



**THE REPUBLIC OF THE UNION OF MYANMAR**  
**Ministry of Agriculture, Livestock and Irrigation**

**Agricultural Development Through Mechanization in Myanmar**

**Presented by**  
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**Seminar on Building Small Holder, Resilience under Climate Change  
through Value Chain Management  
(18-20 Sept, 2017, Yunnan, Kunming)**

# Basic Country Data of MYANMAR

Latitude	9° 32'-28°31'	Longitude	92° 10'-101 °11'
Land frontier km	6286	Sea frontier km	2229
Thailand	2099	Rakhine	713
Laos	235	Delta coastline	438
China	2227	Tanintharyi	1078
Bangladesh	272		
India	1453		

Land Area	676,577	Sq. km
Population		
❖ Whole country	52.476	million

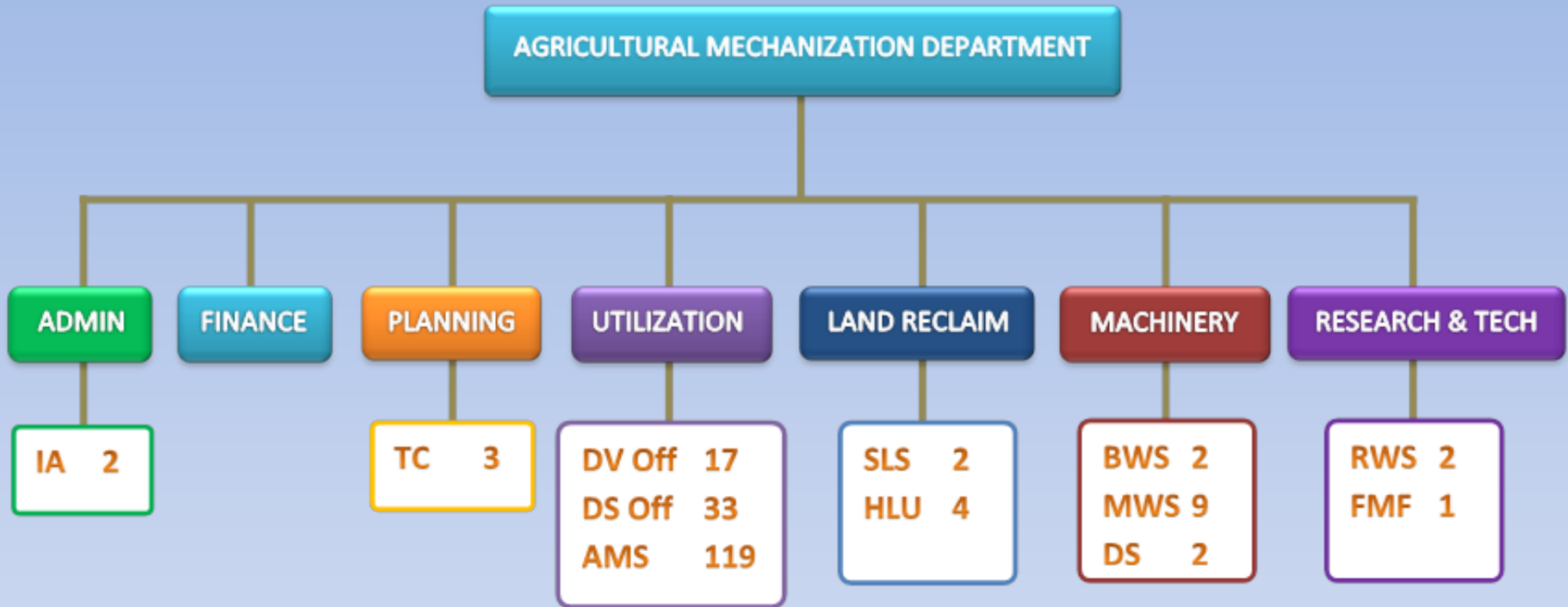
Land Utilization	000,ha
Net sown area	13362
Multiple cropping area	7961
Total cultivated	21323
Cropping intensity %	159.6
Paddy	7212



