA)	March 2015-February 2018	
	Program. Functional Genomics Assisted Development of Gene Markers for Economically Important Traits of Cacao and Rubber Production Varietal Improvement Project 2. Functional Genomics-assisted Gene Markers for Economically Important Traits in Rubber/Dr. Emma K. Sales/USM	USM	UPLB-Institute of Plant Breeding	P12.9 M	DOST-PCAARRD (GIA)	Feb, 16, 2015-Feb 15, 2018	
	GIS-Based Inventory and Sustainability Assessment of Rubber and Cacao in Major Production Areas of the Philippines/Dr. Nathaniel Bantayan/UPLB-CFNR	UPLB-CFNR	Rubber (and Cacao) Producing Provinces, largely in Mindanao	P4.7 M	DOST-PCAARRD (GIA)	April 2015-March 2017	
	On-Going						
	S&T Based Intensification on the Use and Production of Effective Microorganisms (EMs) as Biofungicide Against Phytophthora Disease and as Biofertilizer for Rubber/ Dr. Elvie Diaz (vice Dr. Carlos Lacamento, SKSU)	SKSU	USM Pathology Laboratory; LGUs and Rubber Farmers of Sultan Kudarat. South Cotabato and North Cotabato	P3.3 M	DOST-PCAARRD (GIA)	March 2015-February 2017	
	S&T Community Based Farms on Rubber Budwood Garden, Nursery and Plantation Development and Management in Basilan	Basilan State College, Lamitan campus, Lamitan City, Basilan	USM, Kabacan, N. Cotabato; LGU of Lamitan City	P3.7 M	DOST-PCAARRD	April 1, 2016 to February 29, 2018	
	S&T Community Based Farms on Rubber Budwood Garden, Nursery and Plantation Development and Management in North Cotabato	USM	Local Farmers and Nursery Operators of North Cotabato	P4.9 M	DOST-PCAARRD	August 17, 2015 to August 16, 2020	
S&T Community Based Farms on Rubber Budwood Garden, Nursery and Plantation Development and Management in Cavinti, Laguna	UPLB-CFNR, College, Laguna	Southern Luzon Rubber Producers Association; LGU-Cavinti/CALABARZON, DOST4a	P5 M	DOST-PCAARRD	September 1, 2016 to August 31, 2018		
Rubber, Coffee and Cacao: Building Site Matching Functions for Improved Farm and Agroforestry Development/For. Florita Siapno/ERDB-DENR	ERDB-DENR, Los Baños, Laguna; ERDB Regional Cluster Research Centers	All over the country; DENR NGP Areas for rubber, cacao and coffee; CBFM areas within forestlands	P3.7 M	DOST-PCAARRD	September 1, 2016 to August 31, 2018		

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (PhP)		TIMELINE	
		LEAD	COLLABORATOR	AMOUNT	SOURCE		
RESEARCH, DEVELOPMENT AND EXTENSION	On-Going						
	Etiology and Management Strategies for Tapping Panel Dryness/Dr. Ana Liza Lopez/JRMSU-Tampilisan	JRMSU	DA-RFO IX, Ipil, Zamboanga Sibugay/Local Farmers of Tampilisan and Ipil, Zamboanga Sibugay	4.8 M	DOST-PCAARRD	July1, 2016 to December 31, 2018	
	Nanosensors for Rubber Quality Assessment/Dr. Jose Isagani Janairo/ De la Salle University	DLSU	LGUs (MAOs) of Tampilisan, Zamboanga del Norte; Ipil, Zamboanga Sibugay, Titay, Zamboanga Sibugay	P1.8 M	DOST-PCAARRD	July 1, 2016 to February 28, 2017	
	Policy Analysis and Advocacy on the Use of Various Latex Coagulants and Nano Sensor for Improved Quality of Rubber Products/Dr. Teresita Narvaez/WMSU	WMSU	LGUs (MAOs) of Tampilisan, Zamboanga del Norte; Ipil, Zamboanga Sibugay, Titay, Zamboanga Sibugay	P2.8 M	DOST-PCAARRD	August 2016 to October 2018	
	Capability Building on Tapping and Use of Appropriate Coagulants for Improved Rubber Latex	DOST-FPRDI	PAOs, SUCs, TESDA Zamboanga Sibugay	P4.9 M	DOST-PCAARRD	Q2 2017-2019	
