

# Country Presentation



# Pakistan

**10<sup>th</sup> TC and Regional Workshop on Establishing a  
Regional Database on Agricultural Mechanization of  
UN-Centre for Sustainable Agricultural Mechanization**

by

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CS-II/Member (Natural Resources Division)

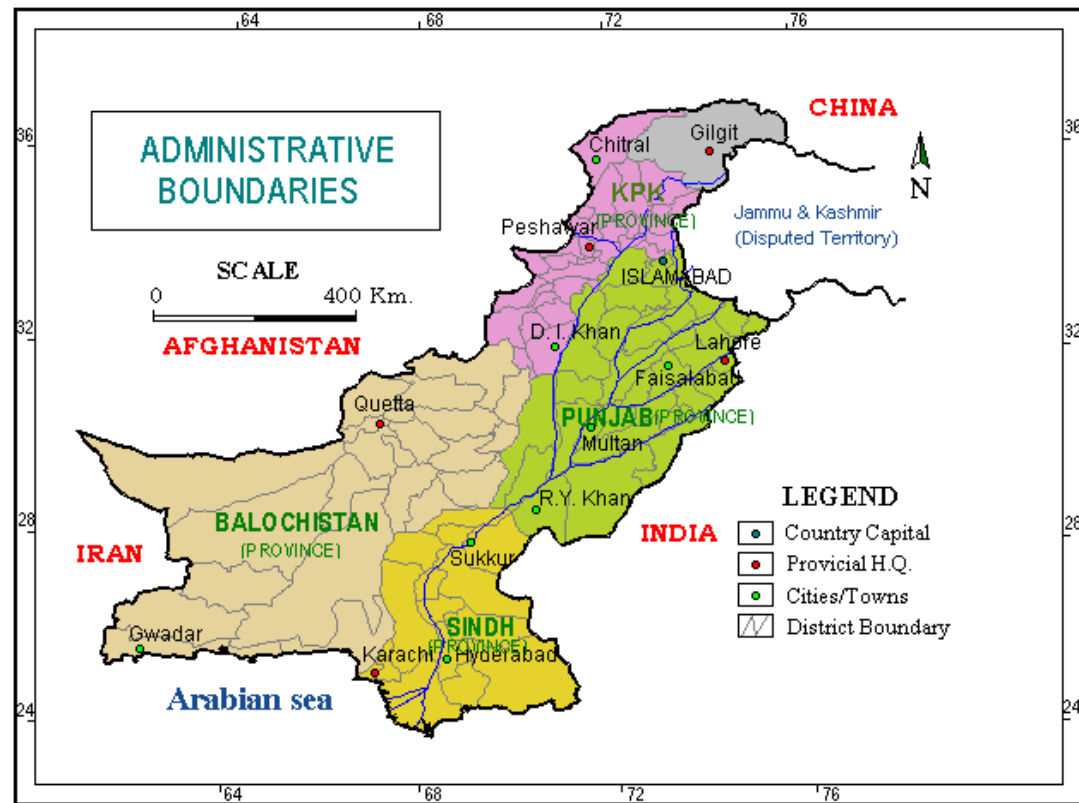
Pakistan Agricultural Research Council, Islamabad

**17-19 November 2014**

**Siem Reap, Cambodia**

# Natural Resource Base

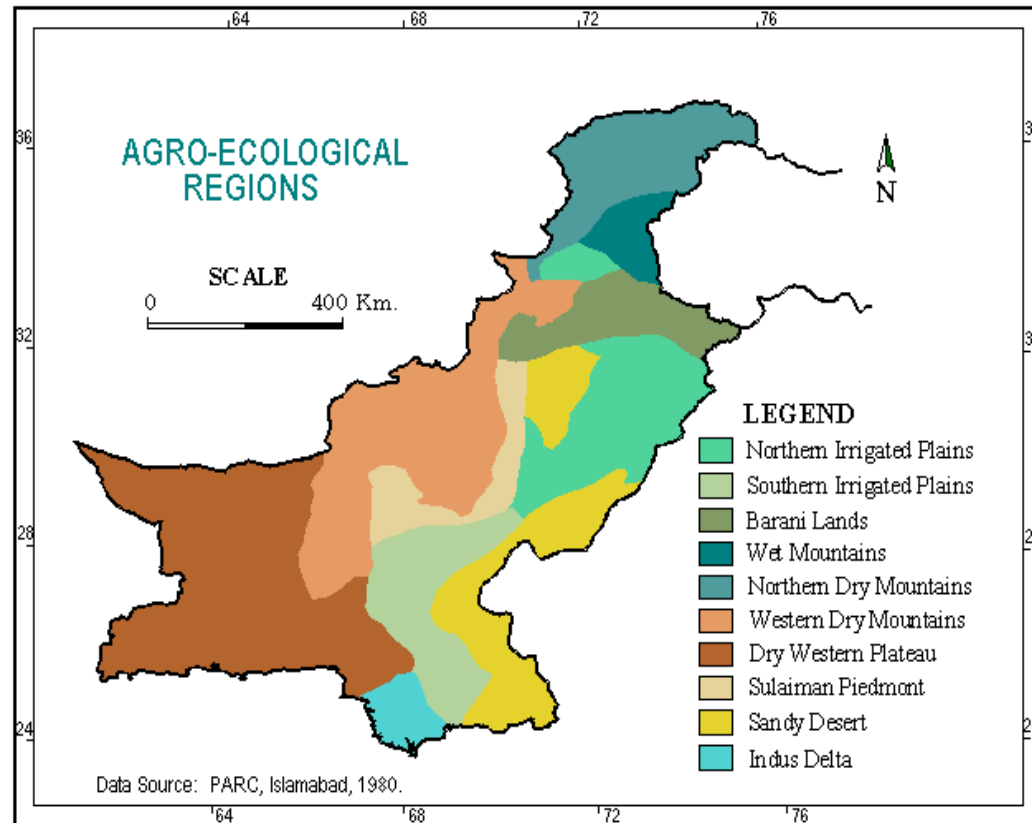
- Population: 188 million
- Area:
  - Total: 79.61 m ha
  - Cultivated: 22.05 m ha
  - Irrigated: 18.92 m ha (86%)
  - Rainfed: 3.13 m ha (14%)
- Predominantly an arid and semi-arid country with 68 m ha (85%) where rainfall is less than 300 mm