## Agricultural Mechanization and Input Policy

- ❖ To help support the increase use of well adapted quality farm machineries and equipment in an effort to transform into a more modern mechanized agricultural system.
- ❖ To support the process of transforming agricultural commodity value chains by introducing and equipment into post-harvest and value-added activities, thereby enhancing the production of high quality agricultural products.
- ❖ To support capacity building for technological development in agro-based industries in use of modern machineries and equipment in primary and value-added processing.
- ❖ To formulate and enact laws, procedures, and directives to guarantee safe and systematic use of fertilizer, pesticides, herbicides, medicines and vaccines.
- ❖ To support basic infrastructure development and upgrading initiatives to ensure the production of safe and high quality agricultural and livestock products for high end domestic and international markets.
- ❖ To support improved access and use of quality seeds of crops, good animal breeds and fish fingerlings to enhance the production and improve the quality of agriculture, livestock and fishery products.

# Organization of AMD



IA Internal Audit Office

TC Training Center

DV Divisional Office

DS Districts Office

AMS Agricultural Mechanization Station

SLS Systematic Farm Land Reclaim Station

HLU High Land Reclaim Station

BWS Base Workshop

MWS Medium Workshop

DS Depot Store

RWS Research Workshop

FMF Farm Machinery Factory



# Agricultural Mechanization Tractor Stations (AMTS)

Totally 119 stations under department were situated in Myanmar to help farmers for cultivation services with departmental owned tractors and farm machinery.



Sr	Region	No. of station	No. of Tractor
1	Kachin	9	111
2	Kayar	1	43
3	Kayin	2	43
4	Sagaing	16	231
5	Tanintharyi	2	27
6	Bago	21	575
7	Magway	8	142
8	Mandalay	17	293
9	Mon	4	92
10	Rakhine	3	87
11	Yangon	6	129
12	Shan	8	211
13	Irrawady	18	327
14	Naypyitaw Council	4	97
	Total	119	2408

# Main Functions of Agricultural Mechanization Department

- ❖ Land reclamation, land consolidation and land development works.
- ❖ Provision of farm mechanization services for land preparation, harvesting and threshing.
- ❖ Distribution of appropriate farm machineries.
- ❖ Research and development on utilization of agricultural machineries.
- ❖ Implementation of up-land reclamation in hilly regions.
- ❖ Dissemination of technical know-how on utilization of farm machineries to local farmers and production technologies to private industries.



# Farm Land Reforming in MYANMAR

Systematic Farm Land is essential for Mechanization. Farmers can not utilize machine effectively without farm road and suitable plot.

## Feature

Rectangular plot shape, boundary ratio(1;3)

Equal plot size

Horizontal surface level

Good irrigation and drainage

Farm road

## Advantage

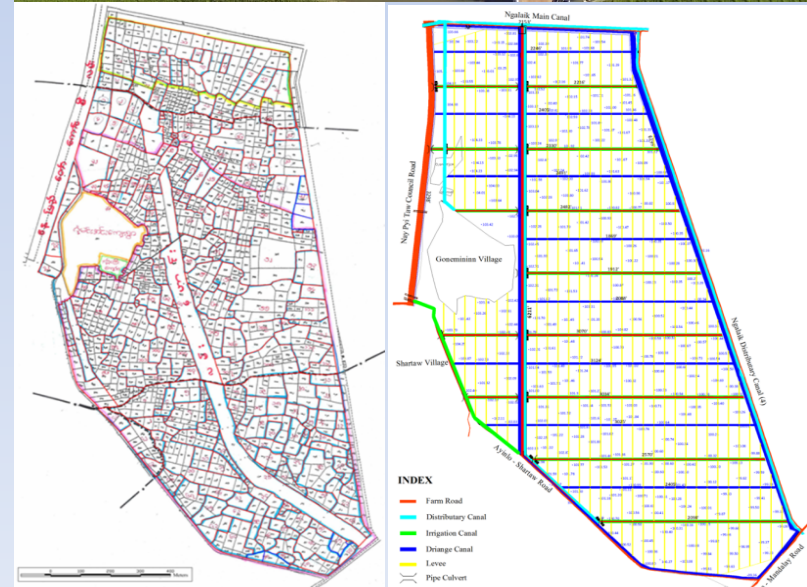
More effective to utilize farm machinery

Support to crop yield higher

Better quality in crop production

Uniform crop production

Mitigation the value chain



## Farm Land Reforming in MYANMAR

Farm Land has been reforming to systematic plot since 2001 and increasing yearly up to 2017, shown as the following Table.

