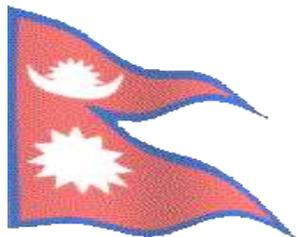


Country Report

Nepal



The 1st Annual Meeting on the Asian Pacific Network for Testing of Agricultural Machinery (ANTAM)

16-19 September 2014

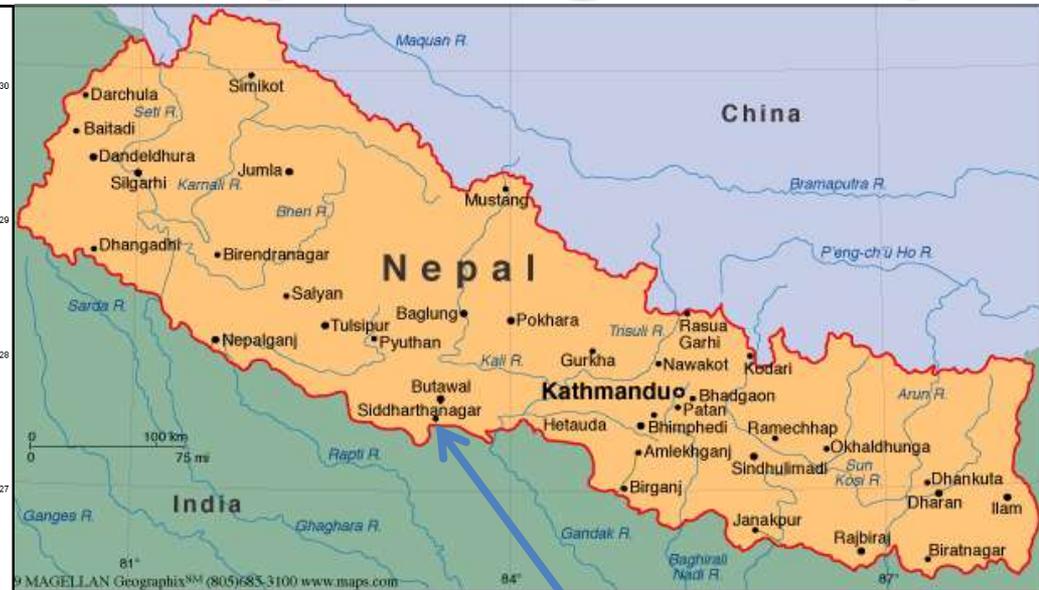
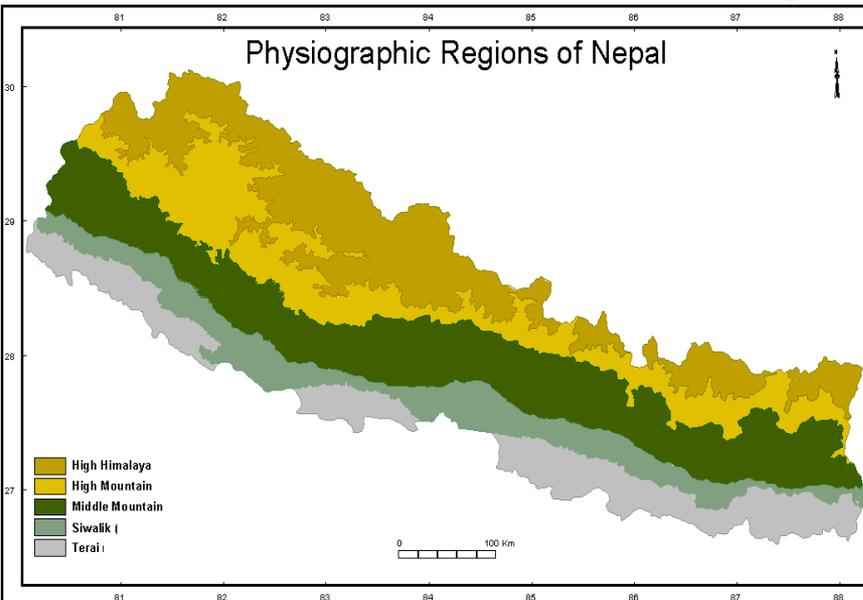
Beijing, China

Shreemat Shrestha,

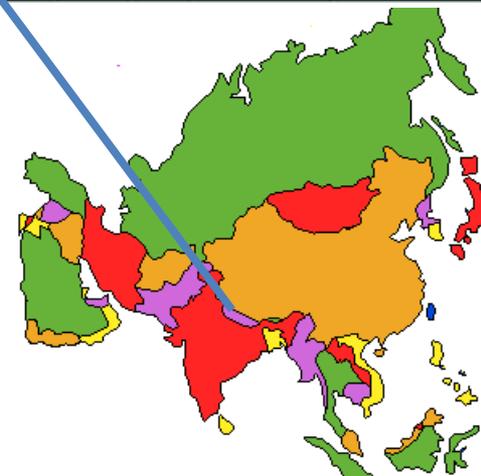
Chief, Agricultural Engineering Division
Nepal Agricultural Research Council



