

Shareholder's plantation visit
April 2016
The world of natural rubber

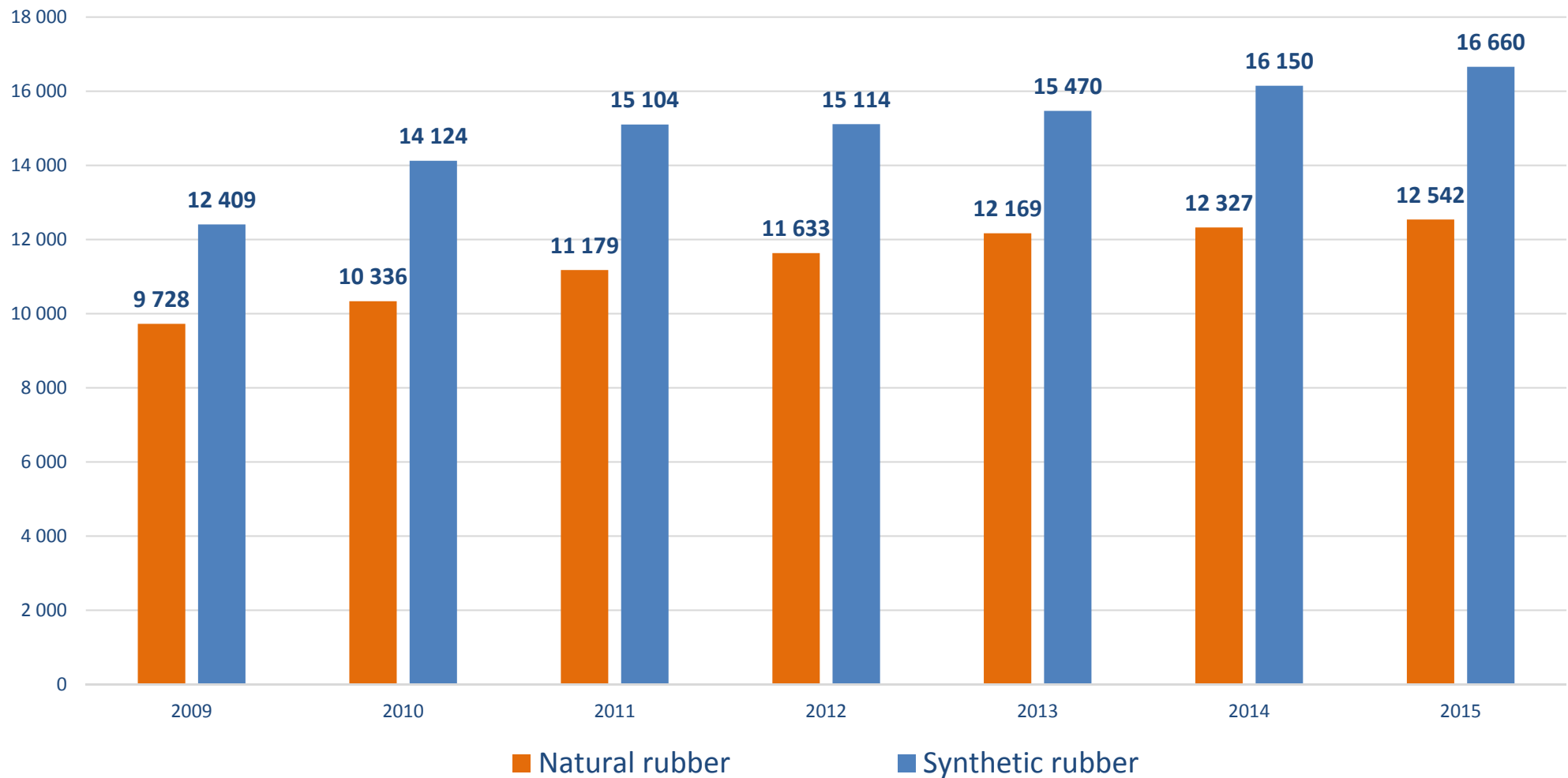
The Connection to the world of
Sustainable Tropical Agriculture

