



Paper on Islamic Republic of Pakistan
**The 2nd Regional Forum on Sustainable Agricultural
Mechanization**
**- Enabling Environment for Custom Hiring of Agricultural
Machinery**
(9-11 Sep 2014) -Serpong - Indonesia

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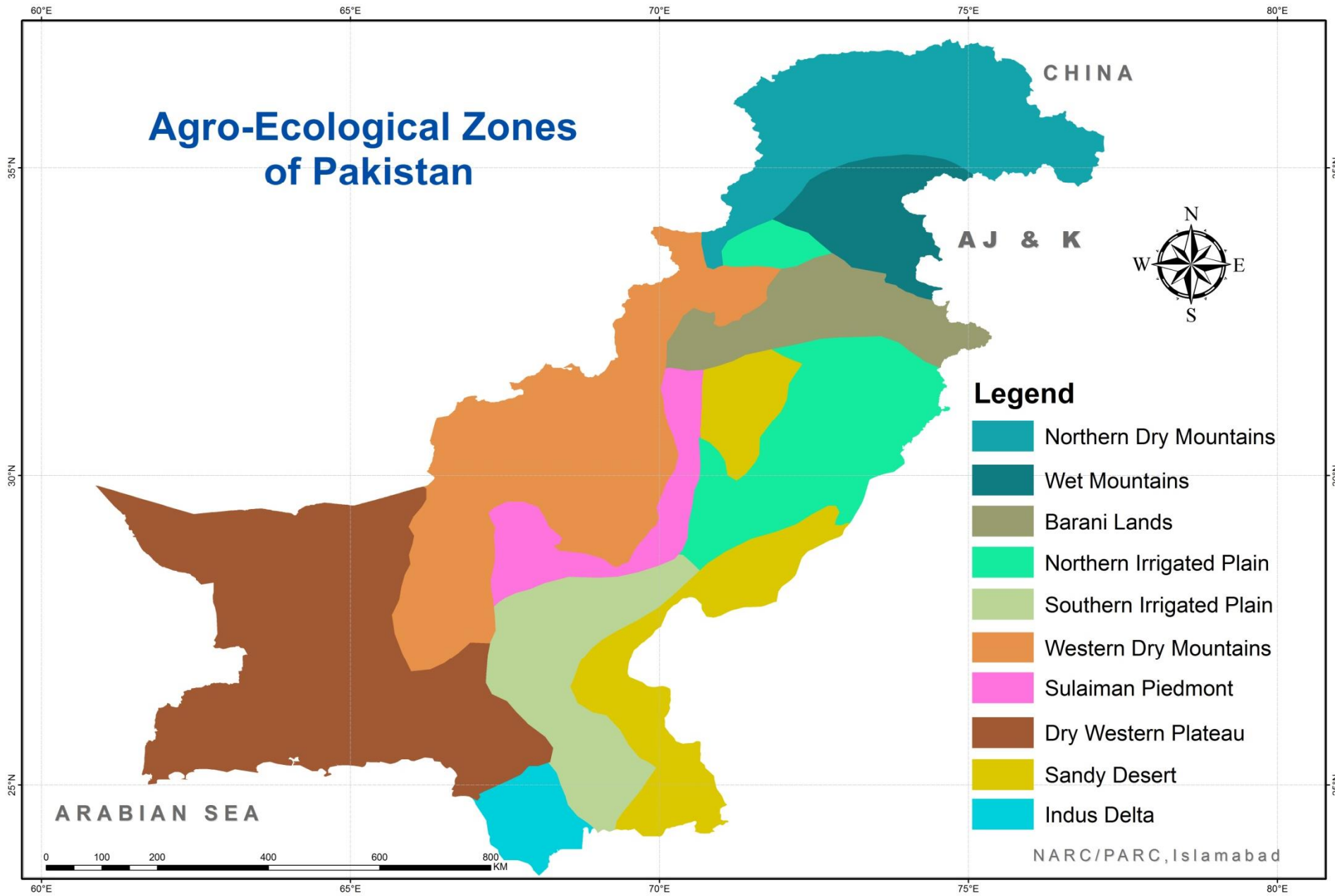
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- a) Agency Introduction
- b) General Information on Agriculture and Mechanization
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- f) Challenges and Constraints faced
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Agency Introduction :