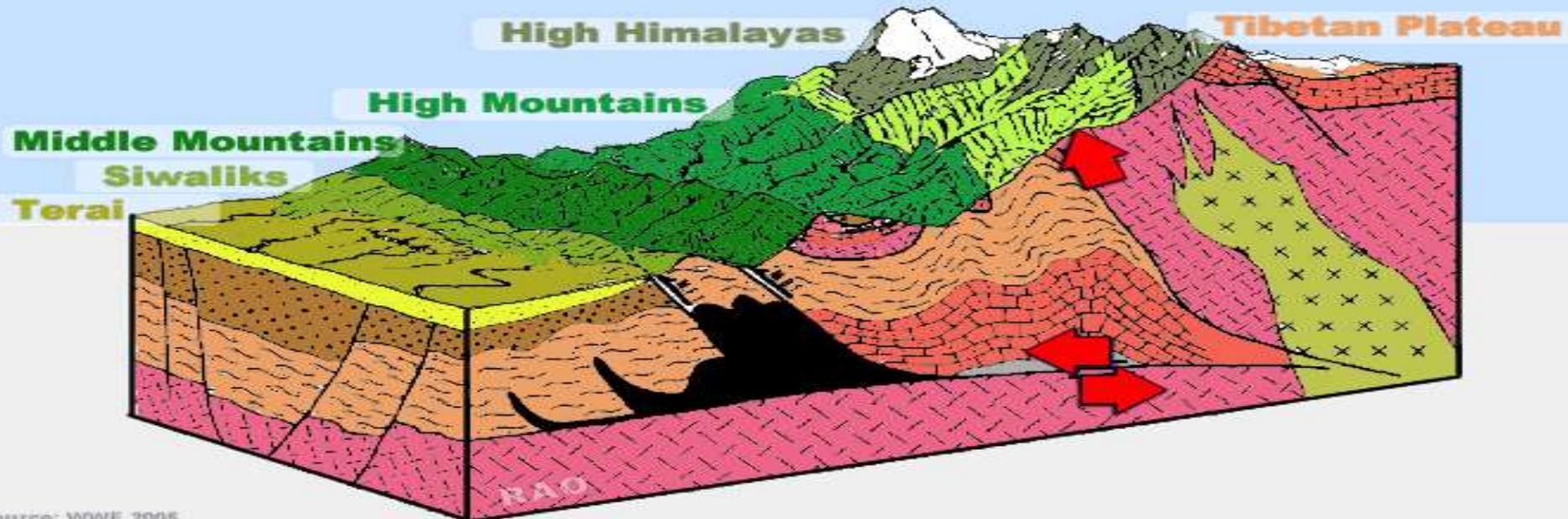
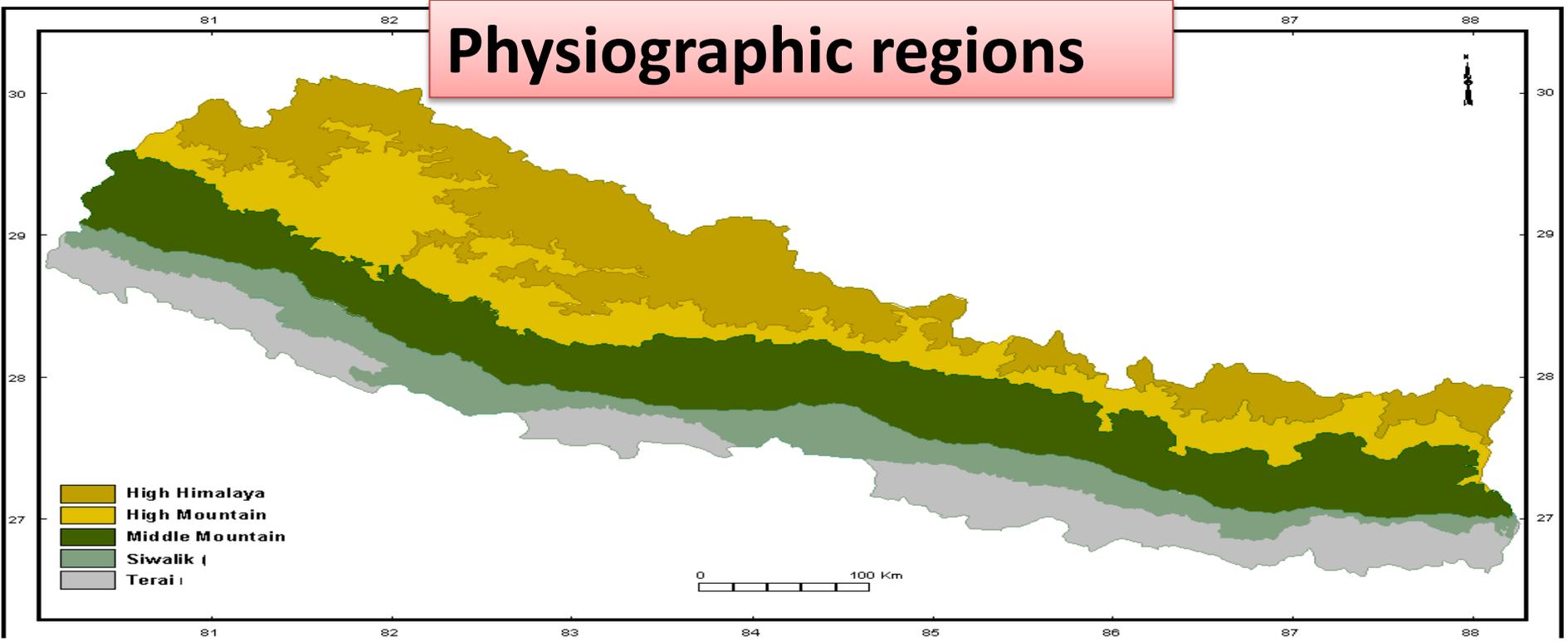
Introduction (Country Background)



- Land area 147181 sq km (EW-885 km, NS-193 km)
- Population 26.67 M
- Three geographical region Terai, Hill & Mountain
- Elevation ranges from 70 m to 8848 m
- Climate temperate to sub tropical
- Rugged terrain and diversity (in all sense) the typical feature