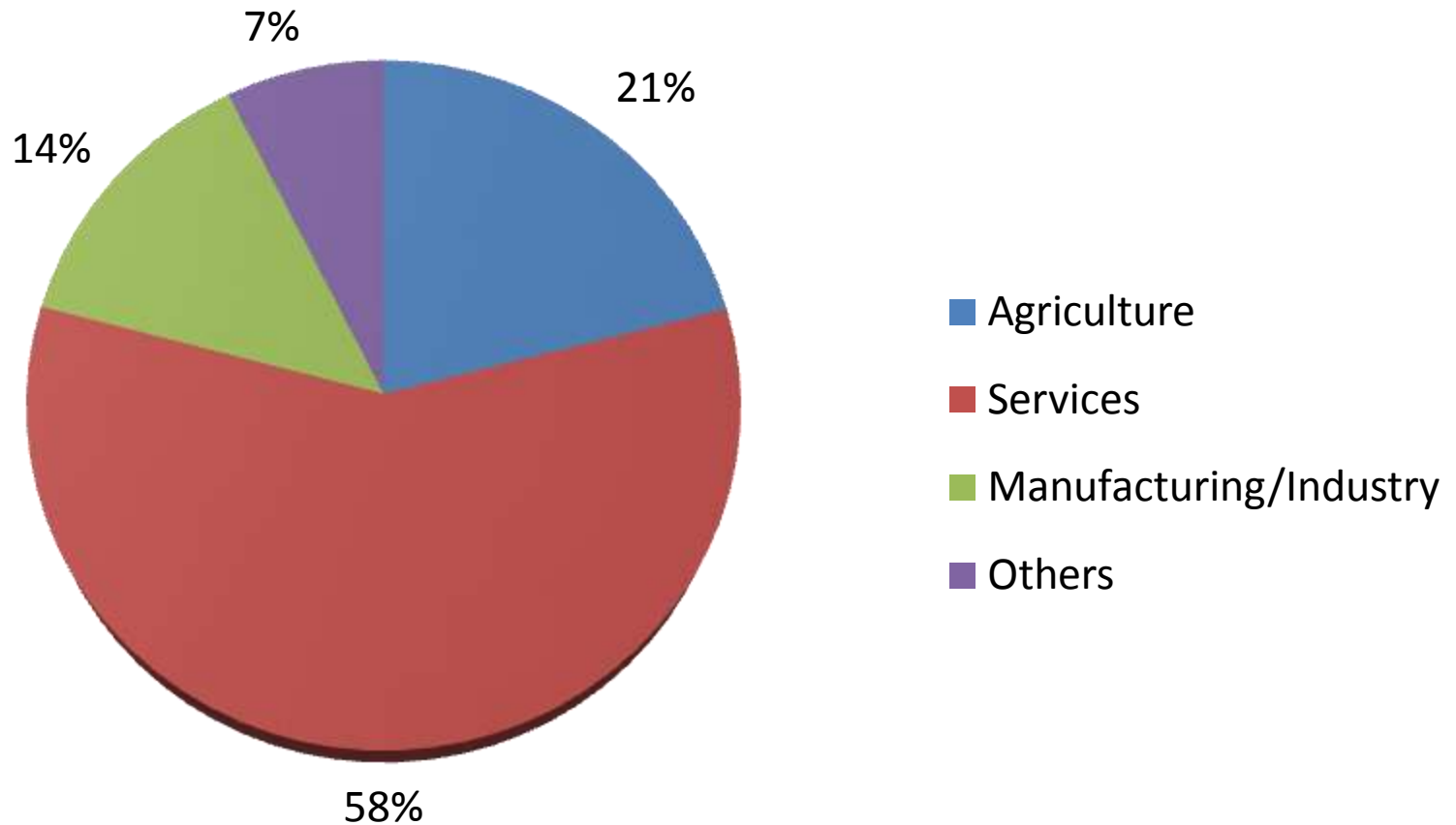
# Natural Resource Base

Pakistan has **diverse landscapes**:

- **high mountain** ranges of the Himalayas, Karakoram and Hindu Kush,
- **snow-covered peaks**, eternal glaciers, and the inter-mountain valleys in the north,
- **snow and glacier melt** keeps the Indus Basin rivers **perennial**
- vast rich **irrigated plains** in the Indus basin
- undulating highly vulnerable agri. areas of rainfed Pothwar
- **stark deserts** and rugged rocky expanse of plateaus in the south-west of Balochistan