NAME	MILLAT TRACTORS LIMITED
Area of Operation(s)	Pakistan.
Founded In	1964.
Licensee	Massey Ferguson – AGCO UK
Products	<ol style="list-style-type: none">1. Agricultural Tractors Range<ul style="list-style-type: none">- local production : 50 to 85 hp- CBU Imported : 100 hp and above.2. Matching agri-implements & Farm Machinery.3. Industrial Products – Genset, Forklift Trucks
Deletion/local Contents Levels	<u>>90%</u>
Market Position -Pakistan	Market Leader (65% share in the industry).
Production Capacity	More than <u>40,000 tractors per annum</u>

Agro-Ecological Zones of Pakistan

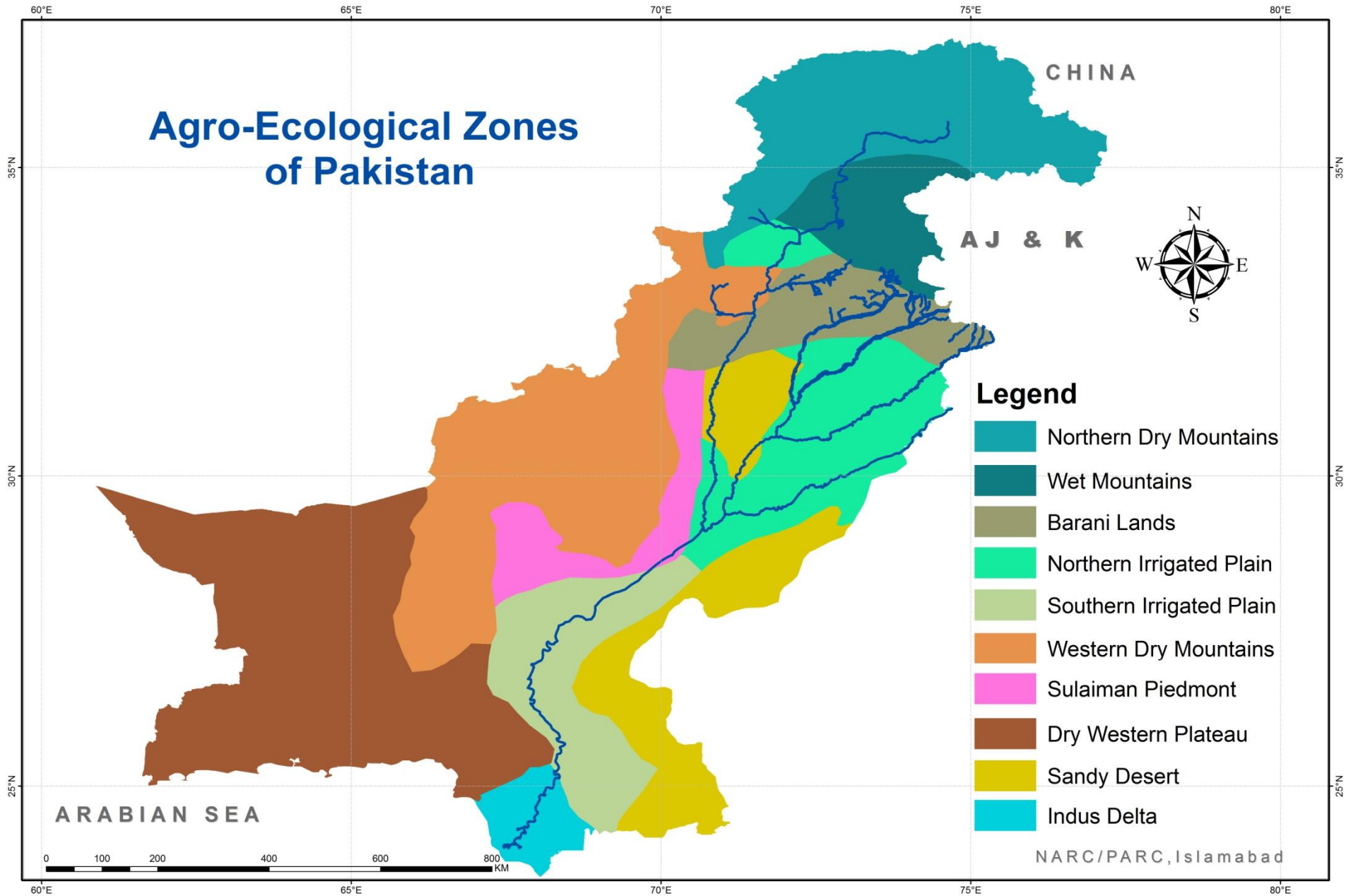


Legend

- Northern Dry Mountains
- Wet Mountains
- Barani Lands
- Northern Irrigated Plain
- Southern Irrigated Plain
- Western Dry Mountains
- Sulaiman Piedmont
- Dry Western Plateau
- Sandy Desert
- Indus Delta