The world of natural rubber

Synthetic vs natural rubber

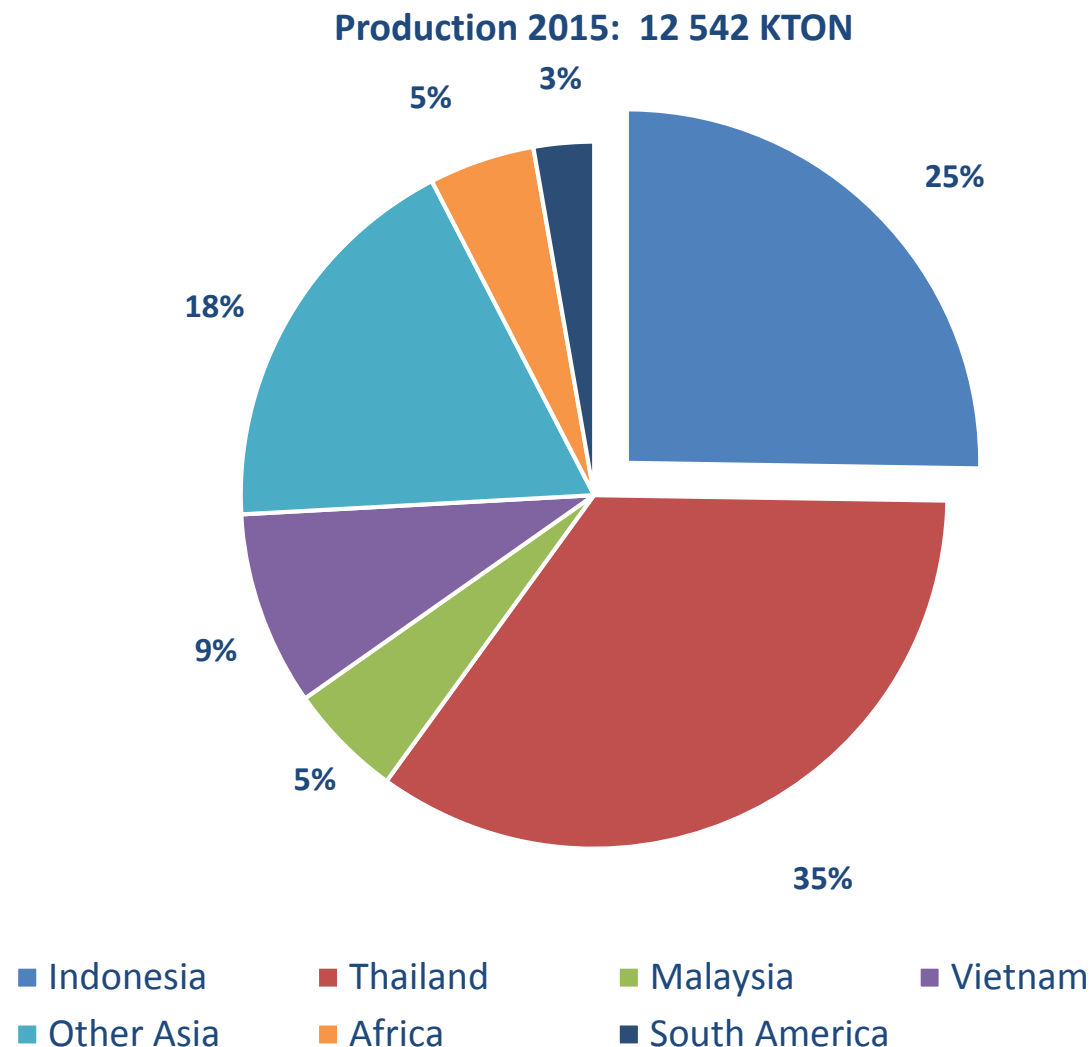


Synthetic vs natural rubber (in KTON)



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World production



Natural rubber production is primarily done in Asia:

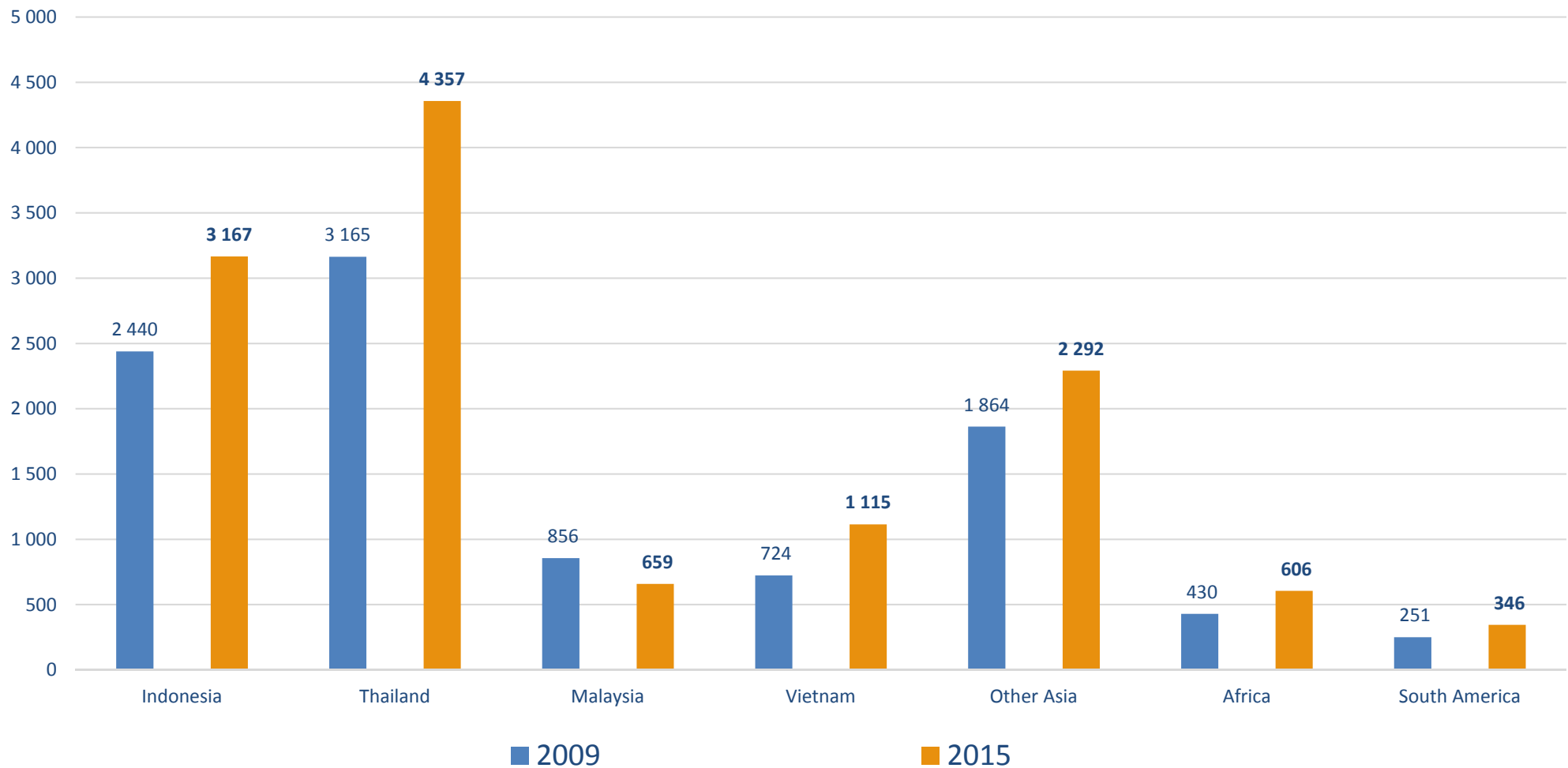
- Indonesia and Thailand represent 60% of the world's rubber production
- Other Asian countries mainly include India and China.
- The Sipef – group produced 10 069 tonnes of rubber in 2015.