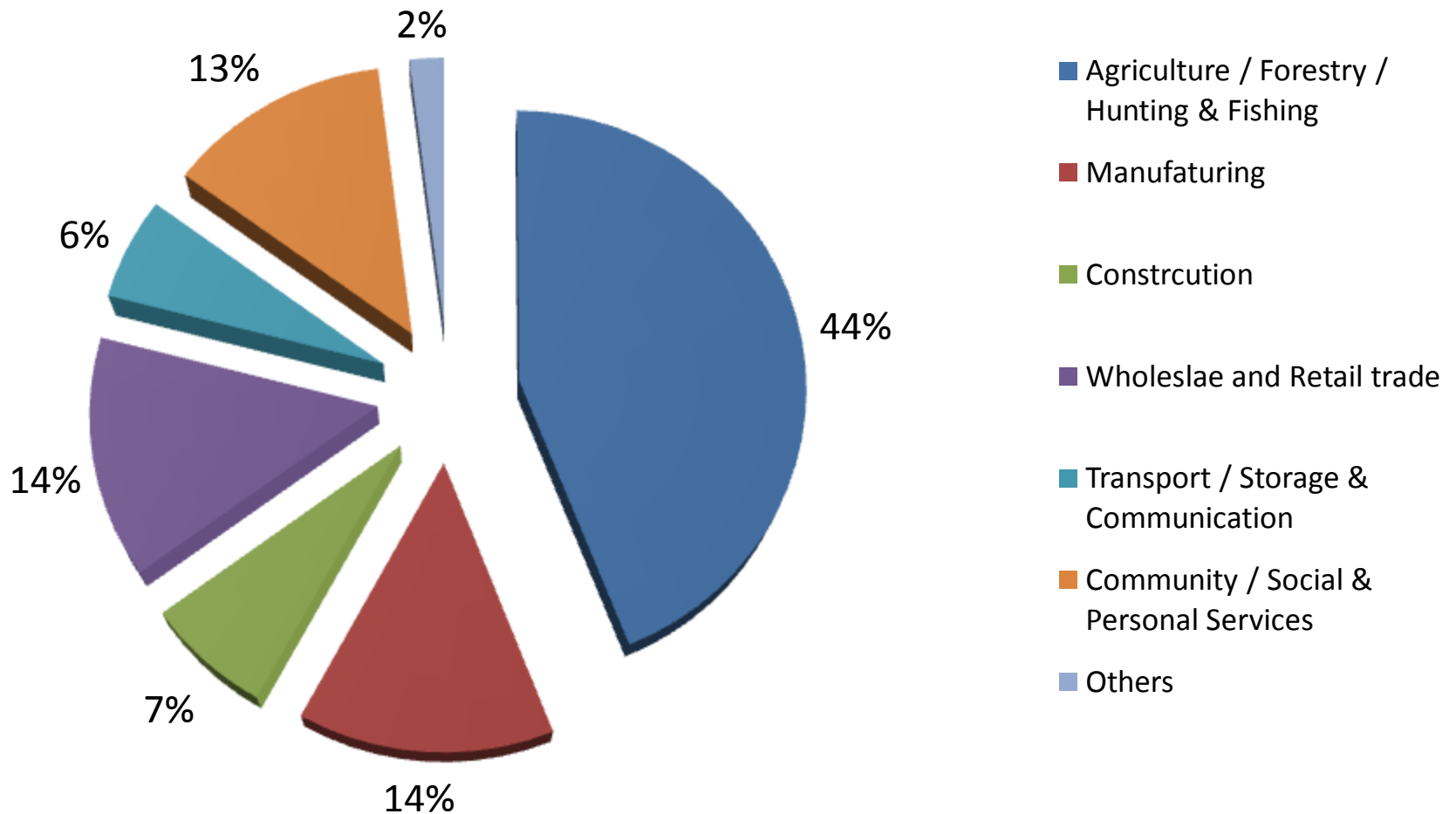


# Agriculture: Contribution to GDP



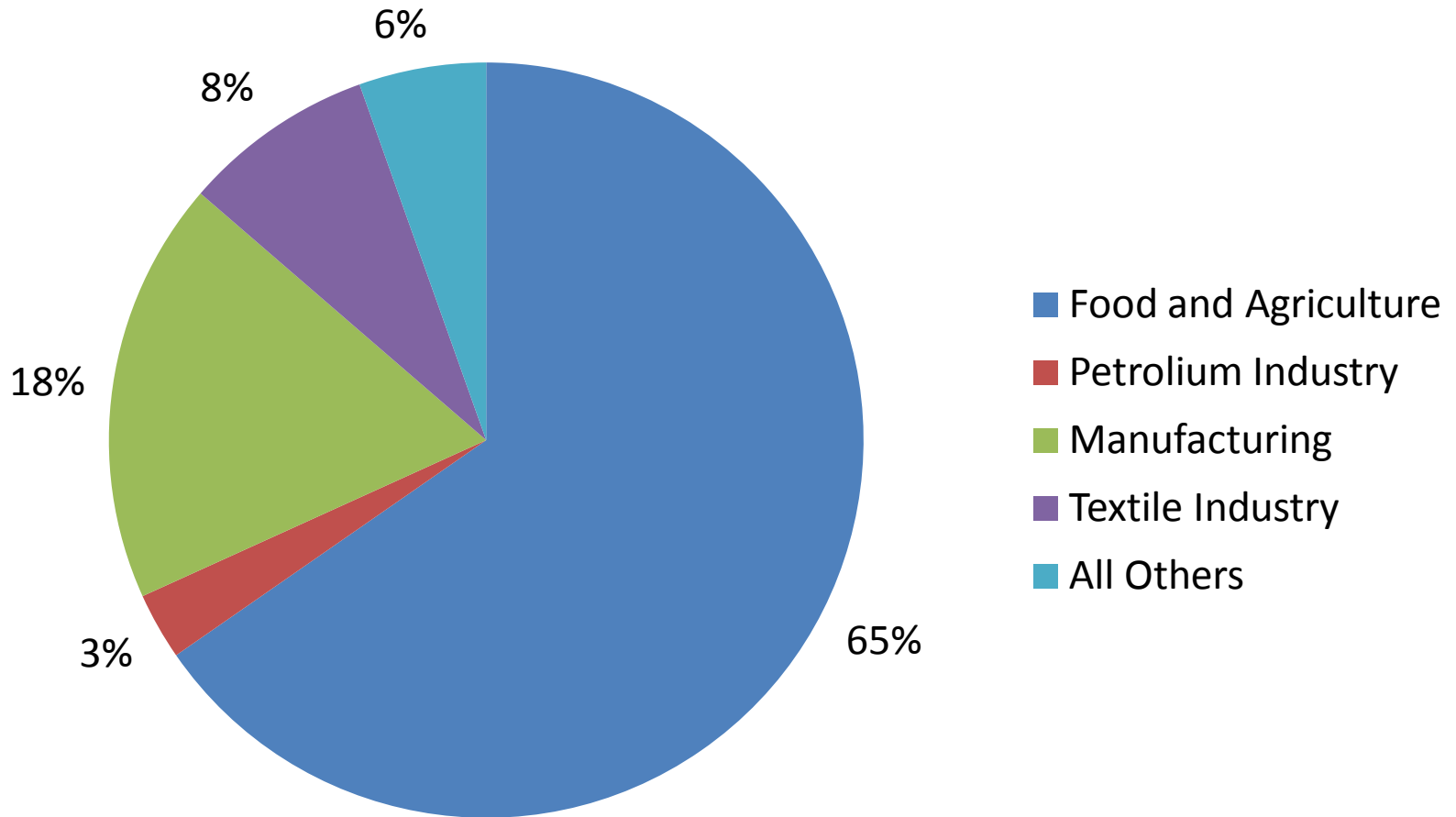
**Contributes 21 percent to GDP**

# Agriculture: Employment Share



**Employs 44% of the country's labour force and 60% of rural population depends upon this sector for livelihood**

# Agriculture: Exports Share



**Contributes around 65% to exports of the country**

# Agricultural Statistics - Importance

- Agriculture sector --- 'Engine for economic growth'
- Agriculture databases are required for timely availability of reliable information by the:
  - Policy makers
  - Planners
  - Development practitioners
  - Researchers
  - NGOs
  - Business community
- To ensure food security and economic development of the country

# STATISTICAL ACTS

- **Objectives**

- To provide legal protection and support to the statistical activities in the country

- **Acts Passed**

- Industrial Statistics Act, 1942 (adopted after independence)
- General Statistics Act, 1975 --- enacted to collect reliable and quality statistics
- Population Census Ordinance, 1959
- Agricultural Census Act, 1958 and
- The General Statistics (Reorganization) Act, 2011



# STATISTICAL COUNCILS

- **National Statistical Council (NSC)**
  - Established for setting statistical priorities for different statistical activities at national level
  - The Statistics Division is Secretariat of the National Statistical Council
  
- **Provincial Statistical Councils**
  - Constituted for coordinating provincial statistical activities
  - Provincial Bureaus of Statistics act as the Secretariats of the respective Provincial Councils

# Structure of Statistical System

- Statistical System of Pakistan:
  - Centralized --- Federal Level
  - Decentralized --- Provincial Level
- Federal level
  - Statistics Division (now replaced with PBS) comprised of three departments
    - Federal Bureau of Statistics (FBS)
    - Population Census Organization (PCO)
    - [Agricultural Census Organization \(ACO\)](#)
- Provincial level
  - Bureau of Statistics --- an attached department of respective Planning and Development Departments

# Pakistan Bureau of Statistics (PBS)

PBS established by merging:

- ❖ Federal Bureau of Statistics
- ❖ Population Census Organization
- ❖ Agricultural Census Organization and
- ❖ Technical Wing of the Statistics Division

All are now placed at **one place**, called **Statistical House in Islamabad**

# Agricultural Census Organization (ACO)

## Chronology:

- **1950** - Central Statistical Office (CSO) was setup by the Government of Pakistan as an attached department of Economic Affairs Division
- **1958** - ACO established under Ministry of Agriculture & Works
- **1972** - CSO was upgraded to a full-fledged Statistics Division
- **1978** - ACO transferred to the Statistics Division and since then its scope has been expanding
- ACO wing conducted agriculture related censuses to fulfill the requirements of Agricultural Census Act 1958 (defunct now)
- The Agricultural Census, Livestock Census, Agricultural Machinery Census and Mouza/Village Census are main outputs of the ACO wing

# ACO – Main Functions

Undertakes planning and execution of the censuses/surveys and processes all the information gathered

## Major Tasks:

- Determination of Scope and Formulation of Questionnaires
- Designing of Sample and Sample Selection
- Preparation of Census Schedules and Development of Instruction Manuals
- Laying down Census/Survey Methodology
- Training of Census Master Trainers, Field Supervisors and Census Enumerators
- Coding and Editing
- Data Entry
- Computer Edit and Tabulation
- Quality Control
- Preparation and Printing of Reports (Country, Provincials etc.)