Physiographic regions



Agro Eco zone

Mountain (35%)

Sub Alpine



Hill (42%)

Cool Temperate



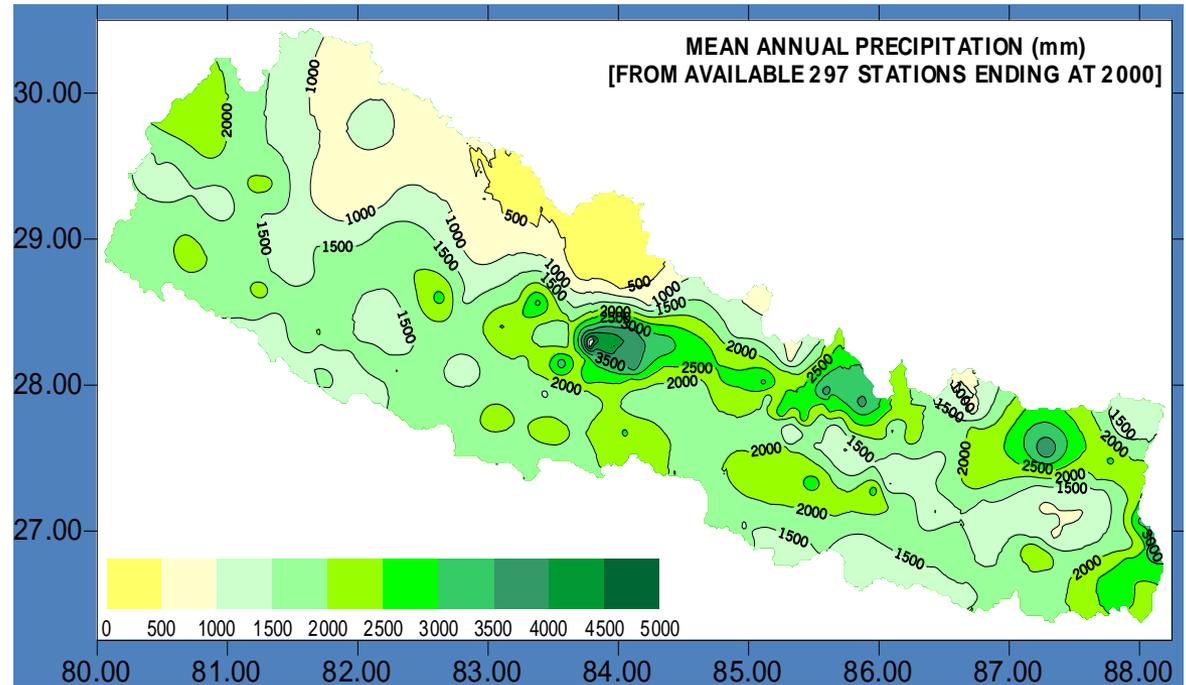
Terai (23%)

Sub Tropical



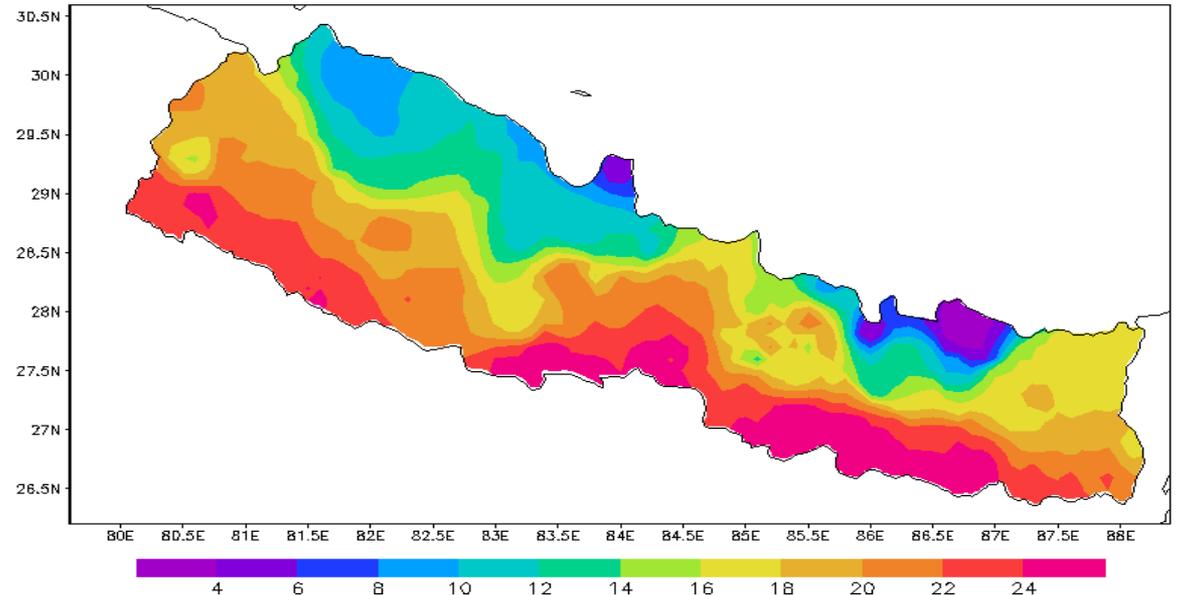
Climate

- Warm sub-tropical to cool temperate climate based on altitude.
- 80% rainfall - monsoon (June- Sept.)