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World production

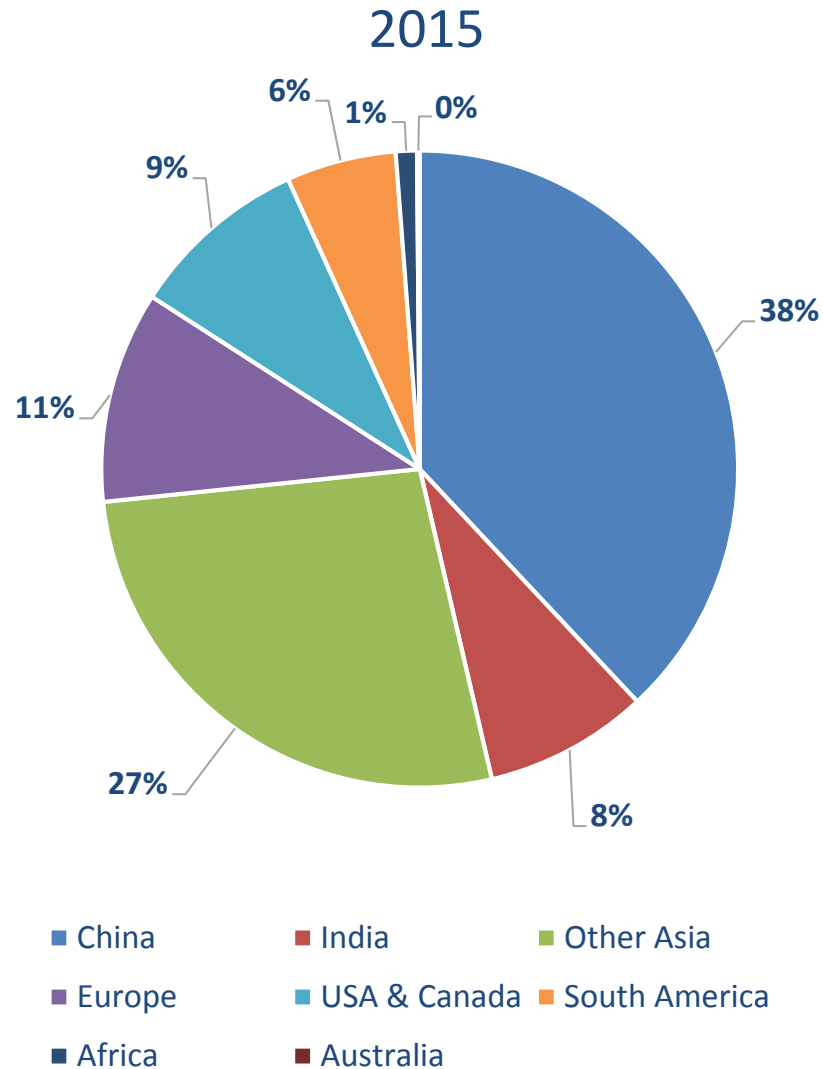


World rubber production (in KTON)