# ACO - Geographical Coverage

Whole Pakistan:

- 1) Khyber Pakhtunkhwa province including FATA & PATA
- 2) Punjab province including Cholistan & Islamabad
- 3) Sindh province
- 4) Balochistan province
- 5) The Gilgit-Baltistan and Azad Jammu & Kashmir, each as a separate entity

## REGIONAL/FIELD OFFICES OF PBS

Province	No. of Regional Offices	No. of Field Offices	Total
Punjab	7	8	15
Sindh	4	4	8
KPK	5	-	5
Balochistan	1	3	4
Azad J & K.	1	-	1
Gilgit / Baltistan	-	1	1
<b>Total</b>	<b>18</b>	<b>16</b>	<b>34</b>

Field Services Wing

# ACO – Main Censuses

- Decennial **Agricultural Censuses** conducted in the years ending with digit 'zero'
- Decennial **Agricultural Machinery Censuses** in the years ending with digit 'four'
- Decennial **Livestock Censuses** conducted in the years ending with digit 'six'
- Quinquennial Mouza/**Village Censuses**, once before Agricultural Census in the digit 'eight' and once in the digit 'three' before every livestock census, to update sampling frame of Mouzas/villages
- Any other census/survey when directed by the Federal Government



# Agricultural Machinery Census - Scope

- All public and private tractors/bulldozers/combine harvesters used wholly or partly for agricultural purposes (non-agricultural equipment excluded)
- The farm implements normally pulled or operated with tractors and in possession of tractor owners
- All public and private tube-wells, wells with pumps/lift pumps/submersible pumps used for irrigation purposes (not for drinking water)
- All private modern irrigation systems (MISs) installed for agricultural purposes

# Sample Survey Forms



GOVERNMENT OF PAKISTAN  
AGRICULTURAL CENSUS ORGANIZATION

AGRICULTURAL  
MACHINERY CENSUS 2004

FORM - 1  
LIST OF PRIVATE TRACTORS / BULLDOZERS  
COMBINE HARVESTERS

(To be filed in separately for each Union Council / Town Committee / Municipality)

1- DISTRICT:	2- SUB-DIVISION:	3- TEHSIL:
4- NAME OF UNION COUNCIL / TOWN COMMITTEE / MUNICIPALITY:		
5- NAME OF FIELD ASSISTANT	6- STARTING DATE:	7- COMPLETION DATE:

NAME OF MOUZA/DEH KILL/VASTI	SL. NO.	NAME FATHER'S NAME & ADDRESS OF OWNER	TYPE OF OWNERSHIP	NAME OF TRACTOR / BULLDOZER/ COMBINE HARVESTER	MODEL	HORSE POWER	YEAR OF MANUFACTURE	YEAR OF PURCHASE	GENERAL USE	OWNERSHIP OF TRACTOR DRAWN IMPLEMENTS				SL.NO.OF SELECTED TRACTOR
										NAME	NOS.	NAME	NOS.	
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
			INDIV 01	MASSEY 01	UNIVERSAL 17				AGRI CULTURAL 01	CULTIVATOR 01		THRESHER 09		
			JOINT 02	FIAT 02	OTHERS NAME.....					M.B.PLOUGH 02		TROLLEY 10		
			NUMBER	FORD 03						DISK PLOUGH 03		CHISEL PLOUGH 11		
			-----	IMT 04	BULLDOZER 21					BLADE 04		ROTAVATOR 12		
			CO-OP 03	BELARUS 05	COMBINE HARVESTER 22				NON-AGRI CULTURAL 02	DRILL 05		RIDGER 21		
										DISK HARROW 06		OTHERS NAME.....		
										SPRAYER 07		OTHERS NAME.....		
										REAPER 08		OTHERS NAME.....		
			INDIV 01	MASSEY 01	UNIVERSAL 17				AGRI CULTURAL 01	CULTIVATOR 01		THRESHER 09		
			JOINT 02	FIAT 02	OTHERS NAME.....					M.B.PLOUGH 02		TROLLEY 10		
			NUMBER	FORD 03						DISK PLOUGH 03		CHISEL PLOUGH 11		
			-----	IMT 04	BULLDOZER 21					BLADE 04		ROTAVATOR 12		
			CO-OP 03	BELARUS 05	COMBINE HARVESTER 22				NON-AGRI CULTURAL 02	DRILL 05		RIDGER 21		
										DISK HARROW 06		OTHERS NAME.....		
										SPRAYER 07		OTHERS NAME.....		
										REAPER 08		OTHERS NAME.....		
			INDIV 01	MASSEY 01	UNIVERSAL 17				AGRI CULTURAL 01	CULTIVATOR 01		THRESHER 09		
			JOINT 02	FIAT 02	OTHERS NAME.....					M.B.PLOUGH 02		TROLLEY 10		
			NUMBER	FORD 03						DISK PLOUGH 03		CHISEL PLOUGH 11		
			-----	IMT 04	BULLDOZER 21					BLADE 04		ROTAVATOR 12		
			CO-OP 03	BELARUS 05	COMBINE HARVESTER 22				NON-AGRI CULTURAL 02	DRILL 05		RIDGER 21		
										DISK HARROW 06		OTHERS NAME.....		
										SPRAYER 07		OTHERS NAME.....		
										REAPER 08		OTHERS NAME.....		


**FORM - 2**  
**QUESTIONNAIRE FOR TRACTOR OWNER AND TRACTOR**

1- DISTRICT:	2- SUB-DIVISION:	3- TEHSIL:			
4- NAME OF UNION COUNCIL / TOWN COMMITTEE / MUNICIPALITY:					
5- NAME OF MOUZA / DEH / KILLI / BASTI:	6- SL.NO.OF SELECTED TRACTOR (FORM-1,COL.15):				
7- NAME OF TRACTOR OWNER:	8- NUMBER OF TRACTORS OWNED:	003	002		
9- IF MORE THAN ONE TRACTOR ARE OWNED, WRITE THE LOCATION OF OTHER TRACTOR(S):					
<b>PART - 1: FOR TRACTOR OWNER</b>					
<b>DETAIL OF AREA OPERATED</b>		<b>AREA (IN ACRES)</b>	<b>Code</b>		
10- TOTAL AREA OWNED (LOCATED ANY WHERE IN THE COUNTRY)			004		
11- AREA GIVEN TO OTHERS ON SHARE CROPPING, LEASE OR ON ANY OTHER TERMS			005		
12- BALANCE OF AREA OWNED (10 MINUS 11)			006		
13- AREA TAKEN FROM OTHERS FOR CULTIVATION ON SHARE CROPPING, LEASE OR ON ANY OTHER TERMS			007		
14- TOTAL AREA OPERATED ( 12 PLUS 13 )			008		
15- OUT OF TOTAL AREA OPERATED HOW MUCH IS CULTIVATED			009		
16- OUT OF TOTAL AREA OPERATED HOW MUCH IS UNCULTIVATED			010		
17- AREA ADDED TO FARMING AFTER PURCHASE OF TRACTOR			011		
18- IF AREA IS REPORTED IN Q NO.17, GIVE DETAILS OF AREA ADDED:					
a - BY MAKING OWNED UNCULTIVATED AREA CULTIVABLE			012		
b - BY PURCHASE OF ADDITIONAL LAND			013		
c - BY TAKING LAND FROM OTHERS ON SHARE CROPPING, LEASE OR ON ANY OTHER TERMS			014		
d - BY EVICTION OF TENANTS			015		
<b>CHANGE IN LABOUR AND DRAUGHT ANIMALS AFTER PURCHASE OF TRACTOR</b>		<b>LABOUR AND DRAUGHT POWER</b>			
		AT PRESENT	CODE	BEFORE PURCHASE OF TRACTOR	CODE
		1	2	3	4
19- NUMBER OF FAMILY MEMBERS ENGAGED WHOLE TIME ON THEIR OWN FARM			017		016
20- NUMBER OF PERMANENT HIRED AGRICULTURAL WORKERS			019		018
21- NUMBER OF WORK ANIMALS			021		020
22- NEED OF TEMPORARY LABOUR FOR AGRICULTURAL PURPOSE AFTER PURCHASE OF TRACTOR:					
INCREASED <input type="checkbox"/> 1		DECREASED <input type="checkbox"/> 2		NO CHANGE <input type="checkbox"/> 3	022

