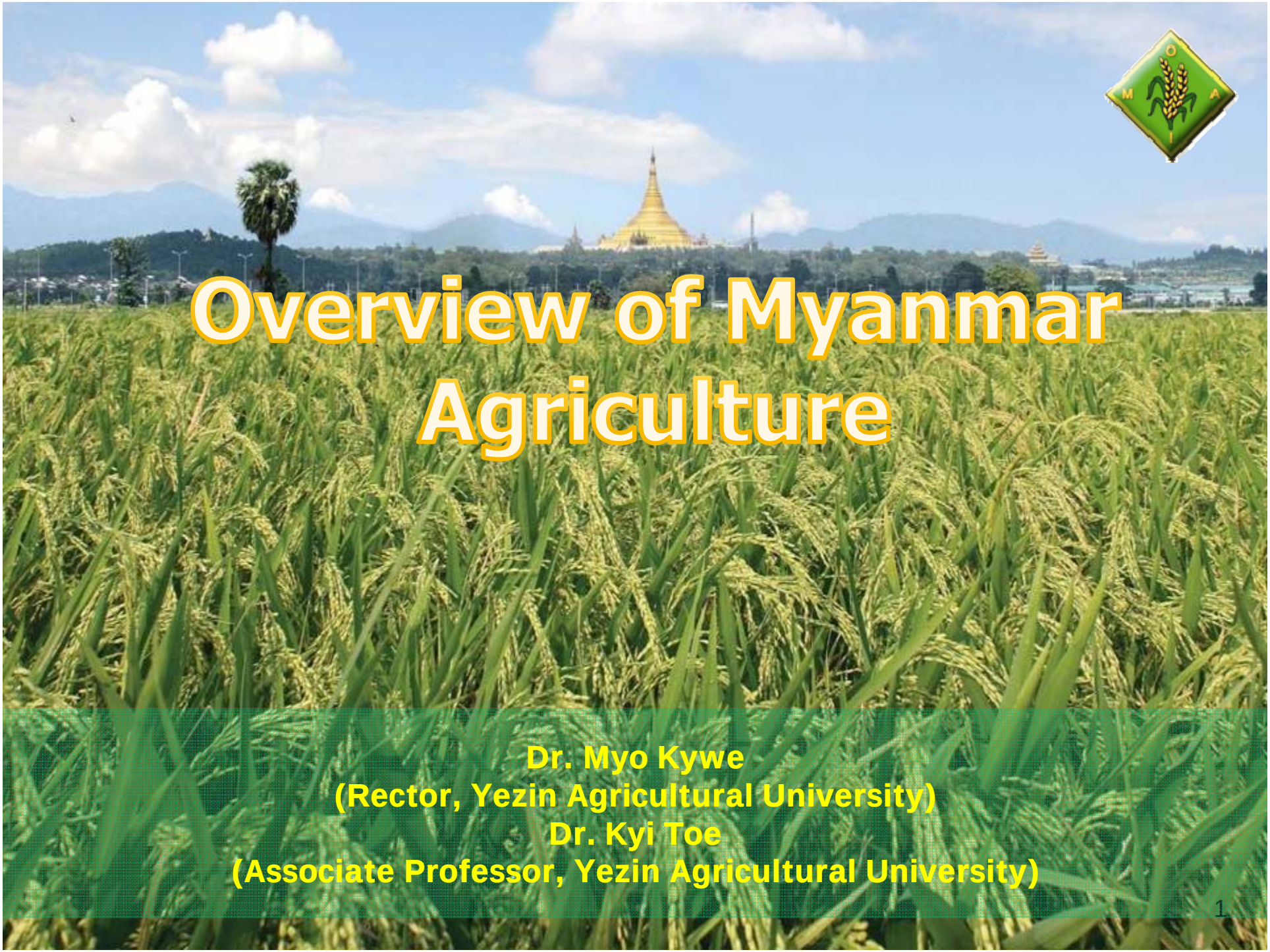

Overview of Myanmar Agriculture

Dr. Myo Kywe
(Rector, Yezin Agricultural University)
Dr. Kyi Toe
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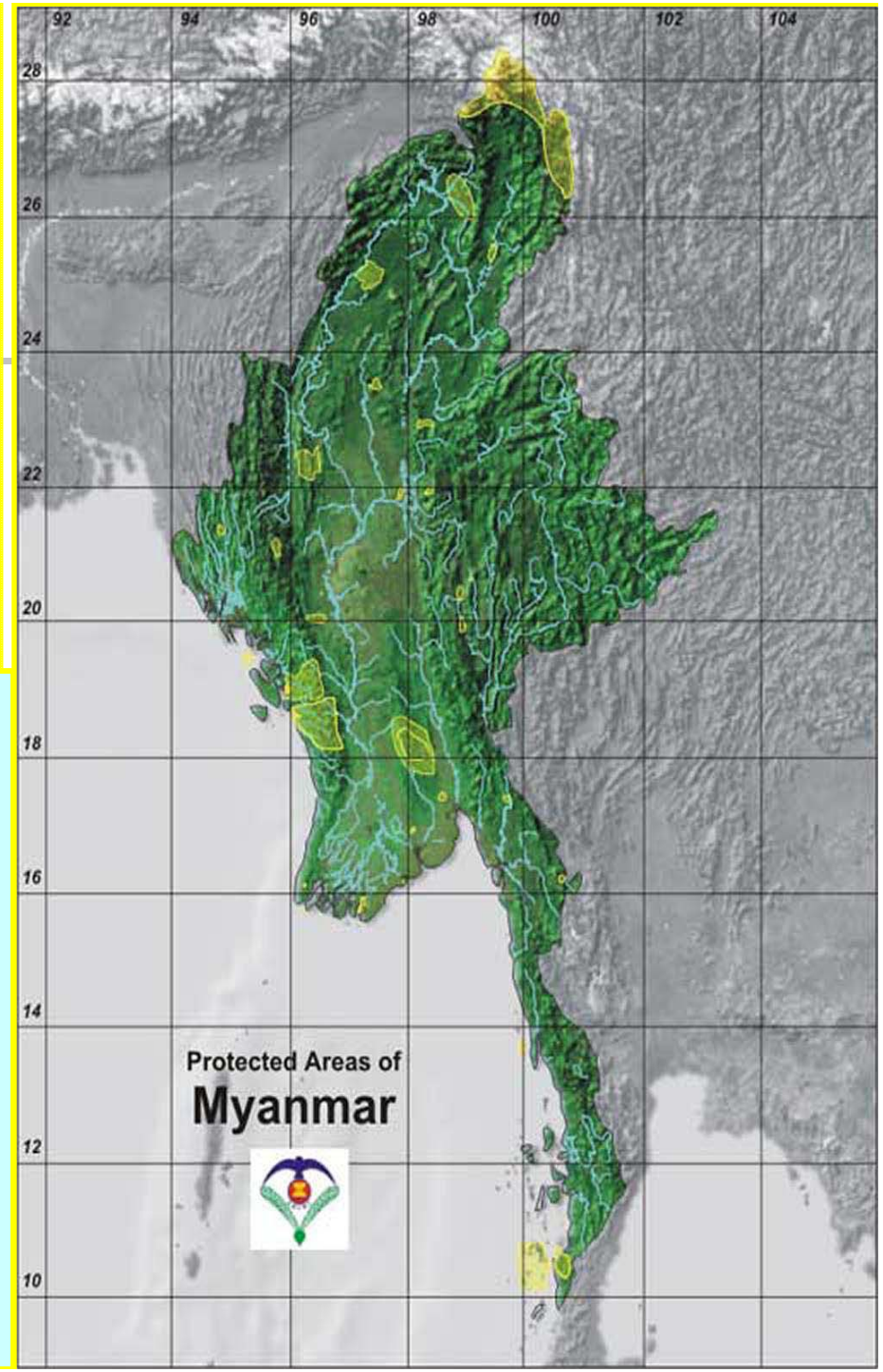
Location