	Growth and yield assessment of rubber planted in non-traditional areas of the Philippines/Engr. Roger Bagaforo and Mr. Ernie Camacho/DA-RFO IX	DA-RFO IX		P2.5 M	DOST-PCAARRD		
	Rubber Adaptability Trial of New Rubber Clones in Zamboanga Peninsula	DA-RFO 9	LGUs	P3 M	DA-BAR	2015-2018	
	Efficacy of Vermi Tea in the Control of Tapping Panel Dryness in Rubber	DA-RFO 9	Rubber Farmers, LGUs	P1 M	DA-NEP R&D	2015-2016	
	Growth Performance of Rubber Integrated with Different Leguminous Cover Crops	DA-RFO 9	Rubber Farmers, LGUs	P2.5 M	DA-OAP	2016-2019	
	Performance Evaluation of Rubber Seedlings Raised Through Different Production and Management Techniques	DA-RFO 9	Rubber Farmers, LGUs	P500 K	DA-HVCDP	2016-2017	
	Performance Trial of High Yielding and Promising Clones of Rubber in Mindanao	USM	Rubber Farmers, LGUs	P1.8 M	USM	2015-2017	
	Reduction of Immaturity Period of Newly Established Rubber Clones Through Covercropping Fertilization and Advance Planting Materials	USM	DA-RFO IX, Zamboanga Peninsula		USM	2015-2017	
	National R&D Program for Natural Rubber Processing and Rubber Manufacturing Project						
	Project 1. Upgrading and Accreditation of Laboratories to include Rubber Analyses in Strategic Areas in Mindanao Phase I. Integration of Rubber Testing Services in RSTL Region9	DOST-IX	CTK, DTI-PAB	P19.8 M	DOST (GIA)	2013-2017	
	Project 2. Optimization and Improvement of Processes in the Production of Technically Specified Rubber (TSR) and Demonstration of Improved Facilities in Zamboanga Peninsula	DOST-FPRDI	Philippine Pioneer Rubber Products Corp. (PPRPC)	P7.9 M	DOST (GIA)	2013-2016	
	Project 3. Enhancing and Increasing Local Content in Rubber for Motorcycle Tire Application	UPD-DMMME	Philippine Rubber Industries Assoc. (PRIA)	P92.6 M	DOST (GIA)	2014-2016	
	Project 4. Integration of Testing Services for Rubber and Rubber-Based Products	DOST- STD-ITDI	Philippine Rubber Industries Assoc. (PRIA)	P22.9 M	DOST-PCIEERD	2014-2017	
	Project 5. Empirical Modelling of Rubber Compounds using Active Design of Experiment	UPD	Philippine Rubber Industries Assoc. (PRIA)	P3 M	DOST-PCIEERD	2015-2017	
	PRRI-IRRDB Multilateral Clone Exchange	PRRI	USM, DA-RFO IX, Selected Private Sectors	P2 M	PRRI-IRRDB	2016-2046 (30 years)	
	Social Economics on Propagation and Distribution of Quality Planting Materials	PRRI	LGUs, SUCs	P10.415 M	PRRI	2016-2026/10 years	

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (PhP)		TIMELINE
		LEAD	COLLABORATOR	AMOUNT	SOURCE	
RESEARCH, DEVELOPMENT AND EXTENSION	On-Going					
	Capability-building of rubber researchers/ scientists and key players	PRRI	USM, SUCs, LGUs, Farmers	P6.5 M	PRRI	2016/10 years
	Farming System and Latex Harvesting Research	PRRI	Private Sector	P3 M	PRRI	2016-onwards
	Establishment of Rubber Germplasm Center	PRRI	USM	2 M	PRRI, USM	2016-onwards
	Proposed					
	Stocktaking of various rubber-based agroforestry models/systems in different climatic types of the country/Engr. Roger Bagaforo/DA-RFO IX	DA-RFO IX		P2.5 M	DOST-PCAARRD	
	Rubber, Coffee and Cacao: Building site matching functions for improved upland development (newly-approved)/For. Florita Siapno/ERDB-DENR	ERDB-DENR, Los Baños, Laguna; ERDB Regional Cluster Research Centers		P3.4 M	DOST-PCAARRD	
	Stocktaking of various rubber-based agroforestry models/systems in different climatic types of the country/Engr. Roger Bagaforo/DA-RFO IX	DA-RFO IX		P2.5 M	DOST-PCAARRD	