## PART - II FOR TRACTOR

23- NAME OF THE SELECTED TRACTOR (AS PER FORM - 1, COL 5) :		CODE ( )	023		
24- WHETHER PURCHASED NEW OR OLD:		NEW <input type="checkbox"/> 1	OLD <input type="checkbox"/> 2		
25- PRESENT CONDITION:		IN SERVICE <input type="checkbox"/> 1	NEED REPAIRS <input type="checkbox"/> 2		
		UNSERVICEABLE <input type="checkbox"/> 3	025		
26- TRACTOR DRIVER:		FAMILY MEMBER <input type="checkbox"/> 1	PAID DRIVER <input type="checkbox"/> 2		
27- IN WHICH INSTITUTION THE DRIVER HAS GOT TRAINING:		TRACTOR COMPANY'S INSTITUTION <input type="checkbox"/> 1	GOVT. INSTITUTION <input type="checkbox"/> 2		
		OTHERS <input type="checkbox"/> 3	NONE <input type="checkbox"/> 4		
28- SOURCES OF FINANCE FOR PURCHASE OF TRACTOR AND TRACTOR DRAWN IMPLEMENTS:		OWN <input type="checkbox"/> 1	028		
		LOAN <input type="checkbox"/> 2	029		
29- NUMBER OF OWNED TRACTOR DRAWN IMPLEMENTS EXCEPT THOSE INDICATED IN FORM-1 AND SELF PROPELLED IMPLEMENTS:					
NAME OF IMPLEMENT	NUMBER	CODE	NAME OF IMPLEMENT	NUMBER	CODE
a - SUB-SOILER		095	h- FODDER CHOPPER		102
b - LASER LEVELLER		096	i- MAIZE SHELLER		103
c - POTATO PLANTER		097	j- SEED DELINER		104
d - POTATO DIGGER		098	k- SEED TREATER		105
e - SUGARCANE PLANTER		099	l- SEED GRADER / SEED CLEANER		106
f - SUGARCANE CRUSHER		100	m - OTHERS (NAME) _____		
g - FERTILIZER BROADCASTER		101	n - OTHERS (NAME) _____		
30-WHICH IMPLEMENTS WERE RENTED IN FOR USE DURING LAST TWELVE MONTHS:				030	
_____ <input type="checkbox"/> 034 _____ <input type="checkbox"/> 033 _____ <input type="checkbox"/> 032 _____ <input type="checkbox"/> 031 _____					
31-WHICH IMPLEMENTS ARE INTENDED TO BE PURCHASED IN FUTURE:				035	
_____ <input type="checkbox"/> 039 _____ <input type="checkbox"/> 038 _____ <input type="checkbox"/> 037 _____ <input type="checkbox"/> 036 _____					

32- AREA PLOUGHED WITH TRACTOR DURING THE LAST 12 MONTHS :	AREA (IN ACRES)	CODE
1	2	
a - TRACTOR OWNER'S OPERATED AREA		040
b - OTHER FARMERS' AREA		041

33- FOR WHICH GIVEN PURPOSES TRACTOR WAS USED DURING THE LAST 12 MONTHS:

a - LAND LEVELING	<input type="text" value="01"/>	043	g - FERTILIZER BROADCASTING	<input type="text" value="07"/>	042
b - PLOUGHING	<input type="text" value="02"/>	045	h - HARVESTING	<input type="text" value="08"/>	044
c - SOWING	<input type="text" value="03"/>	047	i - THRESHING	<input type="text" value="09"/>	046
d - SPRAYING	<input type="text" value="04"/>	049	j - TUBEWELL / LIFT PUMP OPERATION	<input type="text" value="10"/>	048
e - WEEDING	<input type="text" value="05"/>	051	k - TRANSPORTATION	<input type="text" value="11"/>	050
f - BAND MAKING	<input type="text" value="06"/>	053	l - OTHERS (SPECIFY) _____	<input type="text"/>	052

34- USE OF TRACTOR DURING THE LAST 12 MONTHS:

a - NUMBER OF DAYS TRACTOR WORKED _____ DAYS	054
b - AVERAGE NUMBER OF HOURS WORKED PER DAY _____ HOURS	055
c - TOTAL HOURS WORKED (a x b) _____ HOURS	056
d - HOW MANY HOURS WORKED FOR PAYMENT _____ HOURS	057

35- PROPORTION OF TOTAL TRACTOR TIME USED ON TRANSPORTATION

WITH TROLLEY DURING THE LAST 12 MONTHS : (a)..... PART (b)..... HOURS (34c X 35a)	058
c - TIME SPENT FOR AGRICULTURAL PURPOSES OUT OF THE TOTAL TIME (35b) ENGAGED WITH TROLLEY : _____ HOURS	059
d - TIME SPENT FOR NON-AGRICULTURAL PURPOSES OUT OF THE TOTAL TIME(35b) ENGAGED WITH TROLLEY : _____ HOURS	060

36- DO YOU RENT OUT YOUR TRACTOR?

YES <input type="text" value="1"/>	NO <input type="text" value="2"/>	061
IF "YES" THEN SPECIFY THE PURPOSE FOR WHICH TRACTOR IS USED:		
ONLY AGRICULTURE <input type="text" value="1"/>	ONLY NON AGRICULTURE <input type="text" value="2"/>	AGRI.& NON AGRI. <input type="text" value="3"/>
		062

37- INDICATE NORMAL TRACTOR HIRING CHARGES PREVAILING IN MOUZA FOR THE FOLLOWING OPERATIONS :

NATURE OF WORK	CHARGES	CODE	NATURE OF WORK	CHARGES	CODE
1	2	3	4	5	6
a - PLOUGHING (PER ACRE IN RUPEES)		063	h - PLOUGHING + PLANKING (PER ACRE IN RUPEES)		070
b - LEVELING (PER HOUR IN RUPEES)		064	i - CHISEL PLOUGHING (PER ACRE IN RUPEES)		071
c - WEEDING / HOING (PER ACRE IN RUPEES)		065	j - RIDGE MAKING (PER ACRE IN RUPEES)		072
d - SPRAYING (PER ACRE IN RUPEES)		066	k - DRILLING (PER ACRE IN RUPEES)		073
e - WHEAT HARVESTING (PER ACRE IN RUPEES)		067	l - SUGARCANE CRUSHING (PER HOUR IN RUPEES)		074
f - WHEAT THRESHING (PER 40 KG IN KGS)		068	m - OPERATING TUBEWELL (PER HOUR IN RUPEES)		075
g - BAND MAKING (PER HOUR IN RUPEES)		069	n - OTHER WORK (SPECIFY)		076

## 38- USUAL SOURCES OF TRACTOR REPAIR AND THEIR USE:

SOURCE OF REPAIR	DISTENCE (IN KMS)	CODE	WORKSHOP FROM WHERE TRACTOR GOT REPAIRED DURING LAST 12 MONTHS	CODE
1	2	3	4	5
a) DEALER'S WORKSHOP		078	<input type="checkbox"/> 1	077
b) PRIVATE WORKSHOP		080	<input type="checkbox"/> 2	079
c) GOVERNMENT WORKSHOP		082	<input type="checkbox"/> 3	081

39- ARE YOU SATISFIED WITH THE AVAILABLE FACILITIES IN THE WORKSHOP?