- Between Latitude 9°32' and 28° 31' N Longitude 92° 10' and 101° 1' E
- Sharing borders with Bangladesh, India, China, Laos and Thailand
- Area is about 676, 577 sq km
- Extended about 2361 km from north to south
- About 1078 km from east to west



Population

- 51.702 million (2015)
- Male 24.936 million
- Female 26.766 million
- 1.01% annual growth rate
- population density 76/ square kilometer

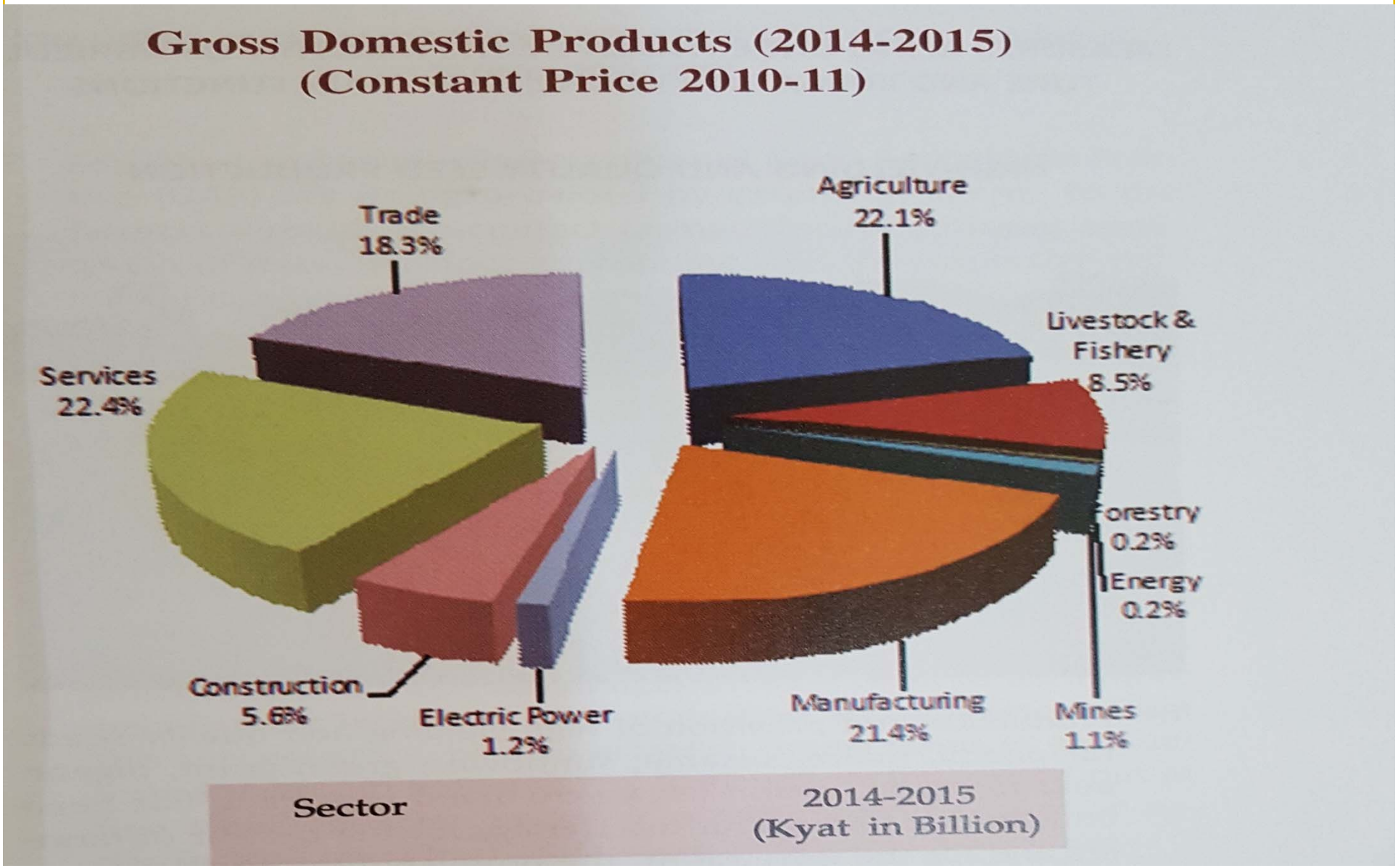
Climate

- Tropical
- Sub-tropical
- Temperate

Season

- Winter
- Summer
- Raining

Agriculture Sector in Myanmar



* **Source: Myanmar Agriculture in Brief 2015**

Myanmar Economy and Agriculture

- Myanmar is an agricultural country, and agriculture sector is the backbone of its economy. Agriculture sector contributes 22.1 % (2014-1015) of GDP, 20% of total export earnings; and employs 61.2 % of the labor force.
- Government has laid down the four economic policies of which one of the major economic objective is “Building the modern industrialized nation through the agricultural development, and all-round development of other sectors of the economy”.

AGRICULTURAL POLICIES

- To emphasize production and utilization of high yielding and good quality seeds
- To conduct training and education activities for farmer and extension staff to provide advanced agricultural techniques
- To implement research and development activities for sustainable agricultural development
- To encourage transformation from conventional to mechanized agriculture, production of crops appropriated with climate and extension of irrigated area
- To amend existing agricultural laws and regulations in line with current situation.

Objective of Agriculture Sector

- **Priority to fulfill the needs of local consumption**
- **Export the surplus of agriculture products to earn foreign exchange**
- **Assistance to rural development through agricultural development**

"Promotion of Productivity in Agriculture"

Current Food Crop Production and Food Security in Myanmar

- Rice is the main staple food of Myanmar, therefore, rice crop occupied 7.28 million hectare and it covers 34.1% of total cultivated area (21.4 million hectare).
- Oilseed crop and pulses crops successively occupy the next largest area planted.
- Rice production has been increasing (60% during 1996-1997 and 2013-2014).
- Rice production is self-sufficient for its population and surplus has been exported.
- In terms of rice security, it has reached 120% currently in Myanmar.
- Myanmar is standing as a leading producer and exporter for pulses among ASEAN countries.
- Pulses have occupied over 21% of the total crop cultivated.
- Pulses security raised up to 549%.

Area Contribution of Crop Groups

Sr. No.	Crops	Sown Area (000 ha)	Production (000 mt)	Sown area %
1.	Cereal Crops	9600	34355	38
2.	Oil Seed Crops	3950	3379	16
3.	Pulses	4700	5409	19
4.	Industrial crops	1300	10094	5
5.	Culinary crops	355	2043	1
6.	Other crops	5126		21
	Total	**25031**		**100**

Cropping Intensity

- **The Government is rendering concerted efforts**
  - ✓ **to increase the production**
  - ✓ **to expand agricultural land**
  - ✓ **to improve yields and**
  - ✓ **to increase cropping intensity**
- **Cropping intensity has increased from 119.16 % in 1988-89 to 180% in 2013-2014**

AGRICULTURAL LAND

- One forth of total area is culturable land in Myanmar.
- Presently, there are about 11.95 million hectares of net sown area in Myanmar.
- For the expansion of new agricultural land, remaining 0.447 million hectares of fellow land and 5.26 million hectares of culturable waste land, can be developed.