	S&T Community-Based Farm (STCBF) on Rubber Nursery and Budwood Garden Establishment in the JRMSU-Tampilisan, Province of Zamboanga del Norte/Dr. Edwin Templado/JRMSU-Tampilisan and MAO Cito Cerna-LGU Tampilisan, Province of Zamboanga del Norte	JRMSU-Tampilisan and LGU-Tampilisan		P3.2 M	DOST-PCAARRD	
	S&T Community-Based Farm (STCBF) on Rubber Nursery and Budwood Garden Establishment in Agusan del Sur, Caraga Region (c/o RD Inday Mallonga/DOST-Caraga and Mr. Anthony Jose/ Kasanyangan Rural Development Foundation, Inc. (KFRDI)	DOST, KRDFI		P3.2 M	DOST-PCAARRD	
	Natural Rubber Technology Forum	DOST	DTI, PRIA	P0.1 K	DOST	2017
	Processing and Utilization of Senile and Unproductive Rubberwood (Hevea brasiliensis) Trees for School Furniture and other High Value Furniture, Moldings, and Joinery Products	DOST-FPRDI	Cooperative (TARBEMCO)	P50 M	DOST-GIA	Q1 2016-2019
	Documentation/Validation of growth and yield of rubber in Non-Traditional Areas	PRRI	Private Sector, LGUs	P0.5 K	DA-BAR	2016-2017
	Molecular Detection and Identification of Rubber Pathogens	USM			CHED/DA-BAR/DA-HVCDP/DA-Biotech	3 years
	Isolation, Identification, and Utilization of Fungal and Bacterial Endophytes for Biocontrol of Root Rot in Rubber	USM			CHED/DA-BAR/DA-HVCDP/DA-Biotech	3 years
	Utilization of Philippine Plant Sources as Biocontrol of Major Diseases in Rubber	USM			CHED/DA-BAR/DA-HVCDP/DA-Biotech	3 years
	Fertigation for Increased Yield in Rubber	USM			CHED/DA-BAR/DA-HVCDP/DA-Biotech	3 years
	Clonal Breeding for Yield and Disease Resistance in Rubber	USM			CHED/DA-BAR/DA-HVCDP/DA-Biotech	3 years
	Diversified Farming in Rubber-Based Cropping System	USM			CHED/DA-BAR/DA-HVCDP/DA-Biotech	3 years
	Generation of Breeding Populations Towards the Development of Drought Tolerant and Wind Resistant Crosses of Hevea	DA-RFO 9		P5 M	DA-HVCDP/ DA-BAR	3 years
	Upgrading Rubber Quality Analysis and Standards in PRTC	USM			DTI	
	Gather research experts to come-up on a business model (guidelines for farm development)	PRRI				2017
	Establish/develop standards on rubber plantation applicable in the Philippines					2017

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (Php)		TIMELINE
		LEAD	COLLABORATOR	AMOUNT	SOURCE	
FINANCE AND INVESTMENT PROMOTION	Rubber Financing Program Rubber Financing Program	LBP	DTI, DA, DAR, LGUs, Coops, CFI, Individual Farmers, Private Sector		LBP/ODA/Special Program Funds	Continuing
	Eligible Projects Under the Program:					
	<i>Establishment of nursery/ bud wood gardens</i>					
	<i>Rubber plantation development and maintenance (replantings and expansion/new plantings)</i>					
	<i>Rehabilitation of plantations damaged by natural calamities</i>					
	<i>Production inputs (for existing rubber farms with trees ready for tapping)</i>					
	<i>Establishment of Rubber Wood Processing Plant</i>					
	<i>Manufacturing of Rubber-based products</i>					
	<i>Other activities within the rubber value chain:</i>					
	Tree Plantation and Sustainable Agribusiness Financing Programs:	DBP	DTI, DA, DAR, LGUs, Coops, CFI, Individual Farmers, Private Sector		DBP	2016-2022
	Eligible projects under the programs: <i>Crops production (which include rubber), maintenance and protection, harvesting; processing and marketing; and Other activities within the whole value chain</i>					
	Rubber Assistance Program	DA	DAR,		DA, DAR	2017