NARC/PARC, Islamabad

Agro-Ecological Zones of Pakistan



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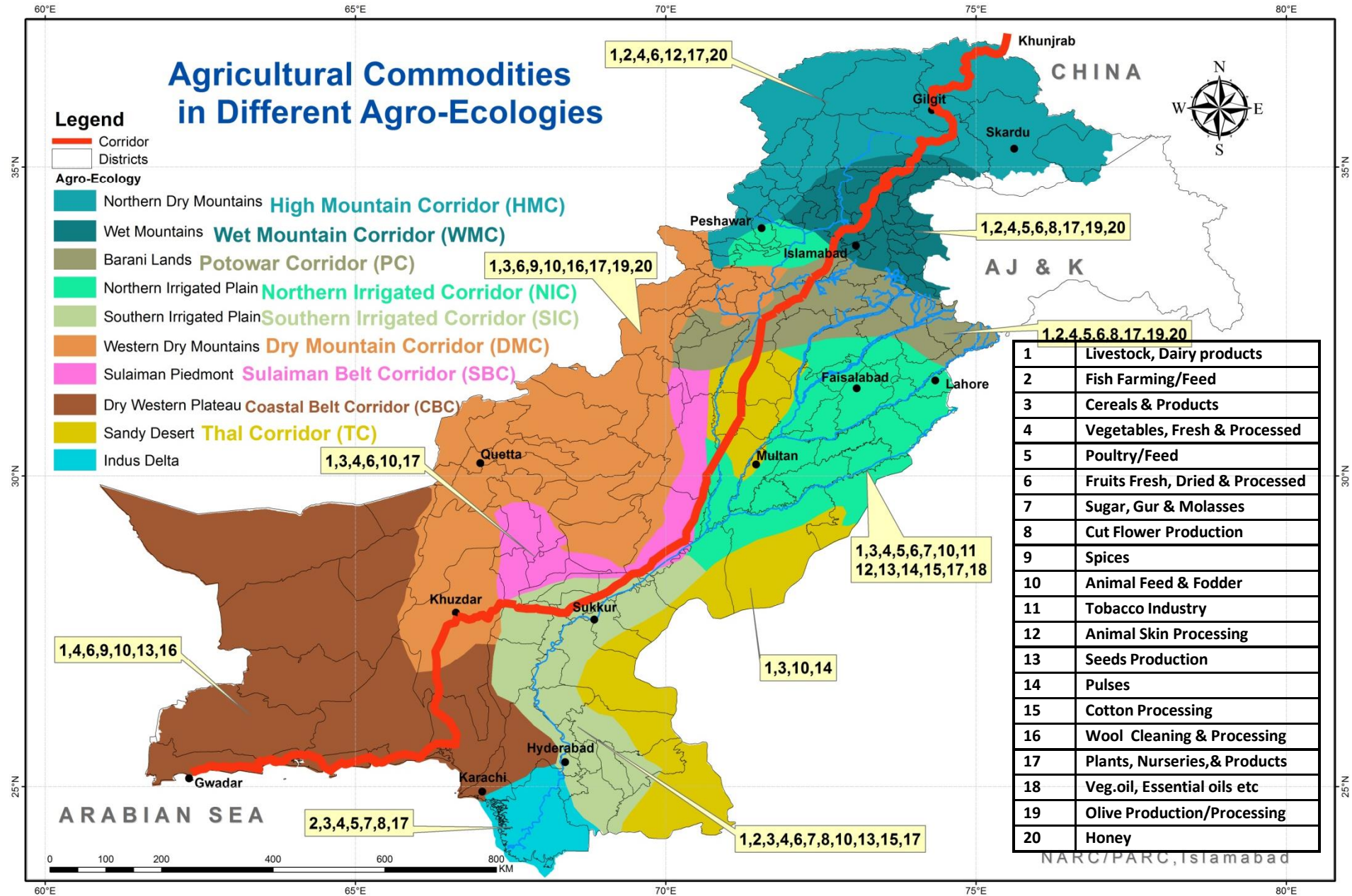
Agricultural Commodities in Different Agro-Ecologies