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World consumption



Rubber consumption is primarily done in Asia

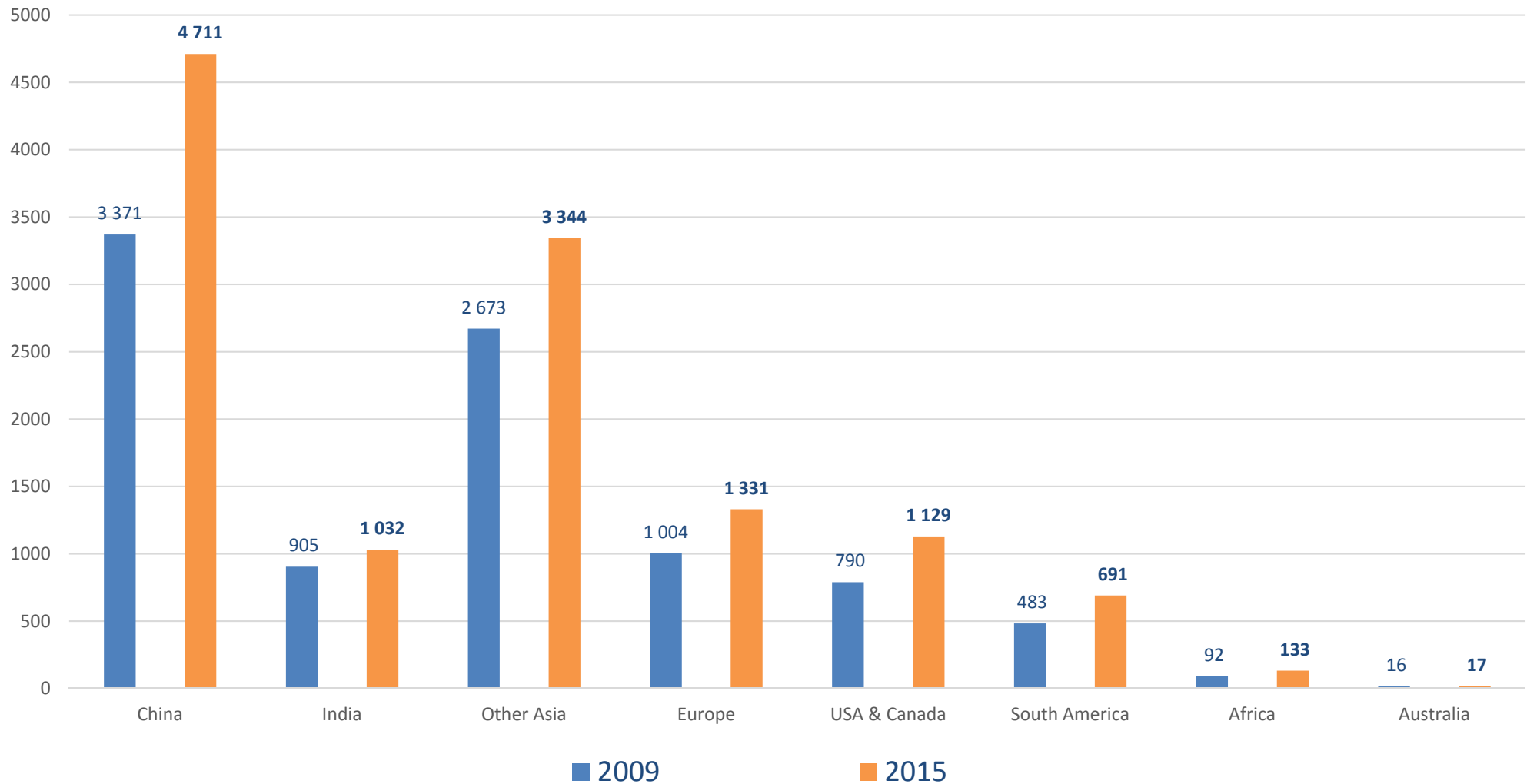
- China is still the principal consumer of natural rubber
- Other Asia mainly includes Japan, Thailand, Indonesia and Korea