Land Type	Mil Ha	Percent
Net Sown Area	11.95	17.7
Fellow Land	0.44	0.7
Cultural able Waste Land	5.26	7.8
Reserved Forests	18.62	27.5
Other Forests	14.73	21.8
Other	16.65	24.6
Total	**67.66**	**100**

* **Source: Myanmar Agriculture in Brief 2015**

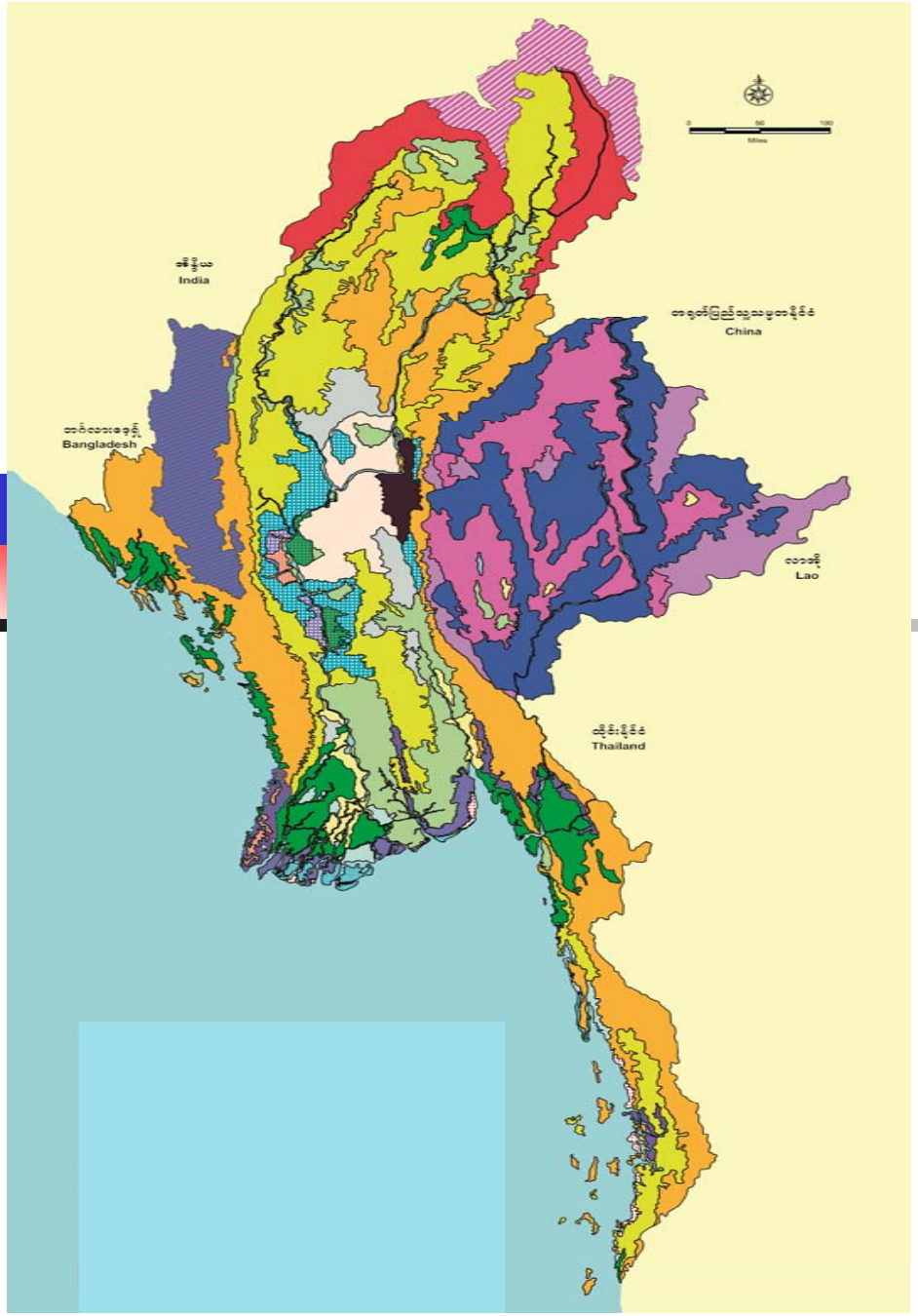
- National companies and associations in private sector are encouraged and granted rights to develop virgin land and fallow lands for the cultivation of paddy, pulses, oil crops, industrial crops, rubber, oil palm, and other crops.
- At present, 381 private companies have been granted 0.96 million hectares for commercial farming.
- Modern upland farm reclamation project is being undertaken to meet the following objectives :

- Replacing slash and burn method with terrace farming,
- Enabling the people in hilly regions to live in permanent settlements,
- Eliminating cultivation of opium poppy through terrace farming to improve the living standard of the people in hilly regions, and
- Preserving and protecting natural environment.

Land Reclamation for Terrace Farming in Upland Area (March, 2015)

Region	Govt.	Farmers	Total (hectare)
Shan (North)	3270	1538	4808
Shan (East)	1296	1249	2544
Shan (South)	1930	1159	3089
Chin	1285	1767	3052
Total	**7780**	**5713**	**13493**