Legend

- Corridor
- Districts

Agro-Ecology

- Northern Dry Mountains **High Mountain Corridor (HMC)**
- Wet Mountains **Wet Mountain Corridor (WMC)**
- Barani Lands **Potowar Corridor (PC)**
- Northern Irrigated Plain **Northern Irrigated Corridor (NIC)**
- Southern Irrigated Plain **Southern Irrigated Corridor (SIC)**
- Western Dry Mountains **Dry Mountain Corridor (DMC)**
- Sulaiman Piedmont **Sulaiman Belt Corridor (SBC)**
- Dry Western Plateau **Coastal Belt Corridor (CBC)**
- Sandy Desert **Thal Corridor (TC)**
- Indus Delta



1	Livestock, Dairy products
2	Fish Farming/Feed
3	Cereals & Products
4	Vegetables, Fresh & Processed
5	Poultry/Feed
6	Fruits Fresh, Dried & Processed
7	Sugar, Gur & Molasses
8	Cut Flower Production
9	Spices
10	Animal Feed & Fodder
11	Tobacco Industry
12	Animal Skin Processing
13	Seeds Production
14	Pulses
15	Cotton Processing
16	Wool Cleaning & Processing
17	Plants, Nurseries, & Products
18	Veg.oil, Essential oils etc
19	Olive Production/Processing
20	Honey

NARC/PARC, Islamabad

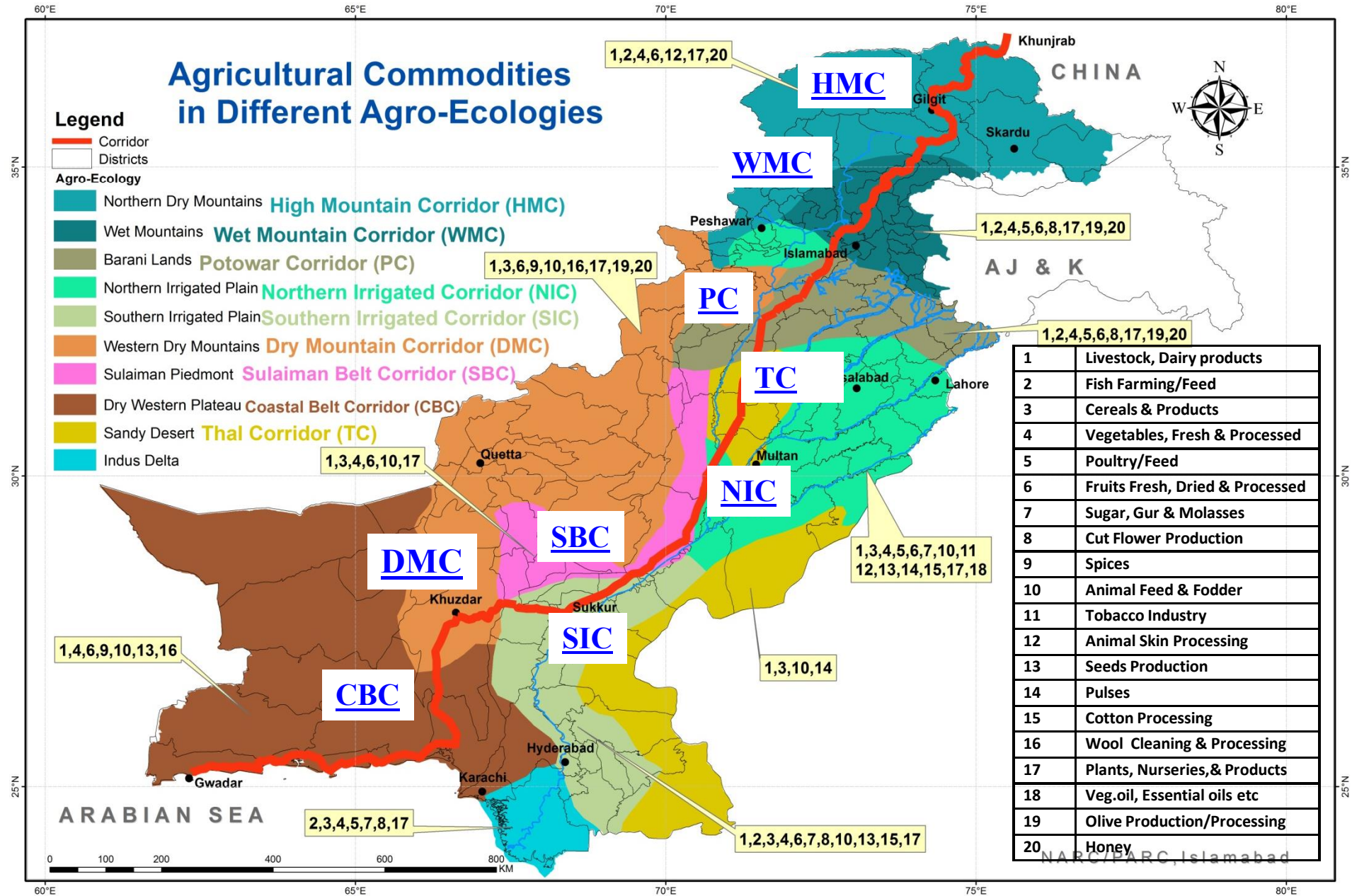
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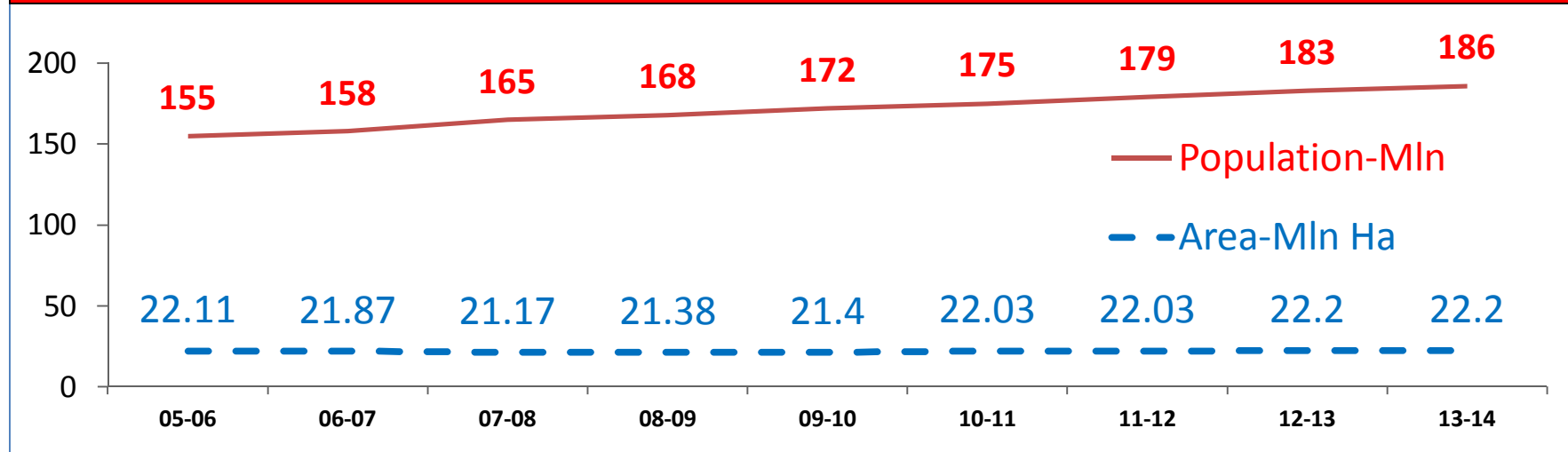
General Info. on Agriculture and Mechanization