YES  1 NO  2

IF 'NO' MARK THE RELEVANT CAUSE:

a- EXPENSIVE  1b- SUB STANDARD  2c- OTHERS (SPECIFY)  3

40- AVAILABILITY OF SPARE PARTS FOR REPAIR OF TRACTOR:

a- FROM LOCAL AREA  1b- FROM NEARBY CITY / TOWN  2c- FROM DISTANT CITY  3

41- HOW LONG THE TRACTOR REMAINED OUT OF ORDER DURING THE LAST 12 MONTHS:

(IN DAYS \_\_\_\_\_ )

42- AFTER HOW LONG USUALLY, YOU GET YOUR TRACTOR SERVICED:

(AFTER \_\_\_\_\_ HOURS )

43- IF PURCHASE PERIOD OF TRACTOR IS LESS THAN A YEAR, GIVE THE PERIOD IN MONTHS :

\_\_\_\_\_ MONTHS

NAME & DESIGNATION  
OF THE ENUMERATOR.....

DATE OF COMPLETION.....

NAME & DESIGNATION  
OF VERIFIER .....

DATE OF VERIFICATION .....

NAME OF THE  
RESPONDENT .....RELATION WITH  
THE OWNER OF  
TRACTOR .....

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**FORM - 3-A**  
**LIST OF MODERN IRRIGATION SYSTEMS**  
(To be filed in separately for each Union Council)

1- DISTRICT:	2- SUB-DIVISION:	3- TEHSIL:
4- NAME OF UNION COUNCIL / TOWN COMMITTEE / MUNICIPALITY:		
5- NAME OF FIELD ASSISTANT:	6- STARTING DATE:	7- COMPLETION DATE:

8- LIST OF MODERN IRRIGATION SYSTEMS IN UNION COUNCIL:  
(NOTE: IN CASE OF MORE THAN ONE SYSTEM(S) MENTION PLACE OF INSTALLATION IN COL. NO.2.)

NAME OF MOUZA / DEH KILU / BASTI	NAME, FATHER'S NAME AND ADDRESS OF OWNER OF MODERN IRRIGATION SYSTEM	SL.NO.	TYPE OF MODERN IRRIGATION SYSTEM	YEAR OF INSTALLATION	TOTAL OPERATED AREA (IN ACRES)	AREA IRRIGATED BY IRRIGATION SYSTEM GIVEN IN COLUMN - 4 (IN ACRES)
1	2	3	4	5	6	7
			SPRINKLER SYSTEM <input type="checkbox"/> 01 TRICKLE/ DRIP SYSTEM <input type="checkbox"/> 02			
			SPRINKLER SYSTEM <input type="checkbox"/> 01 TRICKLE/ DRIP SYSTEM <input type="checkbox"/> 02			
			SPRINKLER SYSTEM <input type="checkbox"/> 01 TRICKLE/ DRIP SYSTEM <input type="checkbox"/> 02			
			SPRINKLER SYSTEM <input type="checkbox"/> 01 TRICKLE/ DRIP SYSTEM <input type="checkbox"/> 02			
			SPRINKLER SYSTEM <input type="checkbox"/> 01 TRICKLE/ DRIP SYSTEM <input type="checkbox"/> 02			



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**FORM - 3**  
**LIST OF TUBEWELLS / LIFT PUMPS / WELL WITH PUMPS / SUBMERCIBLE PUMPS**  
(To be filed in separately for each Union Council / Town Committee / Municipality)

1- DISTRICT:	2- SUBDIVISION:	3- TENSIL:
4- NAME OF UNION COUNCIL / TOWN COMMITTEE / MUNICIPALITY:		
5- NAME OF FIELD ASSISTANT:	6- STARTING DATE:	7- COMPLETION DATE:
8- NUMBER OF TUBEWELLS AND LIFT PUMPS MEANT FOR IRRIGATION IN THE UNION COUNCIL / TOWN COMMITTEE / MUNICIPALITY:		

NOTE: ANSWER THIS QUESTION AFTER TAKING INFORMATION IN QUESTION NO.9.

NUMBER OF TUBEWELLS														
ELECTRIC				DIESEL				TOTAL						
CENTRI-FUGAL	TUR-BINE	WELL WITH PUMPS	SUBMER-CIBLE PUMPS	CENTRI-FUGAL	TUR-BINE	WELL WITH PUMPS	CENTRI-FUGAL	TUR-BINE	WELL WITH PUMPS	SUBMER-CIBLE PUMPS	IN WORKING ORDER			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
a) PRIVATE	01	02	03	04	05	06	07	08	09	10	11	12	13	14
b) GOVERNMENT	13	14	15	16	17	18	19	20	21	22	23	24	25	26
c) TOTAL	25	26	27	28	29	30	31	32	33	34	35	36	37	38

NUMBER OF LIFT PUMPS				
ELECTRIC		DIESEL		IN WORKING ORDER
1	2	3	4	5
a) PRIVATE		37	38	40
b) GOVERNMENT		41	42	44
c) TOTAL		45	46	48

9- LIST OF PRIVATE TUBEWELLS AND LIFT PUMPS MEANT FOR IRRIGATION'  
IN CASE OF OWNERSHIP OF MORE THAN ONE TUBEWELL / LIFT PUMP / WELL WITH PUMP / SUBMERCIBLE PUMP, GIVE PLACE OF INSTALLATION IN COL. 2

NAME OF MOUZA/ DEH/ KILLY BASTI	TUBEWELL / LIFT PUMP / WELL WITH PUMP / SUBMERCIBLE PUMP OWNER'S NAME, FATHER'S NAME AND ADDRESS	SL. NO.	PARTICULAR OF TUBEWELLS AND LIFT PUMPS							S. NO. OF SELECTED TUBEWELL/LIFT PUMP/ WELL WITH PUMP/ SUBMERCIBLE PUMP
			TUBEWELL/ LIFT PUMP/ WELL WITH PUMP/ SUBMERCIBLE PUMP	TYPE OF OWNERSHIP (FOR JOINT WRITE NO. OF OWNERS)	YEAR OF INSTAL-LATION	CAPACITY OF SUCTION / DELIVERY	MOTIVE POWER	WHETHER IN WORKING ORDER		
1	2	3	4	5	6	7	8	9	10	
			CENTRIFUGAL TW TURBINE TWELL LIFT PUMP WELL WITH PUMP SUBMERCIBLE PUMP	INDV JOINT NO CO-OP	01 02 03 04 05		ELECTRIC DIESEL HORSE POWER	YES NO	01 02	
			CENTRIFUGAL TW TURBINE TWELL LIFT PUMP WELL WITH PUMP SUBMERCIBLE PUMP	INDV JOINT NO CO-OP	01 02 03 04 05		ELECTRIC DIESEL HORSE POWER	YES NO	01 02	
			CENTRIFUGAL TW TURBINE TWELL LIFT PUMP WELL WITH PUMP SUBMERCIBLE PUMP	INDV JOINT NO CO-OP	01 02 03 04 05		ELECTRIC DIESEL HORSE POWER	YES NO	01 02	