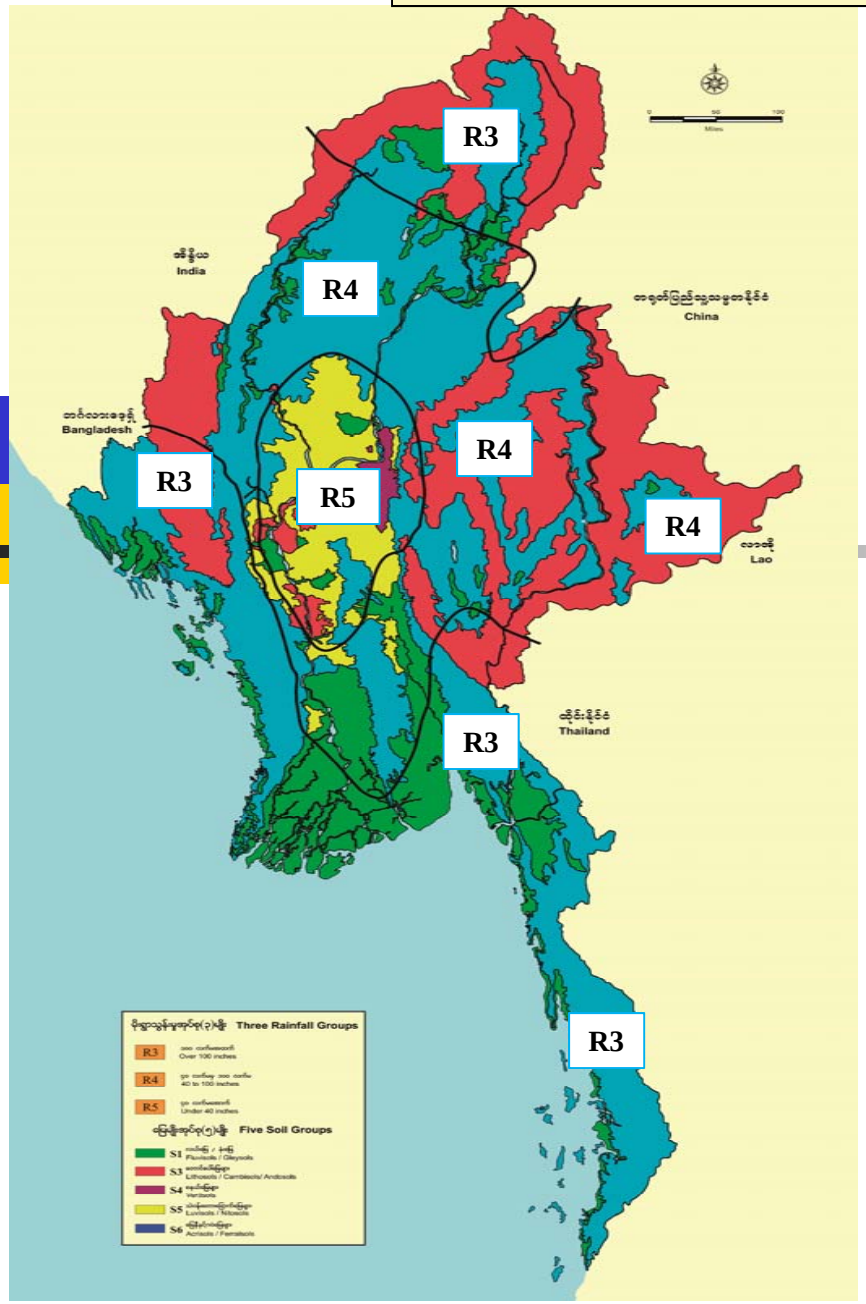
Soil Map of Myanmar



အညွှန်း (Legend)

- နုံးမြေ — Fluvisols
- လယ်မြေ/ နုံးမြေ — Gleysols (Dystic)
- လယ်မြေပြာ / နွံပေါက်မြေ — Gleysols
- နွံပေါက်မြေ — Gleysols (Humic)
- ထုံးပေါက်လယ်မြေ — Gleysols (Calcaric)
- ဂဝံမြေ — Ferralsols (Plinthic)
- နီညိုတောမြေ — Ferralsols (Rhodic)
- ဝါညိုတောမြေ — Ferralsols (Xanthic)
- သဲကုန်းတောမြေ — Arensols
- ကနစိုတောမြေ — Solonchaks
- ဆားပေါက်/နွံပေါက်လယ်မြေ — Solonchaks (Gleyic)
- ဝါညိုတောခြောက်မြေ/အင်တိုင်းမြေ — Cambisols (Dystic)
- တောခြောက်မြေများ — Nitosols
- ကုန်းကြောသဲဝန်းနှင့် မြေပြုန့်စနယ်မြေများ — Catena of luvisols on slopes, vertisols in depressio
- စနယ်မြေများ — Vertisols
- မြေနီနှင့်မြေဝါ — Acrisols (Ferric)
- တောင်မြင့်ညိုရောင်တောမြေများ — Cambislos (Humic)
- တောင်မြင့်နီရောင်တောမြေများ — Cambisols (Caromic)
- ချင်းတောင်မြေများ — Cambisols (Ferralic)
- မြောက်ပိုင်းတောင်တန်းမြေများ — Cambisols (Orthic)
- ရေခဲဖုံးတောင်တန်းမြေများ — Cambisols (Gelic)
- ပုပွဲးတောင်မြေများ
- မြစ်ထူမြေနှ — Lithosols
- ကျောက်ကြေမြေနှ — Lithosols

မြန်မာနိုင်ငံ ဧကာပျိုးပတ်ဝန်းကျင် ဇုံနယ်ခြေမြေပုံ
The Agro-Ecological Zones of Myanmar



မိုးရွာသွန်းမှုအုပ်စု(၃)မျိုး Three Rainfall Groups

R3	၁၀၀ လက်မအထက် Over 100 inches
R4	၄၀ လက်မမှ ၁၀၀ လက်မ 40 to 100 inches
R5	၄၀ လက်မအောက် Under 40 inches

မြေမျိုးအုပ်စု(၅)မျိုး Five Soil Groups

S1	လယ်မြေ / နုံးမြေ Fluvisols / Gleysols
S3	တောင်ပေါ်မြေများ Lithosols / Cambisols/ Andosols
S4	စနယ်မြေများ Vertisols
S5	သဲဝန်းတောခြောက်မြေများ Luvisols / Nitosols
S6	မြေနီနှင့်ဂဝံမြေများ Acrisols / Ferralsols

Availability of Surface Water and Ground Water for Irrigation Purpose

- By March 2014, 240 dams, 327 river pumping stations and 12558 groundwater irrigation projects have been completed.
- Since 2003, being an irrigated agriculture as the single most important, the irrigation area grew substantially, from 1.02 million ha in 1988 (12.6% of the net sown area) to 2.17 million ha in 2014-2015 (16.2% of the net sown area), in particular due to the expansion of river pumping and the construction of dams.
- The storage capacity increased from 2.33 km^3 in 1988 to 18 km^3 in 2010.
- As a result, the cropping intensity rate from 140% in 1995 to 160.3% in 2013-2014.
- More than 75% of the total irrigated area is sown to rice, but vegetables, pulses and sesame are also grown under irrigation.
- Currently, river pumping covers 38.1% of the irrigated area while dam and river diversion covers 29.2% of this area.

Irrigated Area (Dam and Water Pumping)

Year	Net Sown Area (mil Ha)	Irrigated Area (mil Ha)	Per cent
2001-2002	10.65	1.99	18.6
2002-2003	10.82	1.87	17.3
2003-2004	11.04	1.96	17.7
2004-2005	11.41	1.93	16.9
2005-2006	11.94	2.14	17.9
2006-2007	12.61	2.24	17.8
2007-2008	13.22	2.22	16.8
2008-2009	13.49	2.28	16.9
2009-2010	13.64	2.33	17.1
2010-2011	13.75	2.29	16.7
2011-2012	13.58	2.11	15.5
2012-2013	13.30	2.12	15.9
2013-2014	13.26	2.13	16.1
2014-2015	13.36	2.17	16.2

Main Crops Production in Myanmar

No.	Name	Crop
1	Cereals	Paddy, wheat maize, sorghum
2	Oilseeds	Groundnut, sesame, sunflower, niger, mustard
3	Pulses	17 kinds of pulses including black gram, green gram, pigeon pea, soy bean, cowpea, kidney bean, butter bean, chicken pea, garden pea,
4	Industrial crops	Cotton, sugarcane, jute, rubber, coffee, oil-palm
5	Culinary crops	Chilly, onion, garlic, ginger, tumeric, potato
6	Fruits and Vegetables	Mango, banana, citrus, pears, durian, mangosteen, pineapple, rambutan and others tropical and temperate vegetables

Major Crops Production in Myanmar

- Paddy
- Maize
- Groundnut

- Sesame
- Sunflower
- Black gram

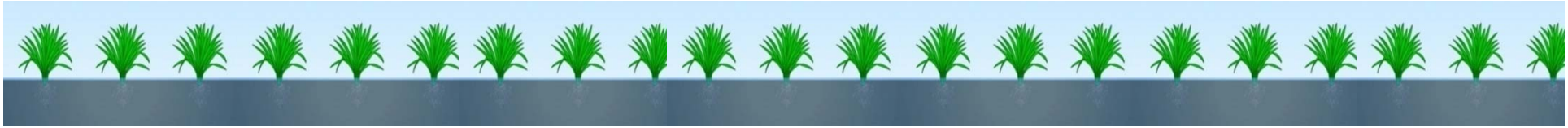
- Green gram
- Pigeon pea
- Cotton
- Sugarcane