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World consumption

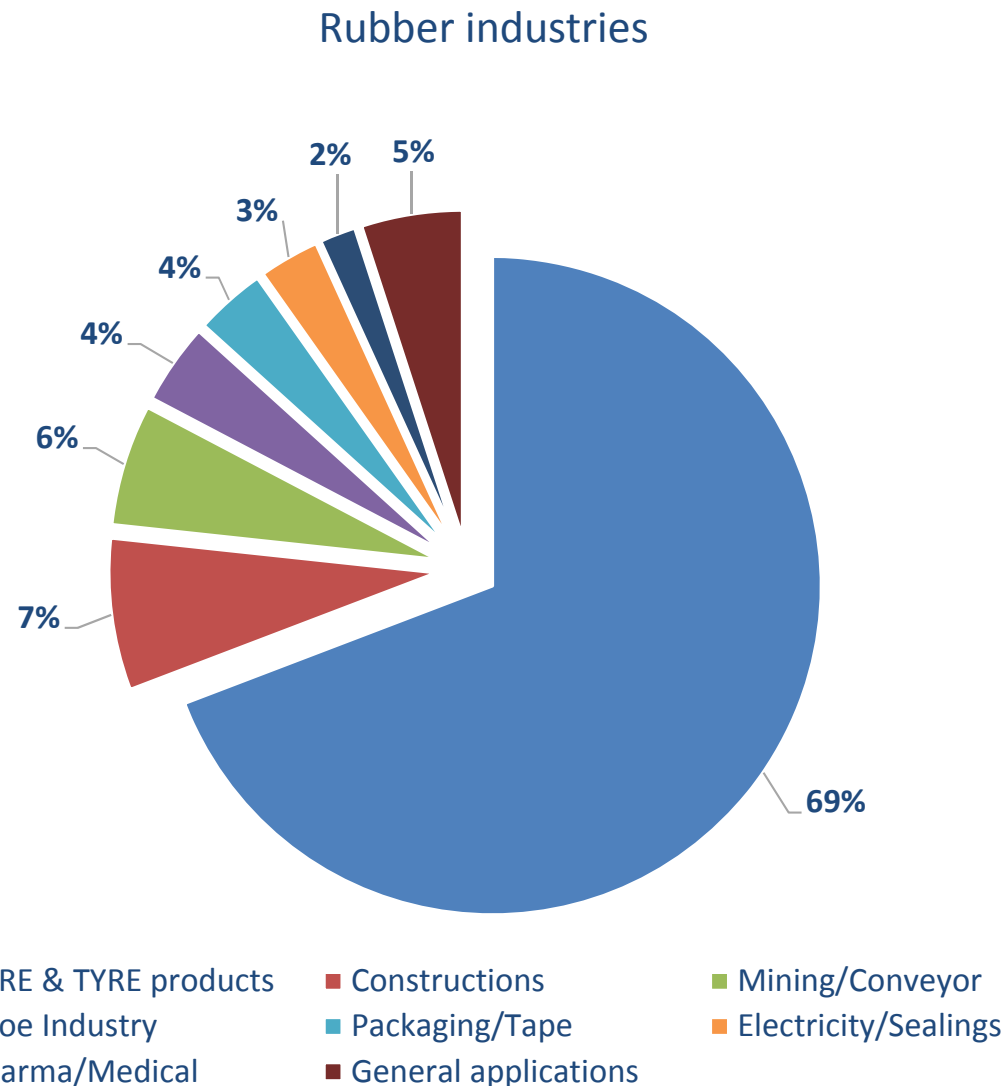


World rubber consumption (in KTON)



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Rubber industries



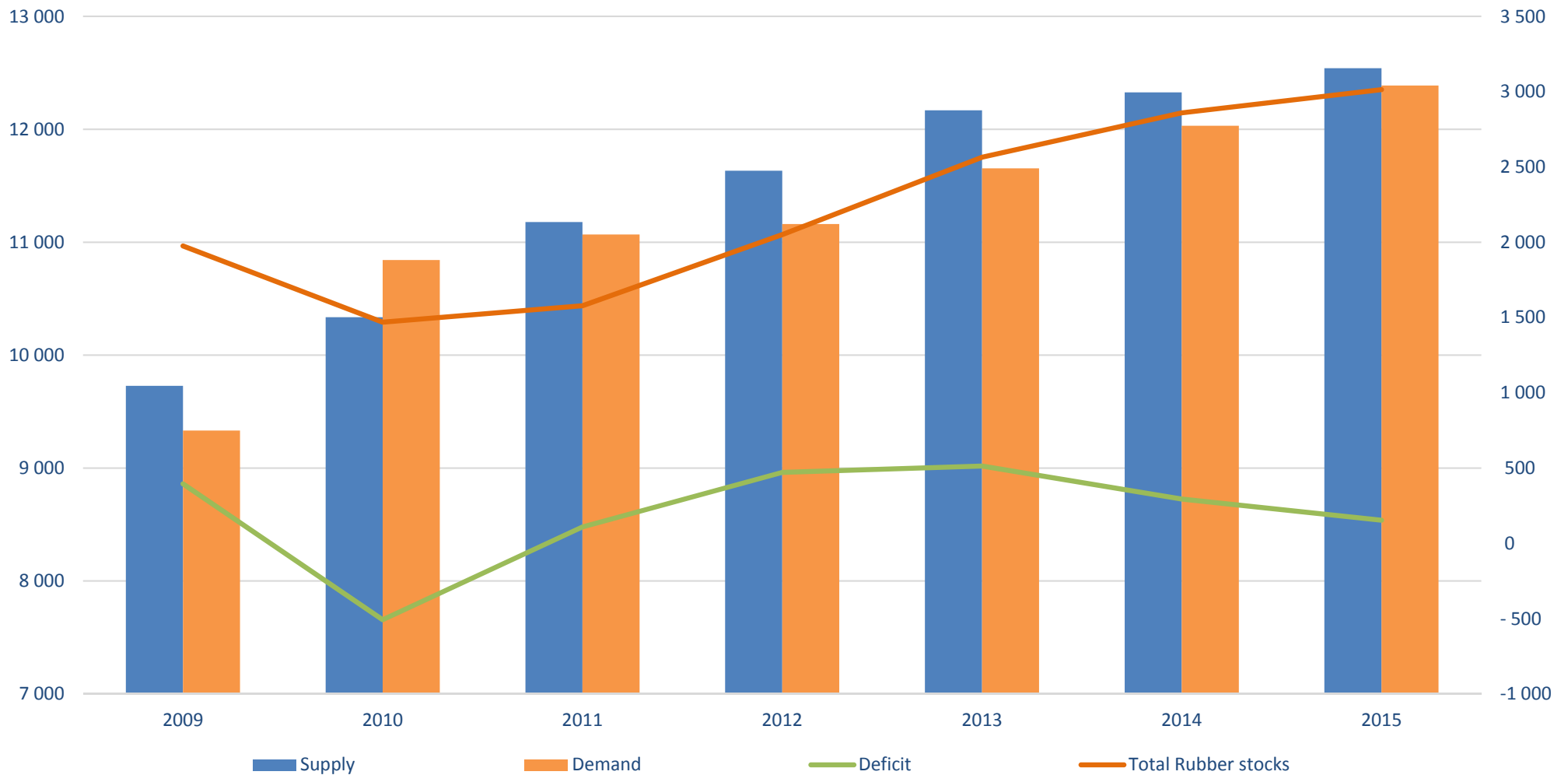
- Natural rubber is still primarily used in tyre products, along with synthetic rubber
- Natural rubber offers good elasticity, whilst synthetic rubber materials offer better resistance to temperature, oil, ...