Pakistan

1. Area under Cultivation	<u>22.20 Million Hectare</u>		
2. Major Crops	Wheat, Rice, Cotton, Sugarcane, fruits and vegetables .		
3. Share of Agriculture GDP: Employment :	21% 43.7%		
4. Farm Numbers & Area (%)	<u>Size (Ha)</u>	<u>Farm Number & Share%</u>	<u>Area</u>
Total Farm number : 6.62 million	<u>Upto 2.0 Ha</u>	<u>(3.6 M) 58%</u>	<u>(3.2 M Ha) 14%</u>
	<u>2.0 - 5.0</u>	<u>(1.8 M) 27%</u>	<u>(5.7 M Ha) 26%</u>
	>5.0 – 10.0	(0.58 M) 09%	(3.89 M Ha) 18%
	>10.0 – 20.0	(0.26 M) 04%	(3.30 M Ha) 16%
	>20.0	(0.17 M) 1.6%	(4.30 M Ha) 21%
5. Subsistence level (5.0 Ha)	So upto <u>5.0 ha land holders</u> are the Target Farmers for Policy Makers , who are more in numbers and less in resources.		

Source : Economic Survey & Agri. Stat Pakistan`

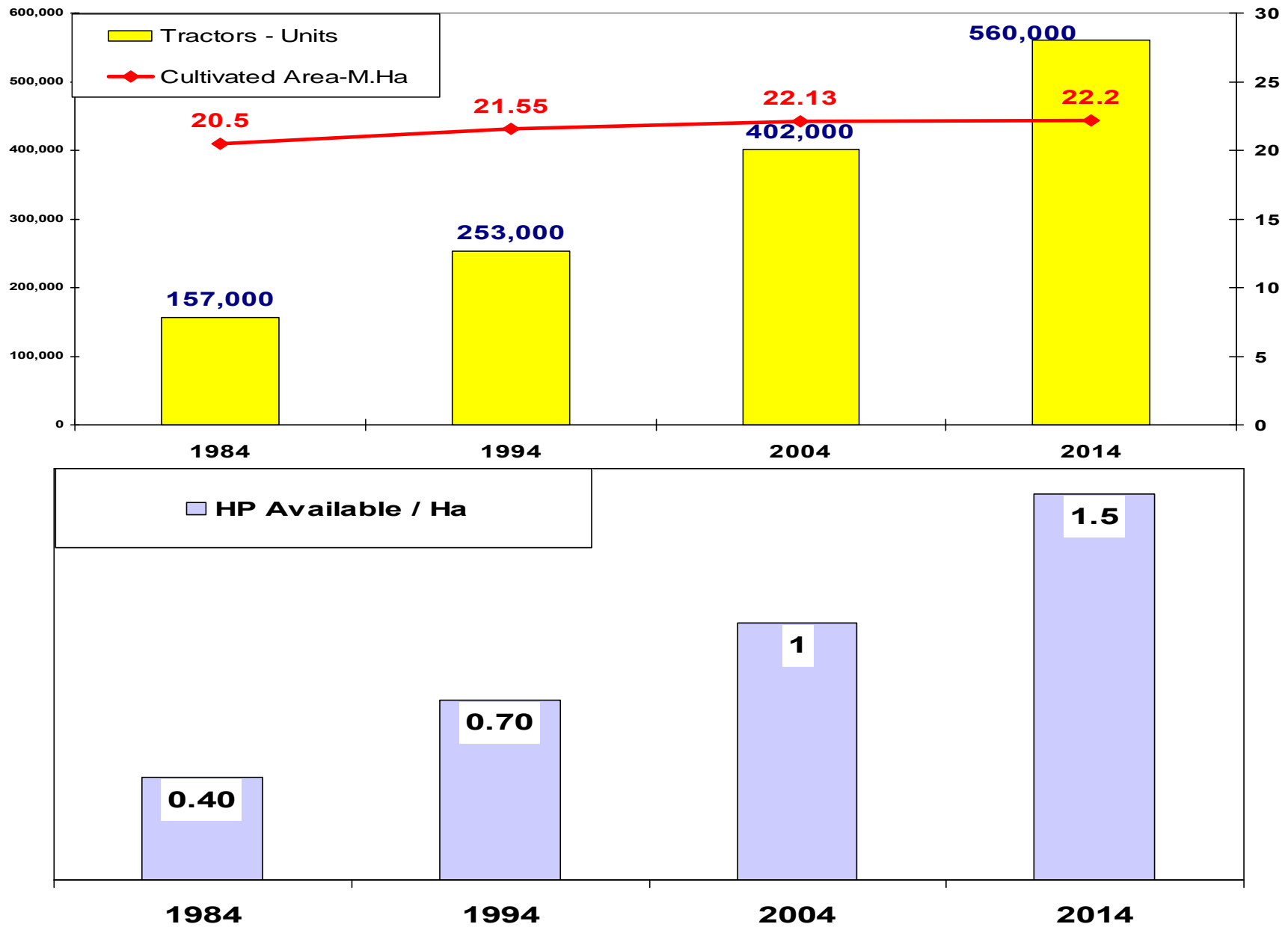
Population vs. Area Under Cultivation.



Comparison Yields (Ton/Ha) - Pakistan Vs. Global Average.

Major Crops Pakistan	Area	Pak - Yield	Global Avg
	Mln Ha	Ton / Ha	Ton/Ha
Wheat	8.69	2.7	2.9
Rice	2.31	2.3	4.3
Sugarcane	1.12	55.5	70.5
Cotton	2.87	0.76	0.86
Maize	1.08	4.2	4.9

Tractor Population vs. Area Under Cultivation and Hp/Ha



Tractor and Farm Machinery Industry

a) Tractor industry in Pakistan highly competitive in price with capacity over 70,000 units per annum.

b) Agri-implements/Tractor attachments are mainly manufactured by the local cottage industry/rural artisan spread across the country; e.g.