Cropping Pattern in Myanmar

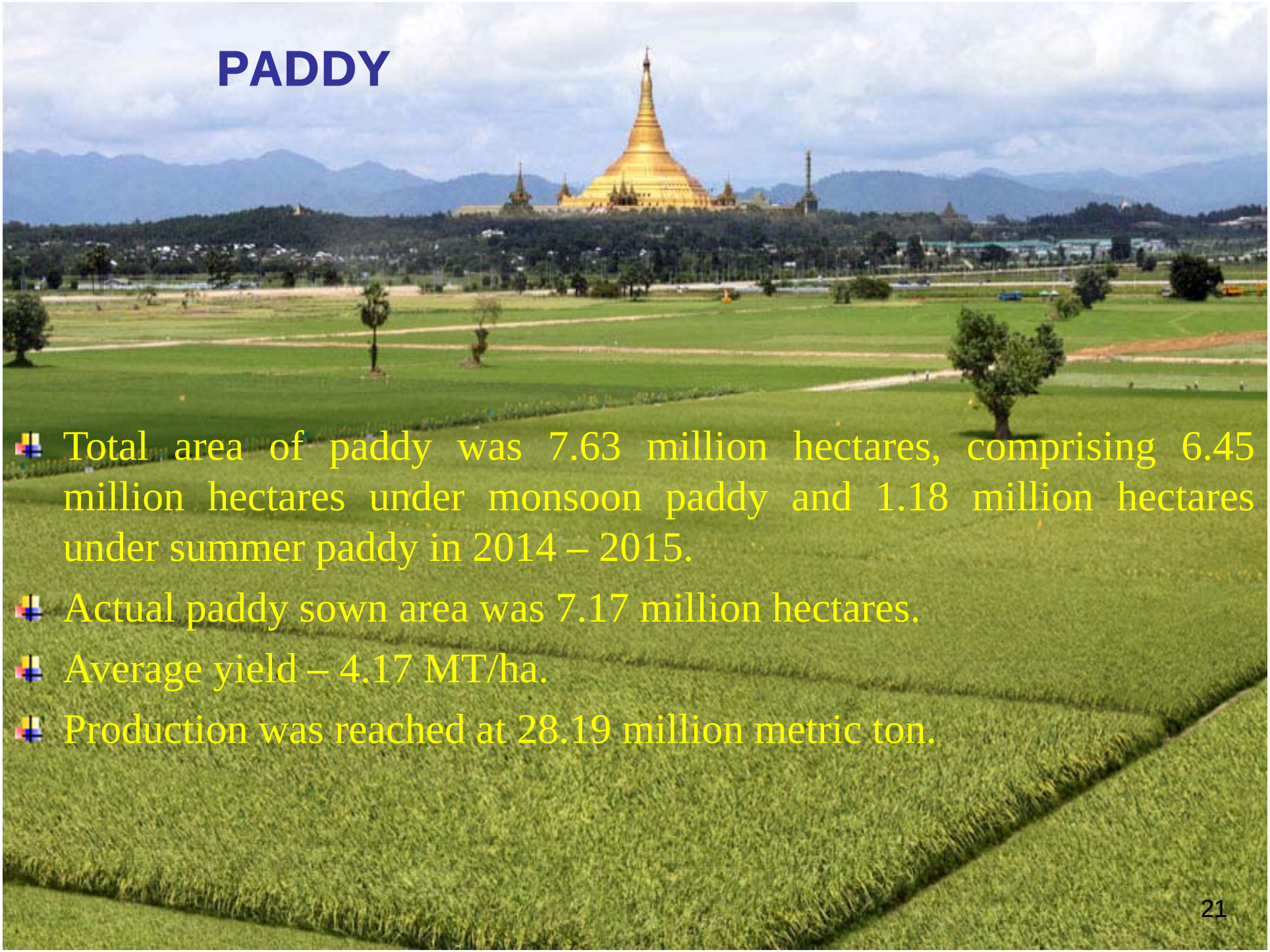
No	Cropping Pattern	July	August	Set	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	Rice – Pulses – Rice	Monsoon Rice				Pulses			Summer Rice				
2	Rice – Sunflower – Rice	Monsoon Rice				Sunflower			Summer Rice				
3	Rice – Groundnut/Maize– Rice	Monsoon Rice				Groundnut / Maize				Summer Rice			
4	Rice – Green Gram/ soy beans– Rice	Monsoon Rice				Green Gram			Summer Rice				
5	Rice – Green Manure – Cotton	Cotton		Monsoon Rice				Green Manure	Pre-monsoon Cotton				

Cropping System in Myanmar

- growing a pre-monsoon crop (jute, cotton, sesame) before the main crop in rice growing area
- growing of some suitable crops (summer paddy, groundnut, sunflower, peas and beans) after rice
- growing of two suitable crops in succession on dry land with or without irrigation (sesame, peas and beans, maize, etc.
- mixed cropping of two crops with different life periods in the same field (sesame and pigeon pea, groundnut and maize, etc)



PADDY



- Total area of paddy was 7.63 million hectares, comprising 6.45 million hectares under monsoon paddy and 1.18 million hectares under summer paddy in 2014 – 2015.
- Actual paddy sown area was 7.17 million hectares.
- Average yield – 4.17 MT/ha.
- Production was reached at 28.19 million metric ton.

Paddy Production of Myanmar

Year	Sown Area (mil ha)	Yield (mt/ha)	Production (mil MT)
2001-2002	6.45	3.42	21.92
2002-2003	6.49	3.42	21.81
2003-2004	6.54	3.54	23.14
2004-2005	6.86	3.64	24.75
2005-2006	7.39	3.75	27.68
2006-2007	8.12	3.83	30.92
2007-2008	8.09	3.93	31.45
2008-2009	8.09	4.03	32.57
2009-2010	8.07	4.06	32.68
2010-2011	8.05	4.07	32.58
2011-2012	7.59	3.83	29.01
2012-2013	7.24	3.84	27.70
2013-2014	7.28	3.90	28.32
2014-2015	7.17	3.94	28.19

Source : Myanmar Agriculture in Brief (2015)

- To generate increased production of paddy, measures are also being undertaken in growing high yielding varieties, including introduction of hybrid rice varieties.
- According to the major tasks of the Ministry, adoption of 14 points Good Agricultural Practices in paddy cultivation and production of qualified and good high-yield seeds have been undertaken since 2011 paddy growing season.
- Utilization of good quality seeds is vital for the increase of rice production. Therefore, seed production of hybrid rice variety (namely – Palethwe) was stated at 2011.
- In the monsoon season of 2013-2014, 223 hectares produced 429,694 kilogram. In the summer season, 324 hectares produced 547,951 kilogram by department and private companies.
- In 2014-2015, 361 hectares in monsoon and 506 hectares in summers were planned to produce.

Seed Production at Nay Pyi Taw

Hybrid Seed Production in Myanmar

Hybrid Rice Seed Production in ShweTaung Farm

MAIZE

Year	Sown Area ('000 ha)	Yield (mt/ha)	Production ('000 MT)
2001-2002	251	2.12	532
2002-2003	269	2.25	603
2003-2004	284	2.48	704
2004-2005	293	2.68	784
2005-2006	321	2.87	918
2006-2007	327	3.16	1032
2007-2008	346	3.32	1146
2008-2009	355	3.39	1203
2009-2010	363	3.43	1245
2010-2011	389	3.54	1376
2011-2012	412	3.61	1485
2012-2013	422	3.64	1526
2013-2014	441	3.70	1626
2014-2015	459	3.75	1721

Source : Myanmar Agriculture in Brief (2015)

Maize Production in Myanmar

- Monsoon maize seed production in 2013-2014, Yezin 6, CP 888 and CP 868 varieties were cultivated 15897 hectares and 21.76 million kilograms could be produced.
- In 2014-2015, Myanmar maize exported 88.73 thousand metric ton to China. (280-300 $/ton)
- 80% of Myanmar total maize export is being exported to China, Singapore, Vietnam, Malaysia, Indonesia, India, Bulgaria and Spain.
- Myanmar exported 954 thousand metric tons during 2013-2014.