Sr	Providers	Fund	Hectare	Remark
1	AMD	Union Budget	49,166	
		Regional Budget	61,78	
		Farmer	354	
		DOA	2,335	
		DOAR	550	
		COOPD	1,221	
2	JICA	Grant	346	
3	JIDD	Grant	103	
4	KOICA	Grant	245	
5	IFFAD	Loan	488	
6	Local Company	Regional Budget	7,259	Package Tender
7	Farmer		18,689	
	Total		86,934	

## Farm Machinery Services in MYANMAR

- ❖ AMD conducts farm services for Tillage, Planting and Harvesting using with Departmental Machine by the hiring system.
- ❖ Farm Services of private sector is larger than AMD in Plowing and Harvesting.
- ❖ Hiring services are facilitate to the small holder farmers, they don't need to buy Farm Machinery.

### Farm Machinery in MYANMAR ,2016-2017

No	Particular	Tractor	Harvester	Planter
1	Departmental Machinery(No.)	1,510	320	38
2	Departmental Services(Ha)	245,600	19,070	3,164
3	Percentage on Paddy Field (7.21 mil ha)	3.40%	0.26%	0.04%



# Farm Machinery Utilization In Myanmar

Sr.No	Type of machinery	Utilization (Qty)	Sold by AMD (Qty)
1	Tractor	26557	634
2	Power Tiller	473922	106892
3	Cultivating Roller Boat	13331	1162
4	Paddy Thresher	80865	2837
5	Combine Harvester	4857	2





## Estimated Farm Machinery Required for Land Preparation and Harvesting in Irrigated Areas of Respective States and Regions

Sr. No.	State & Region	Power Tiller			Needed Tractor			Combine Harvester		
		Require- ment (Total)	Owned	Need	Require- ment (Total)	Owned	Need	Require- ment (Total)	Owned	Need
1	Kachin	22177	19938	2239	551	344	207	290	13	277
2	Kayah	6684	6011	673	260	239	21	253	31	222
3	Kayin	19008	14447	4561	181	108	73	1093	61	1032
4	Chin	10510	35	10475	84	7	77	-	-	-
5	Sagaing	59188	53281	5907	7988	5781	2207	4166	561	3605
6	Tanintharyi	6425	5288	1137	94	68	26	97	35	62
7	Naypyitaw	4549	4610	-	745	542	203	410	45	365
8	Bago	106745	71650	35095	5538	4003	1535	8927	763	8164

Sr. No.	State & Region	Power Tiller			Tractor			Combine Harvester		
		Require- ment (Total)	Owned	Need	Require- ment (Total)	Owned	Need	Require- ment (Total)	Owned	Need
9	Magway	58343	19017	39326	8639	4066	4573	1804	77	1727
10	Mandalay	30282	23408	6874	6398	3522	2876	1514	129	1385
11	Mon	23837	21377	2460	571	392	179	2041	104	1937
12	Rakhine	18839	8938	9901	842	63	779	1665	41	1624
13	Yangon	45458	45560	-	3140	3161	-	3738	1805	1933
14	Shan - East	9218	12278	-	225	284	-	-	-	-
15	Shan - South	24907	22974	1933	1546	896	650	1551	7	1544
16	Shan - North	7563	23074	-	357	1377	-	82	63	19
17	Ayeyarwaddy	153705	121502	32203	2664	1711	953	8212	1122	7090
	Total	607438	473922	152784	39823	26557	14359	35843	4857	30986

Note : Irrigated Area is only 16% of Total Agricultural Area.