Season

- Spring (Mar, Apr, May)
- Summer (Jun, July, Aug),
- Autumn (Sep, Oct, Nov),
- Winter (Dec, Jan, Feb)





Population 2011 census

Male	12,849,041	48.5
Female	13,645,463	51.5
Total	26,494,504	100.0

Population growth rate: 1.35%

Household Number: 5,427,302

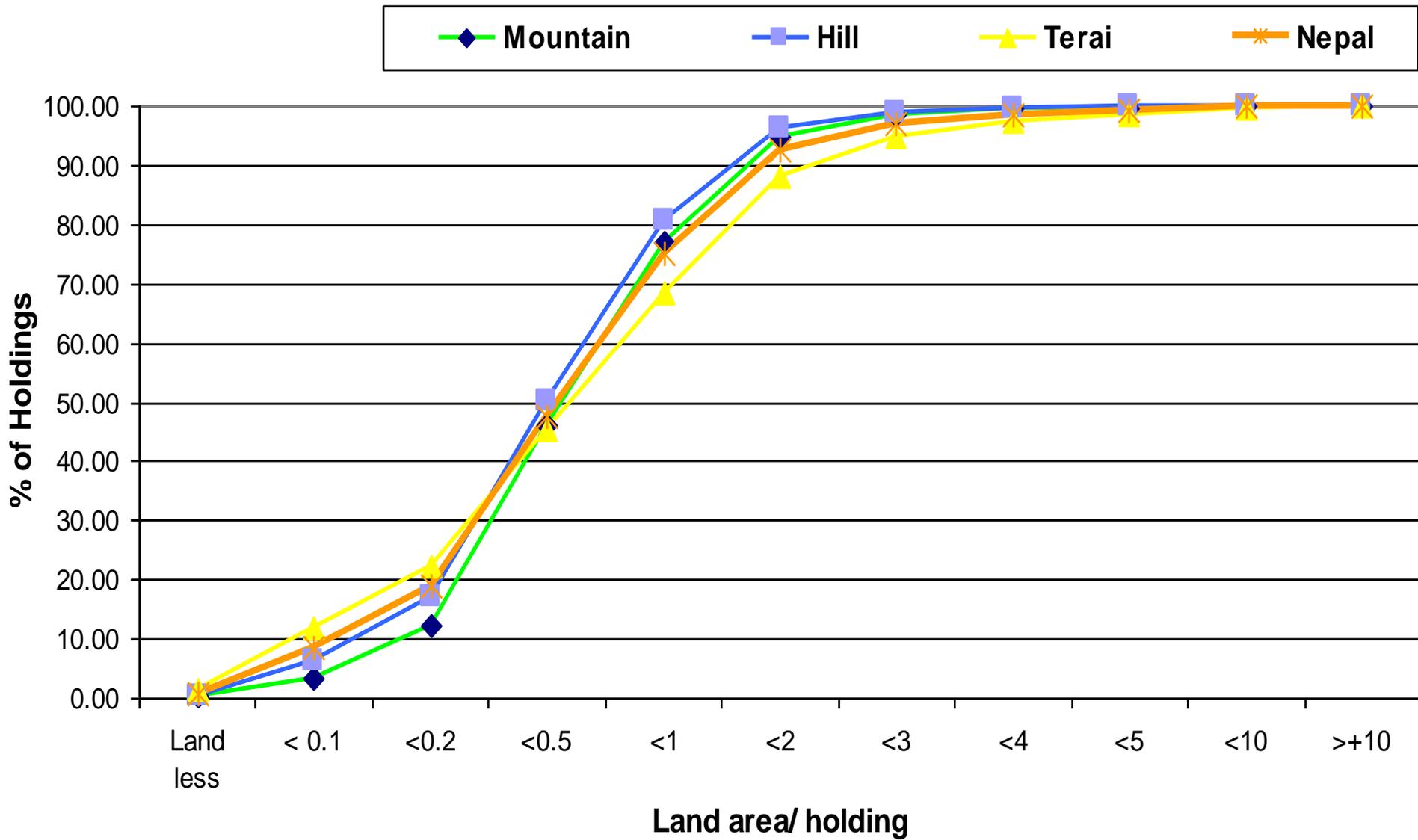
Agriculture in Figure

Land

Land Use	Area (000 ha)	%
Agricultural Land Cultivated	3090	21
Agricultural Land Uncultivated	1030	7
Forest Including Shrubs	5828	40
Grass Land Pasture	1766	12
Water	383	3
Others (snow and rocks)	2620	18
Total	14718	100

Irrigated Area : 1,254,271 ha = about 40%
(20% of this is year round irrigation)