Hybrid Corn Seed Production in Naypyitaw Area

PULSES

- Pulses were grown in Myanmar since King's era. It was sown in various places of the country at any cropping pattern.
- Major pulses in Myanmar are soybean, chickpea, butter pea, green gram, black gram, pigeon pea, kidney bean, cowpea, lab lab bean, sultani and sultapya.
- Presently, Myanmar is standing as a leading country in pulses production among ASEAN member countries.
- Major exportable varieties of pulses are black gram, green gram, pigeon pea, soybean, butter bean, cowpea and kidney bean.
- Cultivation of pulses, with relatively less expense in cost of cultivation and increased demand for domestic consumption and export, has increased substantially from 0.73 million hectares in 1988-1989 to 5.914 million hectares in 2014-2015.
- Export of pulses increased from 17,000 metric tons in 1988-89 to around 1.46 million metric tons in recent years.

Production of Pulses in Myanmar

Year	Sown Area (mil ha)	Yield (mt/ha)	Production (mil MT)	Export (000'MT)
2001-2002	3.20	0.84	2.66	1035
2002-2003	3.27	0.85	2.76	1038
2003-2004	3.39	0.91	3.10	1211
2004-2005	3.54	1.00	3.53	873
2005-2006	3.81	1.05	4.01	865
2006-2007	4.00	1.11	4.44	1156
2007-2008	4.23	1.18	4.97	1142
2008-2009	4.28	1.23	5.27	1450
2009-2010	4.38	1.25	5.49	1232
2010-2011	4.50	1.28	5.79	829
2011-2012	4.42	1.23	5.41	1296
2012-2013	4.45	1.28	5.70	1484
2013-2014	4.53	1.30	5.90	1301
2014-2015	4.55	1.32	5.99	1459

Source : Myanmar Agriculture in Brief (2015)

OIL SEED CROPS

- Oilseed crops also play a vital role in Myanmar due to high consumption of cooking oil compared to other neighboring countries.
- Major oilseed crops include groundnut, sesame, sunflower, mustard and niger.
- As the amount of edible oil produced is not enouigh for local consumption, approximate3ly 200,000 mt of palm oil are being imported annually.
- Plans are undertaken for the increase in sown area and yield per acre.
- Hybrid sunflower seed which can double the existing average yield has been introduced in appropriate areas to replace the existing OPV sunflower varieties throughout the country.

Oilseed Crop Cultivation in Myanmar (000'Ha)

Year	Groundnut	Sesame	Sunflower	Mustard	Niger
2001-2002	569	1382	498	55	91
2002-2003	581	1417	460	69	93
2003-2004	654	1448	511	64	104
2004-2005	684	1496	516	67	112
2005-2006	730	1338	690	71	129
2006-2007	756	1443	614	75	121
2007-2008	815	1508	835	92	147
2008-2009	844	1570	884	98	152
2009-2010	866	1634	883	100	156
2010-2011	877	1585	859	101	158
2011-2012	887	1595	543	72	156
2012-2013	914	1553	624	63	156
2013-2014	931	1622	481	61	155
2014-2015	949	1581	484	59	157

Source : Myanmar Agriculture in Brief (2015)

Hybrid Sunflower Seed Production in Naypyitaw area

Production of Cotton in Myanmar

Year	Sown Area (000' ha)	Yield (mt/ha)	Production (000'MT)	Lint Export (MT)
2001-2002	295	0.53	141	262
2002-2003	302	0.54	143	-
2003-2004	292	0.57	158	-
2004-2005	306	0.65	195	-
2005-2006	332	0.71	236	-
2006-2007	354	0.76	268	-
2007-2008	368	0.84	308	-
2008-2009	367	1.23	453	-
2009-2010	359	1.46	523	-
2010-2011	351	1.57	550	-
2011-2012	326	1.64	533	-
2012-2013	278	1.68	467	-
2013-2014	299	1.70	509	-
2014-2015	304	1.75	532	-

Source : Myanmar Agriculture in Brief (2015)

Sugarcane Production in Myanmar

Year	Sown Area (000' ha)	Yield (mt/ha)	Production (000'MT)	Sugar Export (000'MT)
2001-2002	163	45.04	7,116	49
2002-2003	148	45.17	6,429	31
2003-2004	151	47.13	6,913	19
2004-2005	146	52.36	7,310	18
2005-2006	134	55.72	7,187	1
2006-2007	149	56.57	8,168	-
2007-2008	169	59.27	9,833	-
2008-2009	165	61.20	9,901	9
2009-2010	160	61.61	9,715	58
2010-2011	152	62.64	9,398	-
2011-2012	154	63.22	9,690	-
2012-2013	154	62.26	9,564	-
2013-2014	169	61.83	10,473	-
2014-2015	181	63.41	11,307	-

Source : Myanmar Agriculture in Brief (2015)

Rubber Production in Myanmar

Year	Sown Area (000' ha)	Yield (mt/ha)	Production (000'MT)
2001-2002	186	0.59	37
2002-2003	185	0.59	40
2003-2004	189	0.55	40
2004-2005	203	0.57	52
2005-2006	226	0.59	64
2006-2007	295	0.60	73
2007-2008	380	0.64	89
2008-2009	428	0.65	93
2009-2010	463	0.67	112
2010-2011	504	0.69	128
2011-2012	543	0.75	150
2012-2013	581	0.77	164
2013-2014	610	0.76	177
2014-2015	641	0.77	198

Source : Myanmar Agriculture in Brief (2015)

Oil Palm Production in Myanmar

Year	Sown Area (000' ha)	Yield (mt/ha)	Production (000'MT)
2001-2002	29	2.60	21
2002-2003	36	3.01	24
2003-2004	46	3.05	27
2004-2005	54	2.22	22
2005-2006	67	2.46	32
2006-2007	82	2.39	49
2007-2008	93	2.47	58
2008-2009	102	2.04	59
2009-2010	112	2.13	69
2010-2011	125	2.47	93
2011-2012	134	3.09	121
2012-2013	144	3.37	134
2013-2014	148	3.28	138
2014-2015	153	2.91	127

Source : Myanmar Agriculture in Brief (2015)

Coffee Production in Myanmar

Year	Sown Area (000' ha)	Yield (mt/ha)	Production (000'MT)
2001-2002	9	0.50	2
2002-2003	9	0.51	3
2003-2004	11	0.53	3
2004-2005	14	0.56	4
2005-2006	18	0.57	4
2006-2007	22	0.59	5
2007-2008	23	0.66	6
2008-2009	24	0.66	6
2009-2010	24	0.67	7
2010-2011	25	0.68	7
2011-2012	25	0.69	8
2012-2013	20	0.70	8
2013-2014	20	0.71	8
2014-2015	20	0.72	8

Source : Myanmar Agriculture in Brief (2015)

Tea Production in Myanmar

Year	Sown Area (000' ha)	Yield (mt/ha)	Production (000'MT)
2001-2002	73	0.99	68
2002-2003	74	0.99	70
2003-2004	77	1.04	75
2004-2005	79	1.06	77
2005-2006	82	1.08	80
2006-2007	85	1.11	85
2007-2008	87	1.15	88
2008-2009	90	1.18	92
2009-2010	93	1.20	94
2010-2011	95	1.21	96
2011-2012	96	1.20	94
2012-2013	91	1.20	96
2013-2014	94	1.20	98
2014-2015	96	1.20	100

Source : Myanmar Agriculture in Brief (2015)

Fertilizer Usage and Myanmar Agriculture

- Myanmar has an open competitive fertilizer market dependent on imports for over 80% of the total market demand estimated at between 1.2 and 1.4 million product tons per annum.
- The market is dominated by imports from China.
- Farmers use limited quantities of fertilizer and are not aware of balanced fertilization preferring to use urea in preference to balanced nutrient application rates.
- Also they reportedly buy on the basis of lowest price per bag and not on price per unit of nutrient.
- Farmer and dealer training on fertilizers and plant nutrition will greatly assist in more efficient fertilizer use by farmers.
- However, fertilizer use in Myanmar is still low by South East Asian standards and very low by world standards.