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## FORM-4

## QUESTIONNAIRE FOR TUBEWELL / LIFT PUMP / WELL WITH PUMP / SUBMERCIBLE PUMP

1- DISTRICT:	2- SUB-DIVISION:	3- TENSIL:	
4- NAME OF UNION COUNCIL / TOWN COMMITTEE / MUNICIPALITY:			
5- NAME OF MOUZA/DEHKILLI/BASTI:	6- SL. NO. OF SELECTED TUBEWELL / LIFT PUMP / WELL WITH PUMP / SUBMERCIBLE PUMP (FORM-3, QUESTION-9, COL. 10): →		
7- NAME OF OWNER:	COPY THE CODE FROM FORM-3, QUESTION-9, COLUMN-4:	<input type="checkbox"/>	002
DETAIL OF AREA OPERATED		AREA (IN ACRES)	CODE
8- TOTAL AREA OWNED (LOCATED ANYWHERE IN THE COUNTRY)			003
9- AREA OWNED BUT GIVEN TO OTHERS ON SHARE CROPPING, LEASE OR ON ANY OTHER TERMS			004
10- BALANCE OF AREA OWNED (8 MINUS 9)			005
11- AREA TAKEN FROM OTHERS ON SHARE CROPPING, LEASE OR ON ANY OTHER TERMS			006
12- TOTAL AREA OPERATED (10 PLUS 11)			007
13- CULTIVATED AREA OUT OF TOTAL OPERATED AREA			008
14- UNCULTIVATED AREA OUT OF TOTAL OPERATED AREA			009
15- AREA ADDED TO FARMING AFTER INSTALLATION OF TUBEWELL / LIFT PUMP / WELL WITH PUMP / SUBMERCIBLE PUMP			010
16- YEAR OF INSTALLATION / PURCHASE OF TUBEWELL / LIFT PUMP / WELL WITH PUMP / SUBMERCIBLE PUMP			011
17- TYPE OF MOTIVE POWER:	ELECTRIC <input type="checkbox"/> 1	DIESEL <input type="checkbox"/> 2	OTHERS <input type="checkbox"/> 3
IF DIESEL THEN TYPE OF DIESEL:	SLOW SPEED <input type="checkbox"/> 1	HIGH SPEED <input type="checkbox"/> 2	
18- TUBEWELL / LIFT PUMP / WELL WITH PUMP / SUBMERCIBLE PUMP OPERATOR:		FAMILY MEMBER <input type="checkbox"/> 1	PAID OPERATOR <input type="checkbox"/> 2
19- SIZE OF PIPE:		FOR DELIVERY ..... INCH	015
		FOR SUCTION ..... INCH	016
20- TYPE OF FILTER:	COPPER <input type="checkbox"/> 1	COCONUT <input type="checkbox"/> 2	PLASTIC <input type="checkbox"/> 3
		CEMENT <input type="checkbox"/> 4	OTHERS <input type="checkbox"/> 5
21- LENGTH OF FILTER: .....	FEET		018
22- HORSE POWER OF ELECTRIC MOTOR / DIESEL ENGINE: .....			019
23- DEPTH OF WATER TABLE: a) AT THE TIME OF INSTALLATION .....		FEET	020
b) PRESENT .....		FEET	021
24- WAS WATER GOT TESTED BEFORE INSTALLATION ?		YES <input type="checkbox"/> 1	NO <input type="checkbox"/> 2
IF "YES" THEN FITNESS OF WATER ACCORDING TO TEST REPORT:		FIT <input type="checkbox"/> 1	UNFIT <input type="checkbox"/> 2
		PARTIALLY FIT <input type="checkbox"/> 3	023
25- FITNESS OF WATER FOR IRRIGATION AT PRESENT:		FIT <input type="checkbox"/> 1	UNFIT <input type="checkbox"/> 2
		PARTIALLY FIT <input type="checkbox"/> 3	024
26- WHICH AGENCY BORED TUBEWELL:	GOVERNMENT <input type="checkbox"/> 1	PRIVATE <input type="checkbox"/> 2	025
27- WHICH AGENCY INSTALLED TUBEWELL:	GOVERNMENT <input type="checkbox"/> 1	PRIVATE <input type="checkbox"/> 2	026

# AMC\* 2004 - Main Findings

## TRACTORS POPULATION

Administrative Unit	Number of Tractors			Percentage Increase	
	1984	1994	2004	1984 to 1994	1994 to 2004
Pakistan	157,310	252,861	401,663	61	59
NWFP/KPK	10,105	14,571	24,269	44	67
Punjab	127,589	210,628	331,905	65	58
Sindh	16,542	23,182	36,245	40	56
Balochistan	3,074	4,480	9,244	46	106

\* Agriculture Machinery Census

# AMC\* 2004 - Main Findings

## TRACTOR DRAWN IMPLEMENTS AND EQUIPMENT

Administrative Unit	Census Year	Implement						Equipment	
		Culti- vator	Mould Board Plough	Bar / Disk Harrow	Disk Plough	Seed Drill / Planter	Ridger	Trolly	Thresher
Pakistan	2004	369,866	40,050	23,764	29,218	70,810	71,338	242,655	137,270
	1994	236,272	28,413	13,233	20,372	64,126	10,984	176,412	112,707
	1984	146,863	7,319	8,140	6,355	11,251	4,711	98,787	78,377
NWFP/KPK	2004	21,440	3,004	540	1,371	1,644	658	18,709	9,761
	1994	12,722	1,993	438	879	1,226	46	11,283	5,997
	1984	9,702	377	357	392	299	54	6,808	2,945
Punjab	2004	317,506	27,093	16,032	16,471	66,700	66,806	195,332	112,655
	1994	203,444	17,980	8,302	10,485	60,835	10,872	145,557	96,655
	1984	123,755	2,780	2,734	1,134	10,669	4,030	81,668	71,195
Sindh	2004	26,998	6,357	6,786	9,602	2,147	3,471	21,881	11,626
	1994	17,993	5,908	4,341	8,121	1,237	55	15,681	9,018
	1984	11,244	2,917	4,839	4,644	218	574	8,018	4,166
Balochistan	2004	3,922	3,596	406	1,774	319	403	6,733	3,228
	1994	2,113	2,532	152	887	828	11	3,891	1,037
	1984	2,162	1,245	210	185	65	53	2,293	71

# AMC\* 2004 - Main Findings

## TUBEWELLS POPULATION

Administrative Unit	Number of Tubewells / Lift Pumps Vide Censuses of			Per cent Increase	
	1984	1994	2004	1984 to 1994	1994 to 2004
Pakistan	237,990	454,257	931,048	91	105
NWFP / KPK	9,217	14,365	21,524	56	50
Punjab	214,106	414,188	837,904	93	102
Sindh	9,481	16,236	50,683	71	212
Balochistan	5,186	9,468	20,937	83	121