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Global supply and demand



Global supply, demand and stocks (in KTON)



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Rubber prices



Historical rubber price (USD/ton)





Shareholder's plantation visit
April 2016
Bandar Pinang Estate

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From seed to latex: Nursery



Objectives: To produce the best quality planting material, generating high yielding seedlings.



Rubber seeds collected from estate. 6,000 seeds needed to plant 1 x field hectare with 550 seedlings. The process involves intensive culling & selection.



After 3 months, the rootstock is grafted with buds taken from high yielding clones.



Seedlings remain in the nursery for 8-9 months until they are well grown and vigorous enough for field planting.

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From seed to latex: Immature



Objectives: To obtain rapid and uniform growth of rubber trees in terms of girth and achieve tappable size in 48 months or less.



The immature trees require programmed fertilizer applications and weeding. They must also be regularly checked for pests & diseases.



The immature trees are carefully pruned and maintained so that they have a straight trunk and branches at 3m above ground level.



To reach maturity the trees should measure 45cm girth, measured 150cm from the ground level.

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From seed to latex: Tapping



The process by which the latex is extracted from rubber trees. The tree bark is shaved and this process cuts through the latex vessels, which allows latex to flow down to the collecting cup

Tapping starts at 6.00am and is completed around 10.00am.

Once he has completed his tapping task, the tapper will collect the cup lump from the previous day's task.

A tapper can finish tapping up to 550 rubber trees per day, collecting up to 70 litres of latex.

There are 2 types of tapping systems, downward and upward depending on the age of the trees.

After a short rest, the tapper will start collecting the latex from today's trees at 12.00pm.

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From seed to latex: Replanting



Objective: To replace old & exhausted trees, often at a reduced stand (down to 200 trees/ha) with new, vigorous and healthy seedlings at stands of up to 550 trees/ha.



Replanting is carried out every 25 years or when yields decline to below 1,000 kgs rubber per year. Young plantings are able to exceed 2,000 kgs rubber per year.



Replanting process: Felling of old rubber trees, stacking and removal of rubber stumps, land preparation to remove all rubber tree and root material followed by planting of a leguminous cover crop.

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From seed to latex: Latex collection



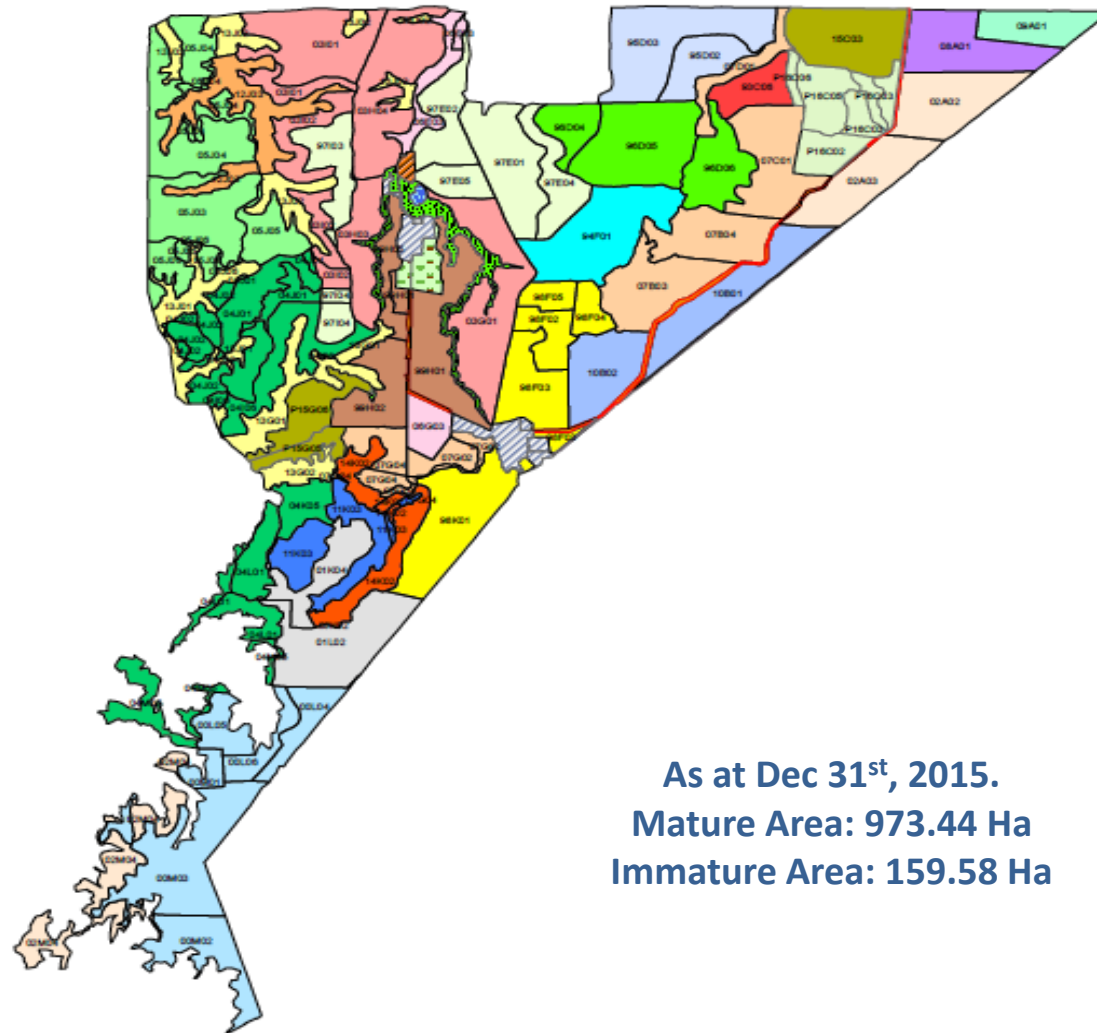
Objective: Tappers collect the day's production of liquid latex and carry it to the nearest reception center or latex station, located strategically throughout the estate.