- Together with improved seed, fertilizer use and adoption of modern technology by farmers are key to raising agricultural productivity
- The estimated market for 2014 is dominated by urea which accounts for 61 percent of the total product, 87 percent of the total nitrogen and 62 percent of the total nutrients.
- This reflects the dominance of fertilizer use on rice and in part very unbalanced fertilizer applications by farmers.

Total Fertilizer Use per Farm in Mandalay Region, 2013

Farm Size	Urea N	GTSP P_2O_5	MOP K_2O	Compound NPK (15-15-15)		
				N	P_2O_5	K_2O
(ha)	(kg nutrients/ha)					
0.2 - 2.02	55.8	6.2	5.5	10.7	10.7	10.7
2.14 - 4.05	55.5	7.5	7.4	9.8	9.8	9.8
4.17 – 6.07	71	5.9	0.5	10.5	10.5	10.5
6.48 - 17	68	12	12	9.6	9.6	9.6

Source: Household Survey, 2013, Department of Agricultural Economics, Yezin Agricultural University adapted by IFDC with an assumed compound analysis.

Postharvest losses of Monsoon Rice

No.	Stage	Yangon (Hlegu Tsp)	Bago (Yedashe Tsp)	Ayeyawaddy (Zalun Tsp)
1.	Harvesting (%)	1.4 – 2.1	1.1 – 1.8	1.2 – 1.8
2.	Field Drying (%)	1.4 – 3. 3	1.7- 2.4	4.6 – 6.2
3.	Threshing/Cleaning	0.4 – 1.1	0.6 – 1.6	2.6- 3.3
4.	Transportation (%)	1.3 – 1.7	2.0-2.6	2.1-2.9
5.	Drying (%)	0.8 - 1.5	0.1- 0.5	0.8 -1.1
6.	Storage(%)	1.6 - 3.3	□.□ - □.□	2.1 - 3.3
	Total Losses (%)	6.9 -13.0	6.6 – 10.8	13.2 -18.6

(Source: Field Survey, 2014 Nov 10-27, Hlegu, Yadashe and Zalun Townships)

Harvesting Losses of Monsoon Rice By Man Power Vs Combined Harvester

No.	Stage	Man Power	Combined Harvester
1.	Harvesting (%)	1.1 - 1.8	1.4 - 2.8
2.	Transportation (%)	0.6 - 0.8	-
3.	Threshing/Cleaning (%)	0.6 - 1.6	-
	Total Losses (%)	2.3 - 4.2	1.4 - 2.8

(Source: Field Survey, 2012 Dec 16-18, Shewtaung Farm, Wundwin Townships)
Variety - Palalthwe' Hybrid Rice

Postharvest Losses of Food Legumes

Stage	Black gram (Phyu Tsp)	Chickpea (Chaung Oo Tsp.)	Pigeon pea (Mahlaing)
Harvest	0.6 - 1.3	1.1. – 1.9	0.9- 1.5
Transportation (field to threshing floor)	0.7- 0.9	0.6 – 0.7	0.4 – 0.6
Threshing/Winnowing/ Cleaning	0.8 – 1.2	1.2 – 1.4	0.9- 1.1
Drying	0.6 – 0.9	0.3 – 0.7	0.7- 0.8
Storage	2.2 – 3.2	2.4 - 4.2	2.6 -3.8
Total Losses (%)	4.9 – 7.5	5.6 – 8.9	5.6 – 7.8

(Source: Field Surveys, 2012 Feb 18-25, Nyaung Bin Thar, Chaung Oo and Mahlaing, Townships in Myanmar)

Utilization of Combine Harvester

Technology Changes and Utilization in Commercial Scale

သိပ္ပံနည်းကျ စိုက်နည်းစနစ်ဖြင့် စိုက်ပျိုးထားသော အောင်မြင်ဖြစ်ထွန်းသည့်စပါးခင်း ရိတ်သိမ်းနေစဉ်
နေပြည်တော်ကောင်စီနယ်မြေ၊ ပုဗ္ဗသီရိမြို့နယ်၊ ညောင်ပင်ကြီးစု တောင်သူပညာပေးစိုက်ခင်း

Source: Minister report for President Visit at Nay Pyi Taw, 2011

Advantages of Dryer Utilization Under Adverse Climatic Condition

Paddy Dryer and Light House

Source: Chai village, DOA model farm, Nay Pyi Taw 2011-2012

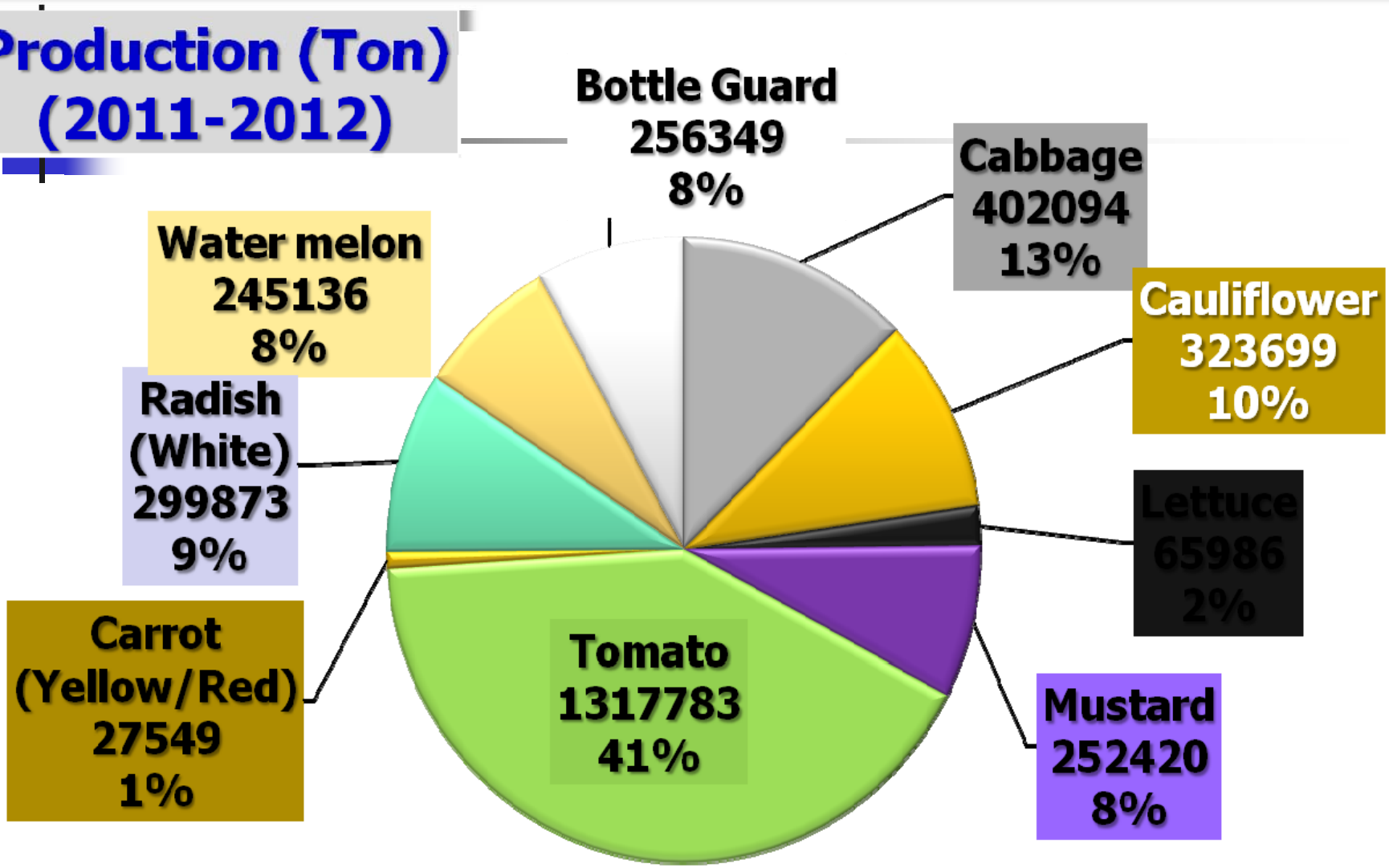
Seed Production and Processing For Quality Rice