	Inclusion to the New IPP (2017-2019) of Rubber plantation, nursery, manufacturing and processing	BOI	Relevant Government Agencies, Other rubber stakeholders		BOI	2016-2022
	Investment promotion of rubber and rubber products in various outbound industry promotion/missions.	BOI	Various Investment promotions Agencies		MRP	2016-2022
Primer on the Philippine Rubber Industry (leaflets, collaterals, etc)	BOI	DTI-ROG/EMB/DA/DBP/LBP	350,000	MRP	2016-2022	
Capacity Building Program for unorganized communities	DAR, DA, DENR, DTI	LBP, LGUs		Agency funds/ LBP Funds	2016-2022	
Tree Planting Financing Program	DBP			DBP	2016-2022	
Sustainable Agribusiness Financing Program	DBP			DBP	2016-2022	
Consolidation of contiguous area for land development/Corporate	LBP, DBP, DAR,BOI	LGUs, PRFA and other private stakeholders			2018-2022	
Fora on Investment Promotion and Facilitation and Localization Philippine Rubber Industry Roadmap 2017-2022	DTI	DTI IVB, VII, IX, X, XI, XII, CARAGA and ARMM, DA, LGUs, financial institutions		DTI Industry Cluster Enhancement (ICE) Fund, DA, LGUs	2017	

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (PhP)		TIMELINE
		LEAD	COLLABORATOR	AMOUNT	SOURCE	
INFORMATION, POLICY FORMULATION AND ADVOCACY	Review the existing PSA methodologies and align with ANRPC on data generation of rubber statistics	PSA	Information, Policy, Formulation and Advocacy (IPFA) Group		DA-BAR-BPI	3rd QTR 2016
	- Present recommended conversion factor (yield per tappable tree, yield per area planted/hectare)		TWG Group		PSA, DA-BAR, BPI	2016
	Re-validate the methodology of gathering statistics on Rubber Industry	PSA	Private Sectors, PRRI, LGUs		PSA	2016-2017
	Info campaign: 1.Prepare brochures for farmers (advocacy for good agricultural practice) 2.Use of social media for information dissemination (e.g. Facebook, twitter, youtube, etc.)	DA-ATI, DA-Agriculture & Fisheries Information System (AFIS)	DA-ATI, DA, DTI, BPI, Private Sector		DA-BAR-BPI	2016
	Update and classify rubber budded areas by region under NGP Plantation Data base	DENR-FMB	FMB/DTI-Regional Office/ PENRO/ CENRO		DENR NGP	2016
	Advocate the development of an internationally accepted Standard for cuplumps	DA-BAFS	PRRI, private sector			2017
	Publication of data on rubber from 1 year to 3 months	PSA			PSA	2017
	Development of the GAP (Good Agricultural Practices) for Rubber	DA-BAFS	Private sector, academe			2017
	Update on proposal preparation based on studies; concerned agencies/sector to collaborate with PCIC	DA-BAR, PRRI, PCIC, DOST	Private Sector, Farmers Association		Regular Fund	Immediate
	ANRPC Experts Group Meeting/Workshop on Supply, Demand and Modelling of NR Industry	DTI	PSA, PRRI, DA, Private Sector	P200 K	DTI Industry Cluster Enhancement (ICE) Fund	2017
	Update on info dissemination on different options: Joint venture with the farmers thru social media; tag with scheduled training of projects	DAR (through project converge, ARCP II, MINSAAD)	Project Stakeholders: Line Agencies, Farmers coop/asso., private sectors, LGUs		Project Funds of converge MINSAAD, ARCPs	2016-2022
	Lobby/Support for the passage of HB 2912 Creation of Philippine Rubber Board (PHLRUBBER)	PhIRubber	Private Sector & Academe, PRFA		DTI, PRIA	2016-2017
	Resolution requesting SBCorp for a longer grace period	PhIRubber	Private Sector		DTI Regional Offices	2016-2017
	Policy Advocacy Studies	PRRI	WESMAARRDEC	P1.5 M	PRRI	2016-2022