Land Holding



Nepalese Agriculture

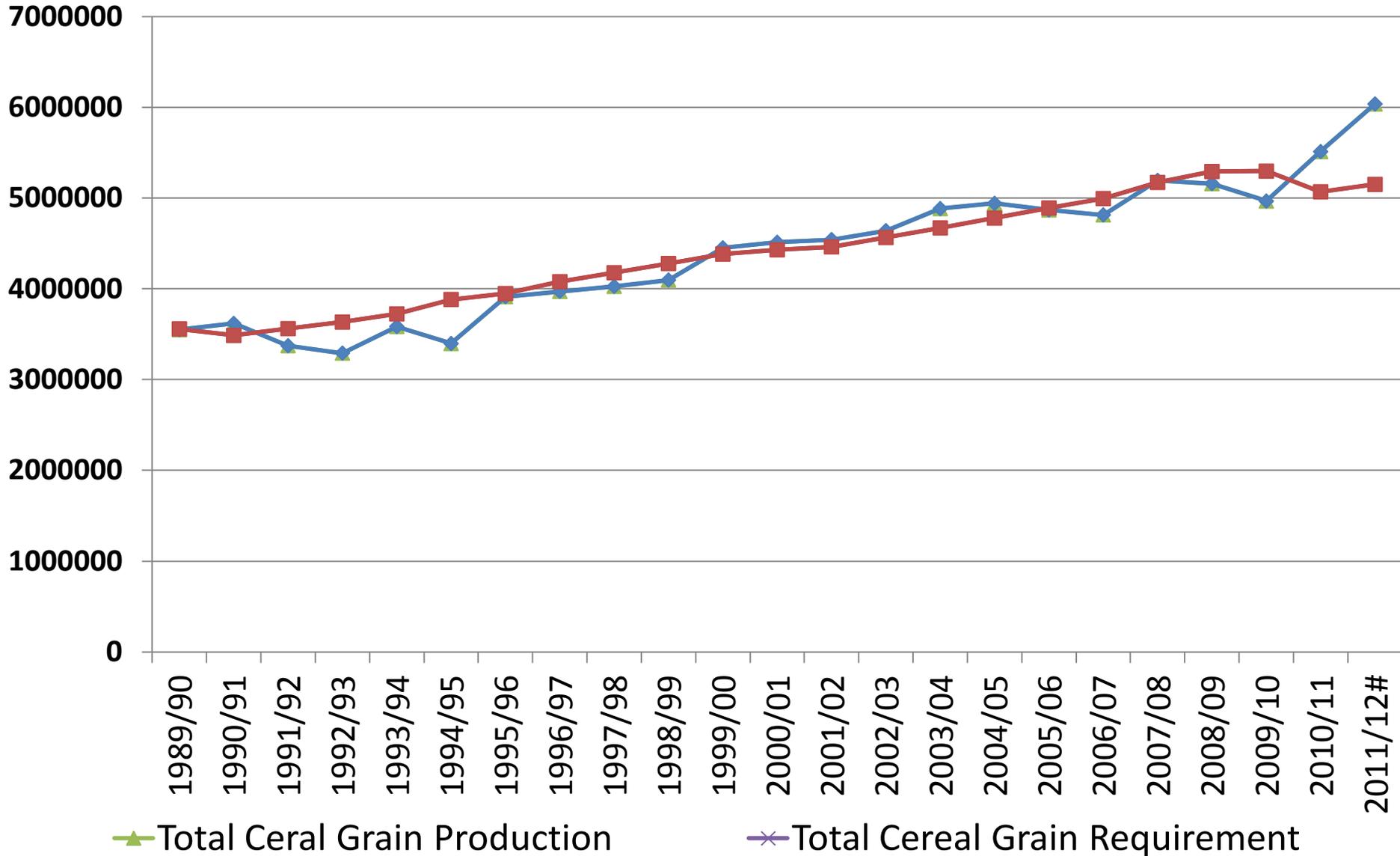
- Agrarian country with **34% of GDP from agriculture sector**
- 65% of population directly dependent on agriculture
- **Agroecological and socio economic diversity**
- Dominance of **subsistence and small holder agriculture**
- More than **60% rain-fed agriculture**
- **Young people moving away from agriculture**
- Even though, ***Nepal has a negligible share of 0.025 % in the global emission of GHGs*** it is the ***4th most vulnerable country*** due to global climate change.
- **Food and nutrition security at risk** due to climate change

Area and Production of Cereal Crops, 2012/2013

Crops	Area (ha.)	Production (mt.)	Yield (kg/ha)
Paddy	1420570	4504503	3171
Maize	849635	1999010	2353
Millet	274350	305588	1114
Wheat	754243	1727346	2290
Barley	29598	33782	1141
Buckwheat	10681	10056	941
Total	3339077	8580285	2570

Crop	Area (Ha)	Production (Mt)	Productivity
Oilseed	214,835	179,145	0.834
Sugarcane	64,472	2,930,047	45.447
Jute	10,540	14,424	1.369
Lentil	207,630	208,201	1.003
Chickpea	9,154	8,192	0.892
Pigeon pea	17,471	14,082	0.806
Black gram	27,496	22,482	0.818
Grass pea	9,176	8,747	0.945
Horse gram	7,867	5,855	0.744
Soybean	29,282	28,270	0.965
Fruits	101,233	1,029,754	10.172
Vegetables	245,037	3,298,816	13.463
Potato	190,250	2,584,301	13.584