Source: Minister report for President Visit at Shwe Taung Farm, 11 November 2012

To Reduce Postharvest losses

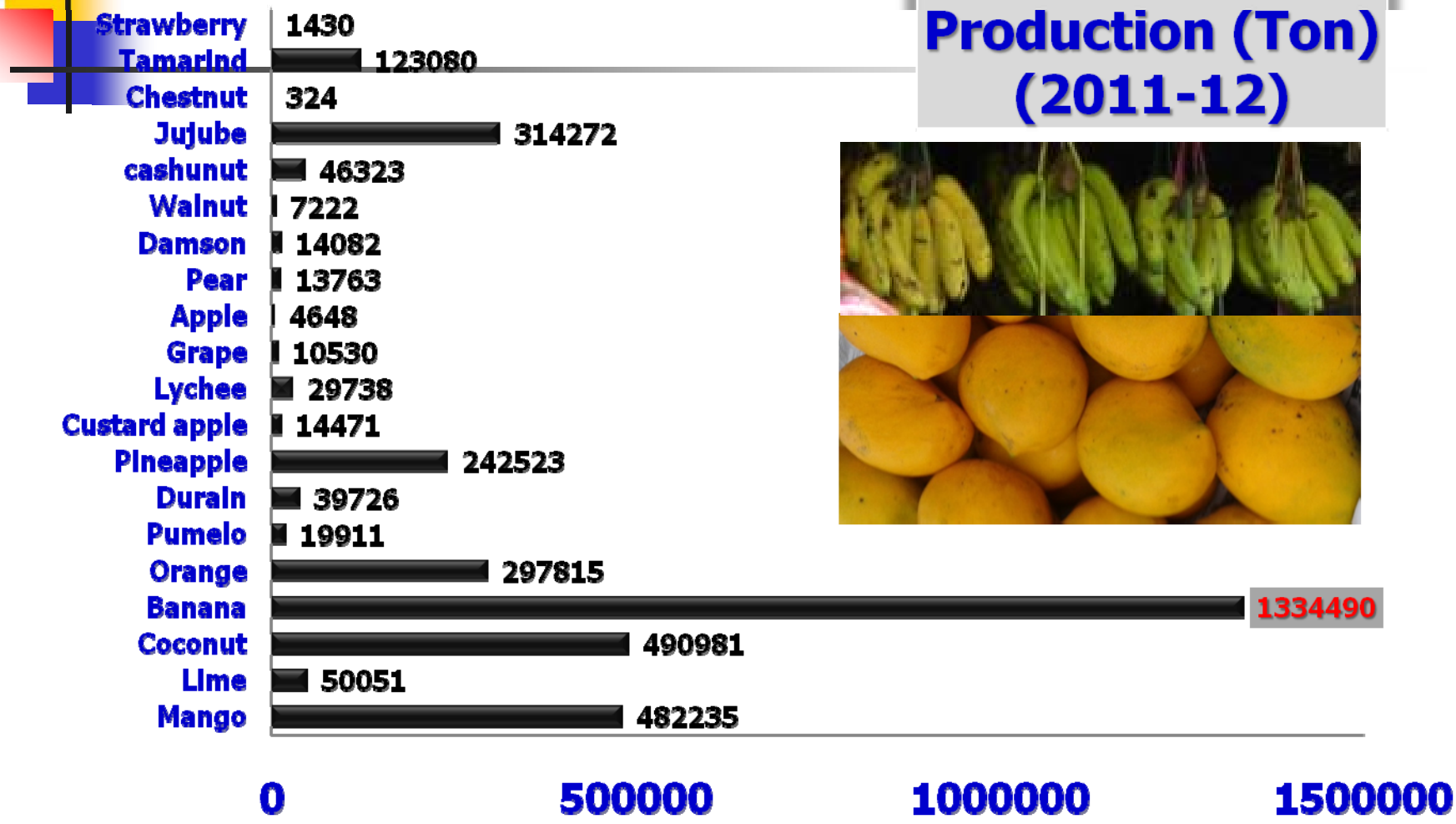
- More harvesters, dryers
- Better storage facilities
- Better milling facilities
- Better Transportation System
- More Training

Vegetable Crops Production



* Source: 12th Asis Pacific Agricultural Policy Forum 2013

Fruits Production



* Source: 12th Asis Pacific Agricultural Policy Forum 2013

Investment Opportunities for Agriculture in Myanmar

- Foreign investment in Myanmar's agriculture is only at 0.44% of total foreign investment and accounted at lowest share compared to other sectors.
- Currently, total cultivation area of 11.84 million hectare is under cultivation, 0.45 million hectare is fellow land and 5.23 million hectare is cultivable virgin land.
- The following area are available for investment in Myanmar's agricultural sector:

-Input industries (seed, fertilizer, agrochemical, farm industry, machineries, irrigation system and facilities);

-Production and Processing industries (crop production, value-added production, research and development);

-Wholesales market industries;

-Services industries (credit and insurance, service support for supply chain).

Conclusion

- As Myanmar is agro-based country, MOAI is mainly responsible for making a plan on country's agricultural development.
- MOAI adopted three tactics for development of rural livelihood and poverty reduction. They are - (1) Seed Jump (2) Technology Jump (3) Investment Jump.
- According to the current market economic system, it is also encouraging to produce the quality and market demand products along the supply chain in order to receive a profitable price by farmers.
- Encourage the participation of private sector agro-based industries including SMEs .
- Establishment of advanced rice mills in Myanmar will also be encouraged to increase Myanmar rice quality.

- Development of agriculture sector is integral part of the economy as the livelihood of the 70% of the total population largely relies on agriculture.

- Agricultural development is a key element not only for country's food security but also increasing per capita income including farmers' income and country's GDP.

- Myanmar will become a major food supplier in the region in future.

THANK YOU!