“ Primary and secondary tillage implements, Seed Drills, Sprayers, Farm Trailers, laser leveler etc.

MECHANIZATION OF CROP PRODUCTION OPERATIONS

Present Practices – and where Custom Hiring needs Improvement

Crop	land Preparation	Sowing	Irrigation	Spraying	Inter-culture	Harvesting	Threshing
Wheat	Semi Mech.	Low Mech.	Partial Mech.	Low Mech.	Nil	Semi Mech.	Full Mech.
Cotton	Semi Mech.	Full Mech.	Partial Mech.	Full Mech.	Full Mech.	Nil	-
Rice	Full Mech.	Nil	Partial Mech.	Nil	-	Semi Mech.	Partial Mech.
Sugarcane	Partial Mech.	Partial Mech.	Partial Mech.	Nil	Semi Mech.	Nil	-
Maize	Full Mech.	Semi Mech.	Partial Mech.	Nil	Semi Mech.	Low Mech.	Full Mech.
Potato	Full Mech.	Semi Mech.	Partial Mech.	Full Mech.	Full Mech.	Partial Mech.	-
Pulses (Grams)	Low Mech.	Full Mech.	Low Mech.	Nil	Low Mech.	Nil	Full Mech.

Status of Custom Hiring

Farmers :

- “ A very common practice in Pakistan. Mostly in farmers upto 10 Ha.(Offer and Seek)
- “ Rental activates both in agriculture and commercial Sector (Construction industry).
- “ Mainly for land preparation/sowing/spraying equipment and wheat threshing by tractor driven threshers.
- **New Segment : Tractor driven fodder harvesting machines - Silage (rapidly becoming popular)**

Status of Custom Hiring

Rental Companies - Commercial:

1. Combine harvesters (Wheat/Rice/Sunflower) -2nd hand imported combines.

Current population(estimated) : 5,000 units.

Combinable Crops area accumulative : over 12.0 M. Ha.

2. New induction / business area :

“ Self propelled Fodder harvesters and Balers for silage/fodder bales.

“ Bio-mass fuel , alfa-alfa and grasses.

➤ A large gap exists between demand and availability of combines, fodder and bio-mass handling equipment.

Supporting Policies – for Custom Hiring in Farm Mechanization:

Tractors	<ol style="list-style-type: none">1. 1980 's - 2000, Financing by ZTBL at concessional markup rate.2. Tractor subsidy schemes for small land holders.3. Reduced General Sales Tax . (1998- March 2011 : 0% , Current level 10 %).4. Concessional tariff rate on components import for local tractor manufacturing.5. Govt.'s policies for local tractors manufacturing – Cheaper Prices.
Farm Machinery	<ol style="list-style-type: none">1. Combines project Funding(ZTBL) - 1980's , introduced self-propelled combines & rental concept.2. Subsidy for purchase of laser levelers.

Experiences
On
Custom Hiring

Experiences (Government)

Government of Punjab (1980s):

- “ **Rural Supply Cooperative Corporation’s (RSCC) established Farm Services Centers (FSC) with facilities such as:**
 - “ Tractor sale and service
 - “ Tractor and implements repair facilities
 - “ Tractor rental facilities (within District)

- “ **Lessons learnt:**
 - “ Over-staffing / under-staffing at certain locations (due to Government’s job)
 - “ Fix number of tractors / equipments (irrespective of number of farmers at certain location)
 - “ Fixed office timings (as that of Government) 8 AM to 2 PM with Sunday OFF
 - “ Lesser flexibility of prices, rental charges, etc.
 - “ Non-professional attitude

Experiences (Private – Combine Harvesting)

Started from Punjab in 1987: With the financial back-up support from Agricultural Development Bank (ADBP)

Contractors imported new / old combine harvesters from Italy, Germany, and Holland with a minimum of FIVE Combine Harvesters (CH) in their stock:

- “ CH started working from South of Punjab where wheat harvesting starts a month earlier than in the North.
- “ Engaged staff from rural youth to operate these CH.
- “ After-sale service is usually provided by the CH after-sale service staff
- “ In most cases advance booking of CH is done to operate at certain locations.
- “ Within 2-3 years after introducing CH in private sector above 50% of the Punjab wheat crop was being Combine Harvested.
- “ Smart contractors used the same combine for Rice harvesting, but unfortunately WITHOUT changing the threshing mechanism / sieves, tyres, etc. (that results in relatively more broken rice)

Lessons learnt:

- “ Formal training institutes are lacking to train CH operators, repair and maintenance
- “ Dealers are making sky high profits on spare-parts

Benefits – Agri Sector Custom Hiring

Social Benefits

- “ Self Sufficiency in basic need of Food.
- “ Providing economic liberty and satisfaction.
- “ Reducing unemployment / self employment.
- “ Enhancing Living Standards of the Society.