Cereal Grain Balance Trend in Nepal

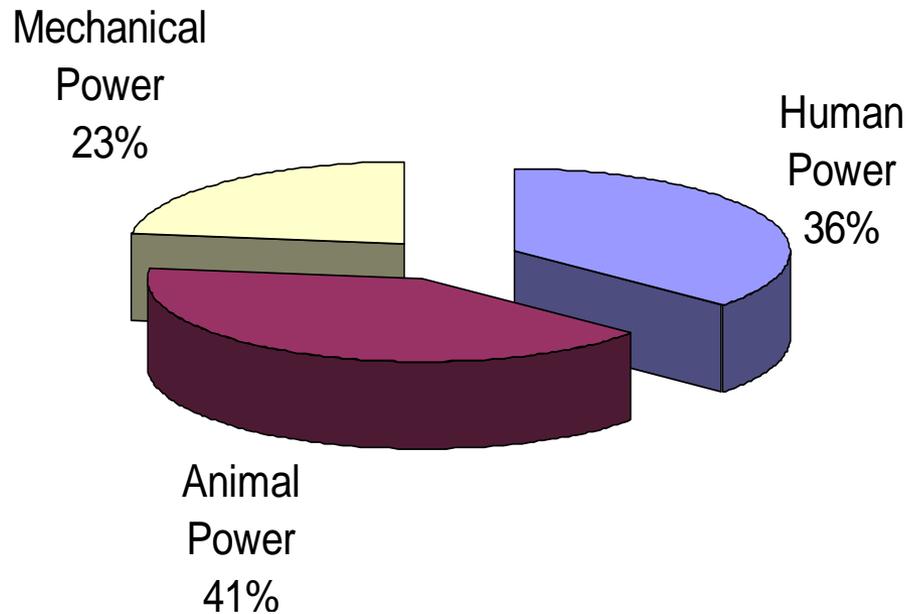




Mechanization Technologies Used

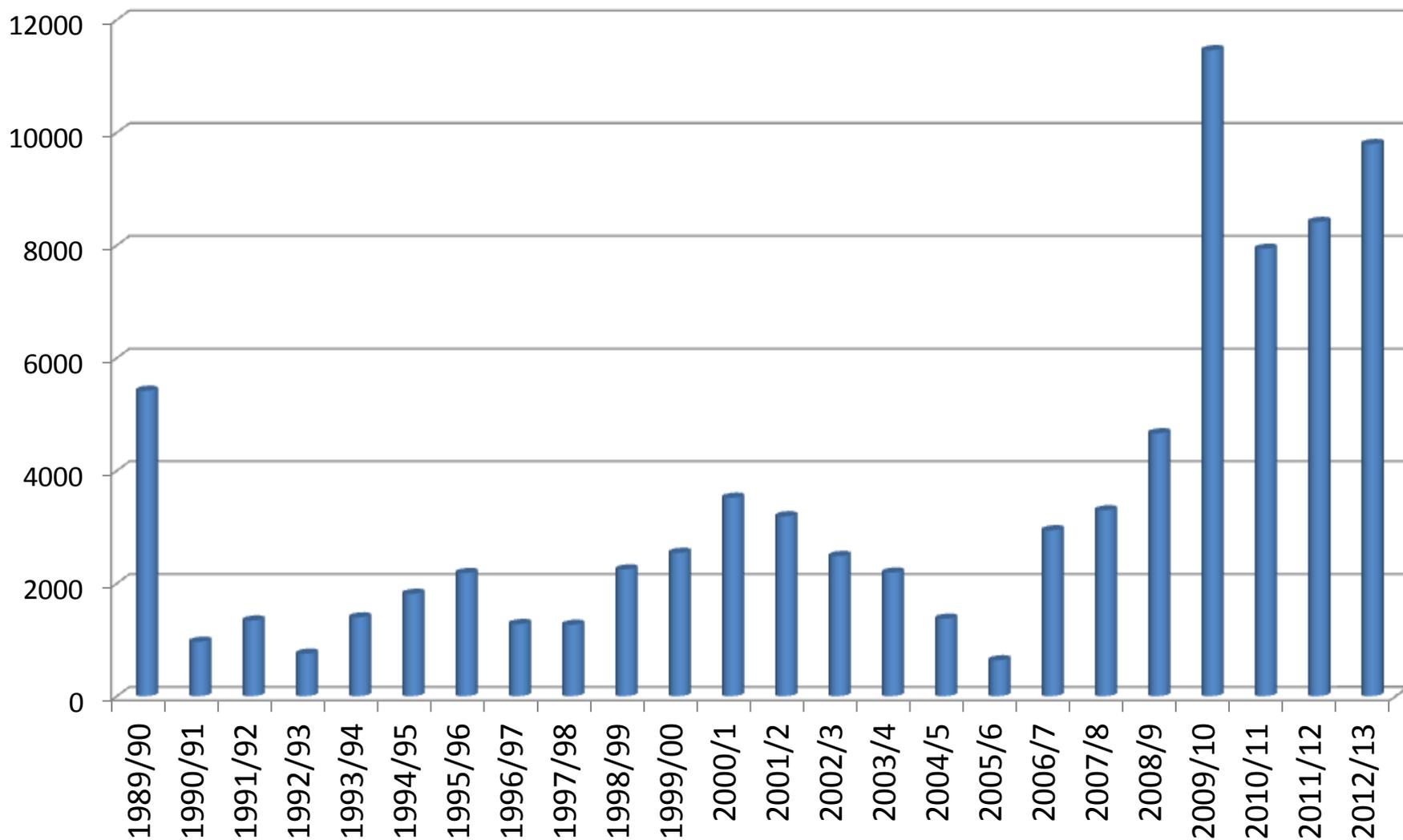


Farm Power Availability



- Animal power major source
- Stationary engine, two wheel power tiller and 4 wheel tractors are considered
- The mechanical power is concentrated in terai 92%