## Farm Machinery Distribution in MYANMAR

- ❖ AMD distributes farm machinery such as Power tiller, Tractor and Harvester to farmers by the installment. Down payment is one third of price in 1<sup>st</sup> time and each one third would be paid yearly for next two times without interest.
- ❖ The most of Private Company sold out their farm machinery backup with Bank loan.
- ❖ AMD starts new distributing system in 2017 co-operative with private Co; and Bank, Farmers can get machine by paying just 10% of value for 1<sup>st</sup> time and the remain amounts should be paid separately 15% in each 6 months periods.

### Distribution during 5 years (2013-2017)

Sr	Distributor	Tractor	Tiller	Planter	Reaper	Thresher	Harvester	Dryer
	AMD(Gov.)	627	34,648	36	40	1125	2	41
	Company	66,948	936,868	413	31,635	5,454	20,466	63
	Total	67,575	971,516	449	31,675	6,550	20,468	104

## Training and Education for Farm Mechanization in MYANMAR

AMD set up totally three Farm Mechanization Training centers in Maikhtila upper Myanmar, Phayargyi lower Myanmar and Yezin Middle Myanmar where Providing basic technical known-how to our farmers to promote farm machinery utilization. Training period is about 2-3 months for each course.

Totally 119 Agricultural Mechanization stations are situated the whole country where conduct the short term training just two weeks for basic operation and maintenance.

Accommodation and Meal expense are free of charge by AMD budget according to the yearly National Plan.

Private Company such as dealers of Kubota, John deer, Dandong, Sonalika etc.. Provide training course for their modernized machine to not only our staff but also farmers who belongs to their products.

Training Center



Practical Room



Training Ground



# Training and Education for Farm Mechanization in MYANMAR

(2011-2017)

Sr	Training Course	Provider	Period	Time	Trainee
1	Advanced Operation and Maintenance for Farm Machinery	AMD TC	8 wks.	33	2713
2	Advanced Operation and Maintenance for Combine Harvester	AMD TC	8 wks.	8	861
3	Operation and Maintenance for Farm Machinery	AMD TC	4 wks.	1	31
4	Basic operation and maintenance for Farm Machinery	AMS	2 wks.	340	11113
5	Basic Operation and maintenance for Combine Harvester	WS	2 wks.	6	184
6	Basic of Mechanic for Farm Machinery	WS	4 wks.	42	1304
7	Advanced Land reclamation	WS	4 wks.	1	10
	Total			431	16216

TC= Training Centre, AMS= Agricultural Mechanization Station, WS= Workshop

## Contribution for Smallholder Farmers and Agricultural Input

There are about 12.01 million hectares of net sown area in Myanmar. About 4.2 million hectares, which is 34% of the area are currently cultivated by small-scale farmers with the average size of land holding 1.92 hectares.

Agricultural input for Farmers especially smallholder priority and provision as shown below.

- A. Land improvement to modernized farming with proper drainage, irrigation and farm roads.
- B. Legislation to protect farmer rights and enhancement of their benefits. (1)The Farm Land Law and (2)The Vacant, Fallow and Virgin Lands Management Law.
- C. Upland farm reclamation as terrace farming.
- D. Raising storage capacity and efficient delivery of irrigation water, pump lifting water and efficient utilization of ground water.
- E. Enhance agricultural development through mechanization.
- F. Increase various crop loan for different cultivation seasons by Myanma Agricultural Development Bank.



## Contribution for Smallholder Farmers and Agricultural Input

- G. Contract farming programme (together with farmers and private investor) support input such as seeds, fertilizer, loan and return crop with warranty price.
- H. Set up knowledge center granted by IFAD where farmers can discuss and learn for Agricultural affect.
- I. Evergreen Village Development Project (Mya Sein Yaung) is piloted to lift livelihood and income generation of rural poor by Gov. fund.
- J. 2kR project by JICA also support rural development through mechanization.



**JICA , 2KR Grant**



**Contract Farming**



**IFAD, Loan KC Center**

## Enhance Value Chain Management through Mechanization

Paddy is major crop in Myanmar and most farmer stand on paddy production income. Thus, the following value chain is suggested depend on Paddy crop production.