# Farm Machinery Census – Data Types

<b>Machines</b>	<b>Data Description</b>
<b>Tractors</b>	<ul style="list-style-type: none"><li>■ Tractor population by ownership type (public/private)</li><li>■ Private tractor owners by land tenure status (owner, tenant/share crop)</li><li>■ Tractor population by make and horsepower</li><li>■ Tractor population by year of purchase</li><li>■ Private tractors purchased as new or used &amp; their present condition</li><li>■ Renting out private tractor time</li><li>■ Average tractor hiring charges for different operations by horse power</li><li>■ Area added to farming after purchasing tractor, employment (family, casual &amp; permanent hired labor)</li><li>■ Tractor remained out of order in past 12 months</li><li>■ Miscellaneous --- Availability of tractor workshops by distance, private tractors repaired, performance of tractor workshops, availability of spare parts, service interval of private tractor by makes</li></ul>
<b>Bulldozers, combine Harvesters</b>	<ul style="list-style-type: none"><li>■ Bulldozers by ownership type</li><li>■ Combine harvesters by ownership types</li></ul>

# Farm Machinery Censuses – Data Types

<b>Machines</b>	<b>Data Description</b>
<b>Tractor operated equipment</b>	<ul style="list-style-type: none"><li>■ Levelling and cultivating equipment owned by tractor owners</li><li>■ Sowing, fertilizing and spraying equipment owned by tractor owners</li><li>■ Harvesting, haulage and processing equipment (owned, rented, purch)</li><li>■ Miscellaneous equipment</li><li>■ Purchased equipment and source of finance</li></ul>
<b>Tubewells</b>	<ul style="list-style-type: none"><li>■ Tubewells and lift pumps by type of power (electric, diesel)</li><li>■ Private tubewells and lift pumps by type of ownership &amp; tenure</li><li>■ Private centrifugal and turbine tubewells by types of ownerships</li><li>■ Private wells with pump and sub-mercible pumps by type of ownership</li><li>■ Private tubewells and lift pumps by year of installation</li><li>■ Private tubewells by horse power of installed diesel/electric motors</li><li>■ Private tubewells by depth of water table now and at installation time</li><li>■ Private tubewells - water table difference now &amp; at installation time</li></ul>

# Farm Machinery Censuses – Data Types

<b>Machines</b>	<b>Data Description</b>
<b>Tubewells</b>	<ul style="list-style-type: none"><li>■ Private tubewells by boring, installation agency and fitness of water</li><li>■ Re-boring periodicity of private tubewells</li><li>■ Area irrigated by tubewell &amp; lift pump in rabi and kharif seasons</li><li>■ Area added to farming after installation of tubewells &amp; lift pumps</li><li>■ Effect of tubewells and lift pump irrigation on land productivity</li><li>■ Using and renting out time of private tubewells and lift pumps</li><li>■ Use and renting out time of private tubewells and lift pumps (hrs/year)</li><li>■ Private tubewells and lift pumps by purpose of installation</li><li>■ Tubewell operators by status and by type of household</li></ul>



# Farm Machinery Census – Future Data Needs

	Data Description
	<ul style="list-style-type: none"><li>■ Haulage ---- Mini-trucks, vans and Quing-Qui used for transporting agricultural inputs and outputs</li><li>■ Drills --- Fertilizer band placement drill, zero tillage drill</li><li>■ Harvesting --- wheat straw chopper, groundnut digger, fodder harvester, Motorized hand-held cereal harvesters</li><li>■ Oil extraction --- pressing machines, oil expellers</li><li>■ Poultry farming --- related equipment</li><li>■ Livestock -- related machinery</li><li>■ Wheat flour making (cutter, grinding)</li><li>■ Seed graders, potato graders, seed delinters, seed treater,</li><li>■ Service providers (landless, land holders)</li></ul>

# DATA DISSEMINATION

- Printing of Reports at Federal and Provincial levels
- Data are disseminated through websites developed by Federal Bureau of Statistics , Ministry of Finance and State Bank of Pakistan
- Socio-economic data alongwith details of tables and methodologies are downloadable from government of Pakistan official website <http://www.pbs.gov.pk/>
- Pakistan is one of the participating countries in the GDDS- General Data Dissemination System and provides all requested data
- GDDS Site of IMF provides data/information on data produced and disseminated by GDDS member countries

## **Other than the ACO, selected data is also managed by:**

- *'Zarai Taraqiati'* Bank (former Agricultural Development Bank of Pakistan)
- Other Selected Commercial Banks involved in facilitation and disbursement of Agricultural Loans
- Selected Agricultural Research and Development Institutes, e.g. ABEI and AMRI (Specific surveys e.g. Farm Accidents)
- Federal Board of Revenue (FBR) (for the purpose of collecting Sales Tax, import/export Taxes etc.)
- Agricultural Machinery Manufacturers Associations

# Agricultural Statistics and their sources

Agricultural Commodities	Source of Publication
Agricultural growth	Pakistan Bureau of Statistics
Production of Important Crops	Pakistan Bureau of Statistics
Area & Production of Major Oilseed Crops	Pakistan Oilseed Development Board
Fertilizer Situation	National Fertilizer Development Center
Seed Availability	Federal Seed Certification & Registration Deptt
Prices of Locally Manufactured Tractors	Tractor Manufacturers Association
Agricultural Mechanization	Agricultural Mechanization Organization
Rainfall	Pakistan Meteorological Department
Actual Surface Water Availability	Indus River System Authority
Canal Head Withdrawals	Indus River System Authority
Major Water Sector Projects	Planning Commission of Pakistan
Supply of Agricultural Credit by Institutions	State Bank of Pakistan
Livestock Population	Ministry of National Food Security & Research
Milk and Meat Production	Ministry of National Food Security & Research
Domestic/Rural & Commercial Poultry	Ministry of National Food Security & Research

# Challenges and Constraints for Collecting Agricultural Mechanization Statistics

- **Resources** - Data collection, compilation and its processing involve sizeable cost that private sector is un-willing to share
- **Credibility** - Durability and sustainability of data as the quantities reported are sometimes challengeable
- **Trust deficit** while seeking data from:
  - Industry
  - Credit facilitators/ Financial Institutions
  - Contractor or service providers
  - Large farmers
- **Coordination** - Lack of networking while collecting data from various public and private sectors organizations
- **Expertise** - Co-relations between various segments of data while analyzing e.g. land development machines such as scrapers not considered farm equipment, but as road construction equipment

# RECOMMENDATIONS

## ■ National Level:

- Enhancing
  - frequency of AMC – from decade to five years
  - interaction of ACO with provincial, national, regional and international agricultural mechanization entities - DDO
  - financial resources of the census organization
- Capacity building of the census organization – HR & Equipment
- Exploring expansion in the scope of AMC by encompassing mechanization technologies used in emerging areas such as livestock, poultry and agro-processing
- Accountability of data collection agencies in terms of delivering agricultural statistics of appropriate scope, quality, quantity and timeliness

# RECOMMENDATIONS

## ■ **Regional Level:**

- Formulation of a census framework for CSAM MCs
- Establishment and periodic updation of agricultural mechanization statistical database
- Capacity building – HR and Institutional through International Development Partners and financial institutions
- Facilitation in study visits of census staff amongst member countries
- Development of internet linkages for sharing data through respective websites

**THANKS**

The word "THANKS" is written in a bold, blue, sans-serif font. The letters have a slight 3D effect with a lighter blue shadow on the right side. Below the text is a reflection of the word, rendered in a lighter, semi-transparent blue color.