Trend of Tractor Registered in Nepal





Tractor Use



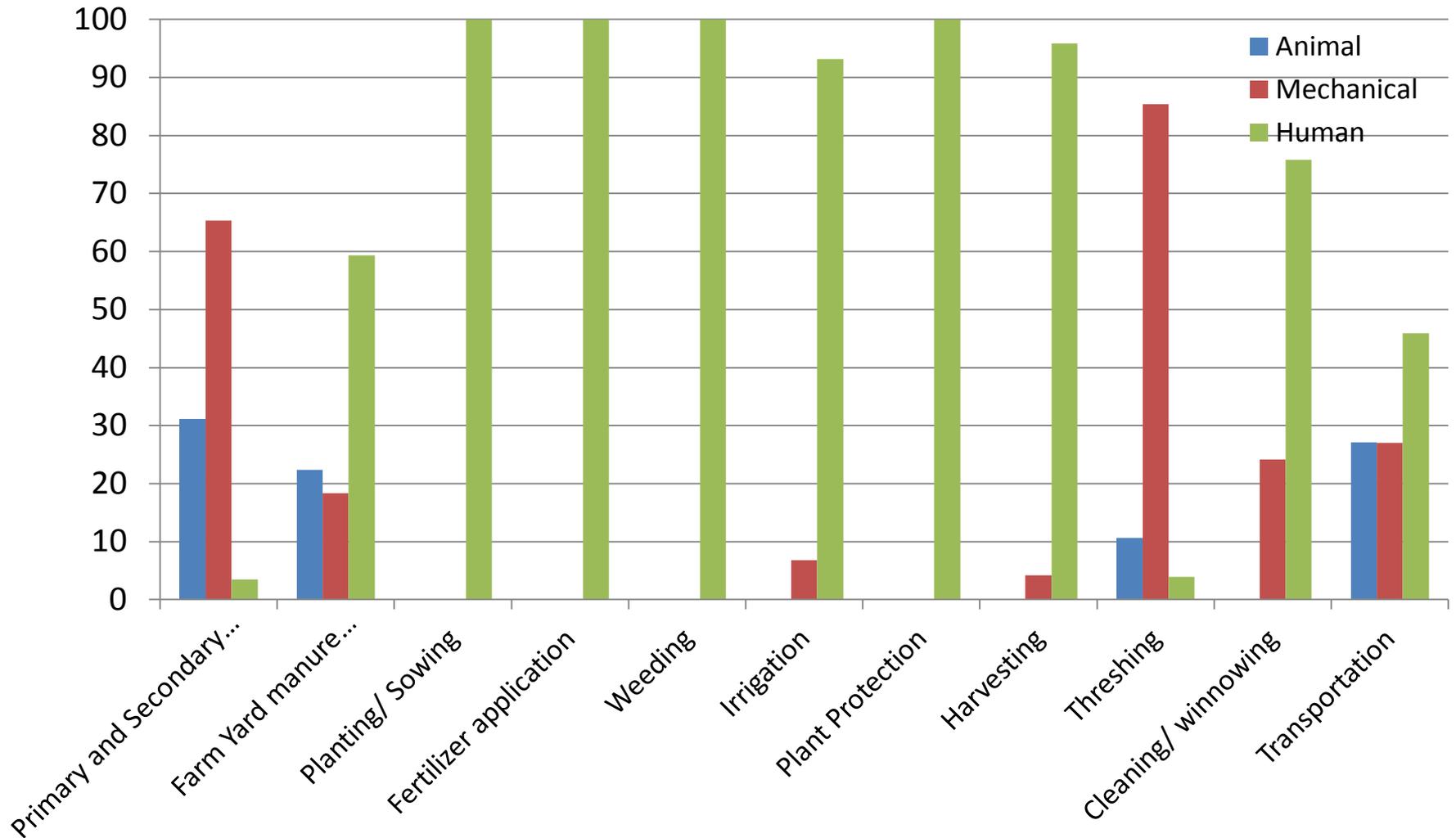
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Farm Power Used in Agricultural Operation in Terai