Latex collection starts at noon, tappers carry latex from their task to the latex station in 30 litre cans. Latex and scrap rubber are weighed and the dry rubber content (DRC) of the latex is determined. This is the basis for calculating tapper wages. Latex is then collected by tankers and taken to the factory.

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The estate map



As at Dec 31st, 2015.
 Mature Area: 973.44 Ha
 Immature Area: 159.58 Ha

PT. BANDAR SUMATRA INDONESIA
BANDAR PINANG ESTATE
 Kabupaten Serdang Bedagai, Propinsi Sumatera Utara

Skala 1 : 35,000

TAHUN TANAM
 AS PER 31 DECEMBER 2015

Legenda

LANDUSE

Conservation	Planted
Conservation Programme	Preparation 2015
Empl	Road
Nursery	Water
Other	

PLANTING YEAR

1993	2004
1994	2005
1995	2006
1996	2007
1997	2008
1998	2009
1999	2010
2000	2011
2001	2012
2002	2013
2003	2014

System Koordinat : North UTM 47
 Datum : WGS1984
 System Grid : Geographic Lat/Long
 Tanggal Pembuatan : 15 Januari 2016
 Ukuran Default Print : A4
 No Peta : -
 Sumber Data : Data pengukuran GPS PT. Tolan Tiga Indonesia

Lokasi Dipetakan

Dibuat Oleh:
 Ahmad Zul Amlil

Diperiksa Oleh:
 Anya Wardhana

Direktori Oleh:

GEOGRAPHIC INFORMATION SYSTEM
 Gedung Bank Sumut Lantai 7
 Jl. Imam Bonjol No.18
 Medan, Sumatera - Utara

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The estate team



Mohamed Nur
Estate Manager



Sugianto
THA Factory



S.Hasanudi
Ind Lab



Prabudi
Office Assistant



DCK Agung
Asst Div 1



B.Singh
Asst Div 2



Subari
Asst Div 3



Solihin
Asst Utility



This is a working estate, please be aware of the following potential hazards:

- Always be aware of your surroundings.
- Mind your footing at all times.
- Watch out for vehicles.
- Be sun smart and keep hydrated.
- Be aware of machinery in the factory.