No	Challenges	Solution
1	Labour shortage due to leaving the native land for more income work.	Replace Farm Machinery as distribution and services.
2	High crop production cost (a)Seeds cost	(a)Chain planting method as GAP or machine transplanting decrease the usage amount of seeds.
	(b)Logistic cost	(b) Land improvement to modernized farming with proper drainage, irrigation and farm roads.
3	Grain Losses and Crop quality (a)Post harvested	(a)Distributing Machinery such as, Reaper, Thresher and Combine Harvester. Mobile farm services of Combine Harvester is rapidly developing in Myanmar according to the market demands.
	(b)Bed weather	(b)Require safety threshing floor, Dryers and sufficient storage facility. Farmers need more assistances to face the bed weather.



## Machine transplanting for high yield and low cost



## Farm land development for high efficiency and low logistic cost



## Safety drying for high quality and better price.





# Enhance Value Chain Management through Mechanization

No	Challenges	Solution
4	Agricultural Knowledge Weakness	Knowledge sharing with TV Chanel specifically Government MRTV line broadcast Farmer Chanel Publishing Farmer Journal
		Field Demonstration by department, allied Private Co; and Granted NGO.

**MRTV Shooting**



**Demonstration**



**Teaching Aids**



**Farmer Chanel Shooting**



**Farmer Day Show Room**



**TV Watching**



# AMD's Rescue Experiences for Resilience Farmers

## AMD contribute to Farmers' resilience due to Disaster appearance through Farm Mechanization.

Sr	Disaster	Affected Condition	AMD Response Mechanism
1	Cyclone Nargis In Delta Region 2008	Lack of Labor Lost of Implements	Operator Mobile Team Sent. Distributed Power Tiller and Pump for urgent cultivation. Tractor/Power tiller 8581 Nos. Water Pump 172 Nos. All expenses were subsidized.
2	Tropical Cyclone Giri In Dry Zone,2010	Paddy field flooded.	Mobile Tractors were sent for re-cultivating.
3	Heavy Rain Flooded In upper Dry Zone 2015	Field submerged deeply in mud.	Removed foreign matter, sank under mud (cleaning & leveling 1600ha) Construct drainage. Farm Land reclamation.(9,400 ha) Mobile Tractor Teams were sent for cultivation.(Tractor 110,rescue staff 273)





## AMD's Rescue Experiences for Resilience Farmers



**Removing Wood Stump after silt flood**



**Farm Land Reclamation**



**Providing Machinery to Resilience Area**



## Building Smallholder Resilience Farmers in Myanmar

The Farmers live in the Dry Zone, drought area, average annual precipitation is below 1000 mm., The cultivable land(approximately) 35% of total land along the Arrawady and Chindwin river flood region are mostly affected by the climate chain.

The previous slide has shown as AMD contribution on resilience farmers and the following are Myanmar's plan for smallholder resilience farmer.

- (1)Environmental Conservation and Climate Change Resilience Strategic Thrust has been already planed.
- (2)AMD trained the rescue team for re-cultivating as response mechanism.
- (3)More share budget to regional government in agriculture sector.
- (4)Farm Machinery was distributed as special priority if they requested.
- (5)Agriculture and Farm mechanization training provided for sustainable development.

## CONCLUSION

- ❖ Farm Mechanization is wide business and various machinery utilization for different crops. Mechanization value chain could not be contributed to all by Governmental Department AMD only and Public, Private , Partnership is essential to enhance smallholder farmers through agricultural development.
- ❖ Collaboration and Grant of Donor organization is important and Foreign investment also required to support the poor farming condition.
- ❖ AMD has been conducting not only his Functions but also forwarding to the transition of private mechanization business.
- ❖ Furthermore, AMD is finding the way to legislate The Farm Mechanization Law in Myanmar to contribute our farmers and to enhance farm development through systematic farm mechanization.

**THANK YOU FOR  
YOUR KINDLY ATTENTION**