Economic Benefits (A Case study attached).

- “ One unit (Tractor + Implements) generates income by USD 3,500 – 4,000/- per annum through rental service of 1000 operational hours.
- “Free own farm use.
- “Pay back period on investment : 03-05 years.
- “Enhanced economic activity; tractor / farm machinery industry and banking sector.
- “Multi-dimension benefits of farm mechanization to over-all country's and global economy.

A Case Study of Rental Model Pakistan (Punjab) , June 2014

Tractor Rental Income -Agri/Comm- Mix model		
1. Tractor Model	50 - hp	Price : USD :7,300
2. Land ownership owner :	02 to 05 ha	
3. Tractor operational hours:		
Own use	200	Hrs.
Rental use - Avg.	1,000	hrs.
4. Note:		
-The model is based on rental income.		
-Own use is an incentive.		
- Tractor surveyed : out of warranty 1-2 yr old.		
5. Annual Rent @ avg. rent USD 10.0/hr.	10,000	
Less: Diesel/Repair/ Maintenance - annual	5,207	
Implements Maint/ Depreciation - annual	791	TTL Value : USD 5,000
Net Annual Income: USD	4,002	
Net Monthly income: USD	333	
Net income / opertional hr. USD	4	
Total investment (Tractor + Implements) - USD.	12,300	
Pay Back Period - Years:	3	
on Safer side, pay back period can be considered:	03 -05 years.	
Study By Azhar Noor -		
Millat Tractors Ltd, Lahore, Pakistan.		

Case study-2: Fodder Machinery Rental Services . Fodder Silage

A new area of mechanization

Technology Adoption:

- “ initiated by food /milk Companies (M/s Engro Foods and Nestle) in 2010.
- “ Tractor driven machines are provided on rent to farmers (Rent 15 - 20 USD/ day).
- “ Silage making / day : 01 -02 Ha. (45 tons/ Ha.).
- “ USAID also supported the project.
- “ Technology/benefits are rapidly disseminating & farmers are now purchasing own machines.
- “ Price range : USD 2500 to 6500.

Economic Benefits:

- “ A new business segment . rental and fodder trade business.
- “ Ensured availability of fodder across the year, otherwise, shortage of fodder about 100 days in a year.
- “ Better nutritional value - increased milk production and fattening rate.
- “ Reduction in feeding cost by 50%. (traditional USD 4.5 Vs. Silage USD 3.0 per day /milking animal)
- “ Increased milk production . supports milking companies in availability and procurement price stability.



MILLAT TRACTORS LIMITED

FODDER HARVESTING MACHINES



JF 92 Z 10

- Directly harvests and chops fodders like Maize, Sorgham, Millet, etc.
- Also, suitable to cut and chop cotton shrubs from the fields.

Suitable Tractors

- MF-375, MF-385

JF 60

- Tractor PTO driven machine.
- For all kinds of fodders.

Suitable Tractors

- MF-240



JF 60

- Operates with Electric Motor/ Peter Engine
- For all kinds of fodders

JF 1300 + JF 92 Z 10

- To harvest and chop Barseen, Lusan, Jae and Grass from the fields.

Suitable Tractors

- MF-375, MF-385



Solutions and Suggestions for Enhanced Custom Hiring

Government should support:

- “ **Farm Equipment sale by extending liberal credit line facilities.**
- “ **Encourage Tractor / Matching Farm Equipment Contractors.**
- “ **Encourage Combine Harvester Contractors**
- “ **Encourage Laser-land Leveling Contractors for water saving and higher yields.**
- “ **Increased liaison between all global and local institutions / Governments and other stake holders.**
- “ **Strong regional cooperation should also be enhanced by sharing experience.**
- “ **Priorities the crop zones and diversification based on socio-economic benefits.**
- “ **Promote local development of farm machinery.**
- “ **Machines standardization / certification (Agencies role be advisory).**
- “ **Reduction in taxes and duties on farm machinery custom hiring.**



Thank You