Shareholder's plantation visit
April 2016
Bandar Pinang Rubber factory

 **PABRIK RSS**
PT. BANDAR SUMATRA INDONESIA

KEBLAKUKAN MUTU DISESUAIKAN DENGAN
1. SNI 02-0001-8307
2. GREEN BOOK
3. MEAS KARET MONTAN DAN KERT SAPINDO

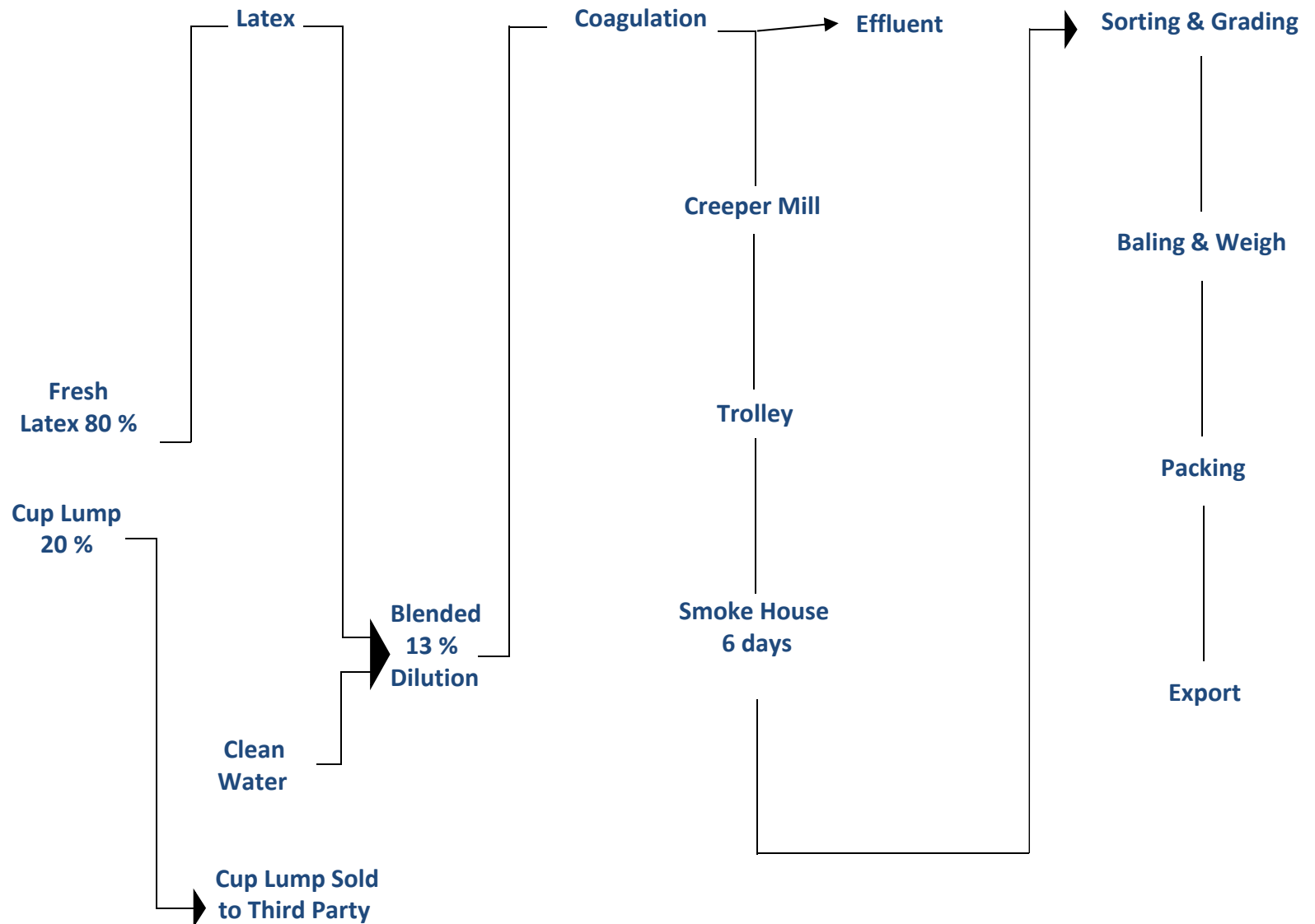
DENGAN SASARAN MUTU:
1. MEMILIKI TETAP PASAR
2. PEMERIKSAAN PERMASUKAN
3. EFFISIENSI DI SEMUA TINGKAT
4. SATU SATELIT SYSTEM MUTU DAN TERBUKA SPESIFIKASI KUALITAS

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From Latex to pallet: RSS production flow chart



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From Latex to pallet: weighbridge



Incoming raw materials weighed over the weighbridge

- Latex
- Cup lump

Sample of latex is tested for Dry Rubber Content (DRC)

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From Latex to pallet: Receiving ramp



Liquid latex is loaded into the bulking tanks.

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From Latex to pallet: Bulking tanks



Latex is diluted to 13% by the addition of clean water.
Latex is stirred to ensure a homogenous mixture.

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From Latex to pallet: Coagulation tanks



Latex is poured into coagulation tanks.
Diluted Formic Acid is added to the coagulation tanks.
Partitions are installed to separate the latex into slabs.
Effluent is then drained into effluent ponds .

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From Latex to pallet: Sheeter battery



Coagulated latex slabs are then milled using multi-roll crepes.



Thin sheets at 3mm are produced.

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From Latex to pallet: Smoke house



The sheets are then hung on trolleys and moved into the smoke houses



The sheets are smoked for 6 days, with temperatures increased for 3 days up to 60°C and then reduced.

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From Latex to pallet: Sorting & weighing



The sheets go through a sorting and quality check process.



And then they are folded and weighed to form 35kg bales.

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From Latex to pallet: Pressing



The bales are then pressed.

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From Latex to pallet: Warehouse



36 bales are placed onto pallets, shrink wrapped and stored in the warehouse awaiting export.

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From Latex to pallet: Export



Once a sale has been confirmed, the pallets are then loaded onto trucks for road transport to the port of Belawan where they are loaded onto a ship for export.

THANK YOU: We'll visit the factory now, please bear the previous safety instructions in mind as you go through the factory.