	Rubber Information and Database Development	PRRI	PRRI, LGUs, PRFA	P2 M	PRRI	2016-2022
	•Development of a rubber information system /portal/website containing consolidated information on rubber •Reactivation and maintenance of philrubber.org website	DTI-RO XII		P30,000/ month	DTI-RO XII	1stQ (reactivation)
	Update and classify rubber budded areas by region under NGP plantation data base	DENR-FMB	FMB/ Regional Office/ PENRO/ CENRO		DENR-NGP	2017
	Standards Promotion Tri-media campaign (KATB Program) for higher performance of rubber products in accordance with applicable Philippine National Standards (PNS) among rubber users processors and manufacturers	BPS	PRIA, DOST (R9, ITDI and FPRDI), DTI-RO IX	P200 K		2017
•Standards Development Harmonization of standards on rubber and rubber-based products to International/Regional Standards •Attendance to the 24th & 25th meeting of the ACCSQ-RBPWG •Continuous Standardization activity of BPS/TC 16 (Rubber-based products) •Establishment of BPS/TC 16/SC2 Sub-Committee on Testing and Analysis for Processed Rubber	BPS	PRDOST (R9 & FPRDI), DA, USM, DTI-RO IX, Rubber Processors, PRRI, DA-RFO IX, Rubber Farmer Association, IA, DOST (R9, ITDI and FPRDI), DTI-RO IX	P200 K		2017	
Advocacy for DPWH and LGUs to consider the utilization of rubberized asphalt - LGUs to create rubberized asphalt model	DPWH, LGUs	Manufacturers			2017	
Advocacy to include in the building code the use of rubber seismic bearings	DPWH				2017	

STRATEGY	PROGRAMS/ PROJECT / ACTIVITY	RESPONSIBLE		BUDGET (Php)		TIMELINE
		LEAD	COLLABORATOR	AMOUNT	SOURCE	
INFORMATION, POLICY FORMULATION AND ADVOCACY	Mandatory implementation of the standard LPG hose	BPS	DTI, PRIA			2017
	Campaign for greater availment of BOI incentives	BOI	PRIA, DTI-ROs			2017
	Advocacy for clean and green technologies and practices among rubber processing plants (energy efficient, less wastages, recycling) and manufacturing	BOI	DTI rubber enrolled Regions (IX, X, XII, Caraga), Private Sector, DOST, PRRI	BOI, DTI		2017
	Campaign on the awareness on picking the right age of seedlings					2017
	Create a TWG to harmonize the House Bill of Cong. Amatong and Cong. Hatahman					2017
	Set annual membership growth targets for the Philippine Rubber Farmers Association (PRFA).	PRFA	Small farmers organization, LGUs, DA			2017-2022
	Sustain Philippine membership to ANRPC and IRRDB	DA			DA	2018-2022
	Preparation of project concept for the creation of ASEAN Rubber Industry Network	PRFA, DA, Strat SearchFoundation, Inc			DA	2017
	Presentation of the project concept on ASEAN Rubber Industry Network to ASEAN rubber industry leaders					2018
	Preparation of study on the possibility of imposing cess on the export of cup lumps	PRFA, DA, Strat SearchFoundation, Inc			DA	2017
	Conduct of ASEAN Rubber Conference	DTI, DOST	PRIA, PRFA		DTI, DOST	2018
	Completion and promulgation of GAP for Rubber	BAFS	BPS, BPI, PRRI		DA	2017
	Review, rationalize, and improve Crops Production Survey (CrPS) that generates production related statistics on crops including rubber.	PSA			PSA	2017-2018
	Conduct of farm households listing to update the sampling frame of agricultural surveys including CrPS					
	Publication of the 5-Year PHLRUBBER Milestone	DTI	PHLRUBBER TWG members	P100 K	DTI Industry Cluster Enhancement (ICE) Fund	2017



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