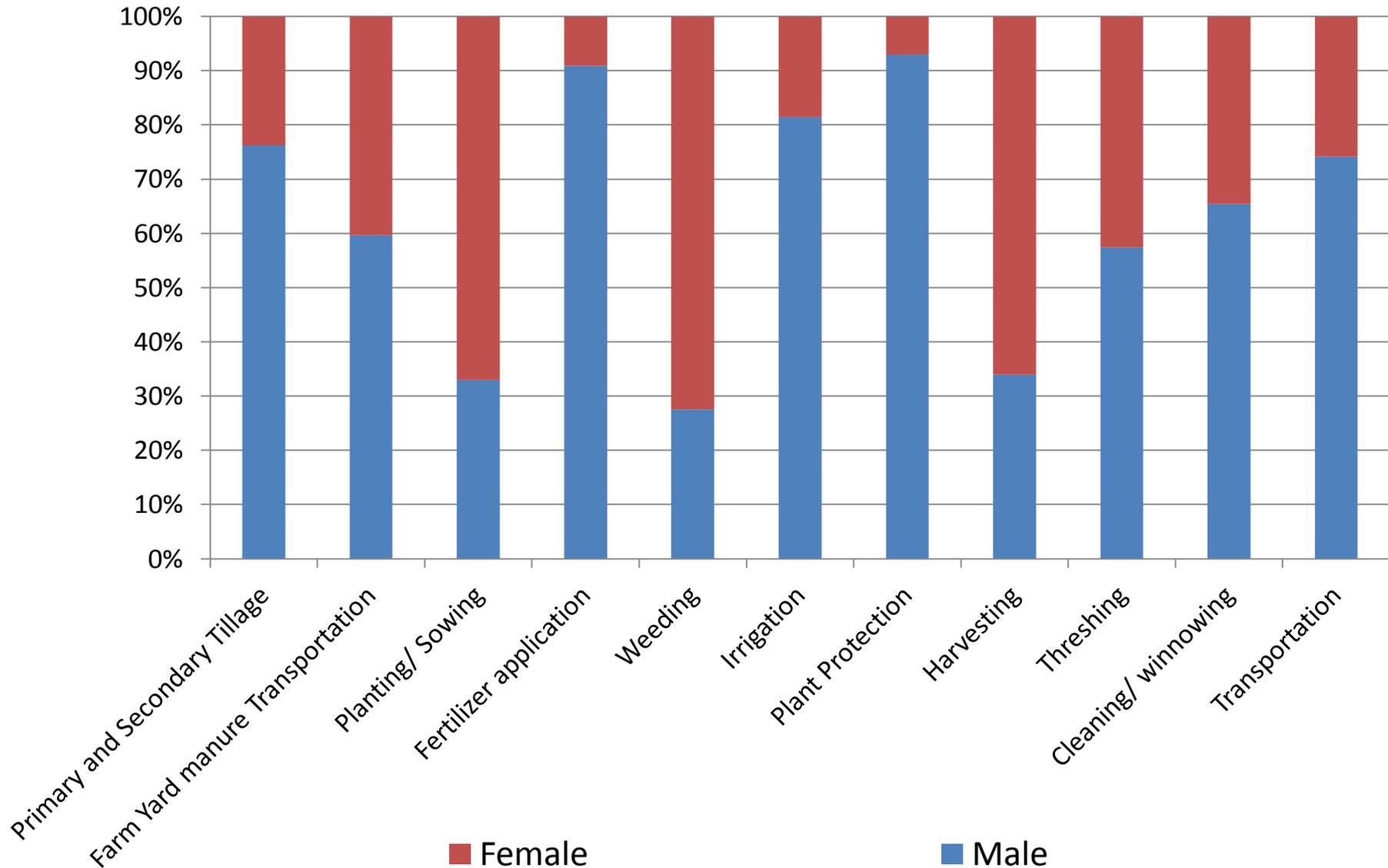


Status of Agricultural Mechanization

(Source: National Sample Census of Agriculture, CBS, 2012)

Machinery/Equipments used	No of Households	% Households
Iron ploughs	1,073,441	28.02
Tractor & Power tillers	920,371	24.03
Thresher	803,154	20.96
Pumping sets	548,203	14.31
Sprayers	574,014	14.98
Shallow tubewells	367,744	9.56
Deep tubewells	159,725	4.17
Treadle pump (Dhiki)	79,145	2.06
Animal drawn cart	334,978	8.74
Other Equipments	290,084	7.57

Gender-wise Farm Labour Involvement in Agricultural Operation in Terai



Machinery supply chains

- Black smiths (75-85% supplier of hand tools)
- Small Agricultural Machinery Fabricators
- AM Industry (No due to unfavorable policy)
- AM importers
- Dealers/ Sub dealers
- Service providers
 - Custom hiring
 - Repair and maintenance
- Farmers

AM Related Policy

- Past policies ignored mechanization due to fear of **labor displacement**
- Past policies such Land Act (1964), National Civil Code (1853;1962) have encouraged land fragmentation
- Due to high demand for mechanization because of acute labor scarcity (peak season) and high cost of production, Government of nepal has approved **Agricultural Mechanization Promotion Policy 2014** in this month only.

Agricultural Mechanization Promotion Policy 2014

- Demand based
- During rigorous consultation with all stakeholder in all level
- Salient Features
 - Focus on small holder farmers
 - increasing competitiveness, modernising and commercializing Nepalese agriculture through appropriate mechanization
 - Development of supply chain in PPP approach
 - Environment, women and youth farmer friendly AM
 - Institutional development for promotion of SAM

Agricultural Mechanization Related Stakeholders

- Ministry of Agriculture Development
- Nepal Agriculture Research Council
- Department of Agriculture
- Education Institute
- Importers/ Traders (NAMEA)
- NGOs
- Manufacturers
- Service Providers

Challenges in Testing of Agricultural Machinery in Nepal.

- There is **low level of awareness** of the farmers & importers on the testing for standard, safe and quality agricultural machinery.
- There are **numerous hand tools and farm machines**.
- The performance of the hand tools and agricultural machinery **depend upon the user**
- Majority of hand tools and small agricultural machinery are **produced by the unorganized local artisans, small workshops** in the village level
- Majority of village artisans and tiny industries use **scrap material** to produce hand tools, so the quality of hand tool produced vary from one piece to next moreover the tiny industries may **increase the cost** of tested hand tools and agricultural machinery
- **Poor capacity and low level of technology adopted by the village artisans** in production of hand tools hinders the enforcement of quality hand tool production.
- Lack of legal framework **in standardization and testing** of agricultural hand tools in Nepal.
- Lack of **institutional setup & facilities** for the testing of agricultural machinery in Nepal.

Machinery Testing Centre

- **No Testing Centre in the country**
- AED, NARC performs field performance test and suggest the importer and farmers
- **New Agricultural Mechanization Promotion Policy- 2014** clearly emphasized on establishment of machinery testing and evaluation centre and promotion of safe and good quality machinery in agriculture
- Establishment of ANTAM will be beneficial for Nepal in all aspects.

Relevance of ANTAM in Nepal

- Help to import/ export safe and standard quality agricultural machines
- Strengthen the capability of National Institutes on testing of locally produced agricultural implements and machinery in regional standard
- Assure the farmers and all stake holders on the use of agriculture machinery of standard quality and help SAM in Nepal

Way Forward

Recently Approved Agricultural Mechanization Promotion Policy 2014 has clearly mentioned in its objective regarding promotion of standard quality and safe agricultural machinery in the country. To achieve the objective, following actions are envisaged

- Endorsement of ANTAM standard and standard of neighbouring countries in the case of imported agricultural machinery.
- Preparation of test code and standard for locally produced agricultural machinery. (specially Injury prone agricultural machinery safety will be given top priority)
- Legal and institutional reform for standard, test and certification
- Preparation of national standard for important machinery

Way Forward.....

- Establishment of agricultural machinery testing centre
- Information Campaign for awareness creation and information dissemination about the test standard, testing and certification of agricultural machinery to the farmers and entrepreneurs and traders/ importers
- Mandatory testing for agricultural machinery imported, exported and that are provided subsidy as well as hazardous and injury prone agricultural machinery
- Voluntary test provision for other machinery
- Training the extension agents about the standard and safe agricultural machinery
- Develop credible standard, test and certification system for self evolving, participatory and sustainable system for the promotion of SAM in Nepal for the farmers of Nepal.



Everest Expeditions

Thank You