

PRESENT STATUS OF LIVESTOCK SECTOR AND LIVESTOCK PRODUCTION SYSTEMS IN PAKISTAN

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CONTRIBUTION TO NATIONAL ECONOMY

- ❖ Contribution to National GDP: 11.9%
- ❖ Share in Agric.Value Added: 56.5%
- ❖ Contribution to F.E.Earning: > 8%
- ❖ Gross Value (at CFC of 2005-06): Rs.1172 billion
- ❖ Gross Value of Livestock is more than the combined value of all major and minor crops.
- ❖ Nearly 10 million rural households derive 35% of their income from livestock related activities.
- ❖ A source of readily available CASH in case of crop failure and other emergency financial needs.

LIVESTOCK POPULATION

(ECONOMIC SURVEY OF PAKISTAN, 2013-14)

SPECIES	POPULATION (Million #)
FOOD ANIMALS	
Cattle	39.7
Buffaloes	34.6
Sheep	29.1
Goats	66.6
Camel	1.0
WORK ANIMALS	
Horses	0.4
Asses	4.9
Mules	0.2

PROVINCIAL DISTRIBUTION (%) OF LIVESTOCK POPULATION (2006 CENSUS)

PROVINCE	CATTLE	BUFFALO	SHEEP	GOATS	CAMELS
KPK	20	07	13	18	07
Punjab	49	65	24	37	22
Sindh	23	27	15	23	30
Baluchistan	08	01	48	22	41

LIVESTOCK POPULATION GROWTH

(INTER-CENSUS PERIOD 96-06)

SPECIES	ANNUAL GROWTH RATE
Cattle	4.47 %
Buffalo	3.48 %
Sheep	1.25 %
Goats	3.06 %
Camel	1.30 %

POULTRY POPULATION (2013-14)

TYPE/CLASS	Population (Million #)
DOMESTIC	
Breeders	50.13
Chicks	31.95
Ducks/ Drakes & Ducklings	0.50
COMMERCIAL	
Breeders/ Layers	50.05
Broiler Chicks	754.54
TOTAL	887.17 million

LIVESTOCK & POULTRY PRODUCTS

(2013-14)

PRODUCT	TYPE	PRODUCTION
Milk (Total)		41.13 m.m.t
	Buffalo Milk	25.00
	Cow Milk	14.42
	Goat & Camel Milk	01.67
Meat (Total)		3.53 m.m.t
	Beef	01.89
	Mutton	00.66
	Poultry Meat	00.99
Eggs	Poultry	14.45 Billion Number

LIVESTOCK BREEDS

SPECIES	TYPE/ PURPOSE	NUMBER OF BREEDS	SPECIES	TYPE/ PURPOSE	NUMBER OF BREEDS
Buffalo	Dairy	05	Goats		30
Cattle		11		Dual	22
	Dairy	04		Dairy	03
	Dual	02		Mutton	05
	Draught	05	Camel (Dromedary)	Multiple	20
Sheep		28			
	Dual	21			
	Mutton	04			
	Wool	03			

LIVESTOCK PRODUCTION SYSTEMS

- ❖ Dairy Animal Production Systems (5)
- ❖ Small Ruminants & Camel Production Systems (5)
- ❖ Poultry Production System (2)

DAIRY ANIMAL PRODUCTION SYSTEM

1. Rural Smallholders Subsistence Production

- Herd size is < 4-5 animals,
- Share in total milk production is 52%.
- Low input - Low Output
- Family labour... Milk for household self consumption

2. Rural Market-oriented Production

- Herd size is 5-20 animals,
- Share in total milk production is 28%.
- Lactating animals better fed and cared,
- About 50-60% of milk produced is marketed through middle men or collection teams of dairy processing plants.

DAIRY ANIMAL PRODUCTION SYSTEMS

(CONTINUED)

3. Peri-urban Commercial Production

- Herd size is 21-50 animals,
- Share in total milk production is 15%,
- Herds located in peri-urban areas of all major towns and cities,
- Only lactating animals (Buffalo:Cow Ratio =90:10) are kept with limited focus on their rebreeding,
- Moderate to high input.

4. Urban Commercial Production

- Herd size is >50 animals,
- Share in total milk production is 5%,
- Only lactating animals (Buffalo:Cow Ratio =95:5) are kept with no focus on their rebreeding,
- High input – High output.

DAIRY ANIMAL PRODUCTION SYSTEMS

(CONTINUED)

5. Corporate Dairy Farming

- Relatively new system....Introduced in 2005,
- Based on exotic dairy cattle (H.Friesian/ Jersey/ Crossbred),
- Corporate dairy farms located mostly in peri-urban areas,
- High input – High output system

SMALL RUMINANT & CAMEL PRODUCTION SYSTEMS

1. **Nomadic Production System**

- Prevalent in southern Baluchistan, Cholistan/Thal in Punjab and Tharparkar in Sindh,
- Flocks mainly consist of sheep, goats and camel but some donkeys and chicken also accompany.
- Flocks are continuously moving in search of water and grazing land,
- Utilization of grazing land is controlled by tribal customs and there are well established migratory routes.

SMALL RUMINANT & CAMEL PRODUCTION SYSTEMS

2, Transhumant Production System

- Commonly practiced for sheep/goat flocks in southern Punjab, uplands of Baluchistan, Gilgit Baltistan and some parts of KPK,
- For camel herds, this system is prevalent in mountainous parts of Baluchistan and deserts of Sindh and Punjab,
- An agro-pastoral migratory system making use of seasonal (winter/ summer) pastures
- Flock owners generally have one permanent base and migratory routes are well established.
- Growth/survival of animals largely depends on rain fall in rangelands/ pasture capacity.

SMALL RUMINANT & CAMEL PRODUCTION SYSTEMS

(CONTINUED)

3. Sedentary Production System

- Commonly practiced for sheep/goat flocks in irrigated & rain-fed areas of Punjab, upland Baluchistan. Indus valley and southern KPK,
- For camel herds, this system is prevalent in south western mountainous areas, irrigated plains and coastal areas of Baluchistan.
- Flock owners/ herders are permanent settlers having own land and home.
- Flocks/ herds graze on nearby rangelands/ waste lands , crop stubbles and tree loopings.
- Several flocks/herds may hire one Shepherd/grazier who is paid either in cash or in kind.

SMALL RUMINANT & CAMEL PRODUCTION SYSTEMS

(CONTINUED)

4. Rural Small Holder Production System

- Small goat flocks (5-7 animals) are kept by many rural households in heavily populated areas of Punjab, Sindh & KPK,
- Subsistence small holder system with minimum grazing.
- Animals are kept confined near the house and fed on kitchen waste, scraps and weeds.
- No separate housing provided. Milk/Kids generally not sold.

SMALL RUMINANT & CAMEL PRODUCTION SYSTEMS

(CONTINUED)

5, Feedlot Fattening

- Relatively new system....Introduced in 2006,
- Young male calves, lambs and kids procured from rural areas,
- Reared and fattened for short periods under better conditions of feeding, management and disease prevention,
- FLF Farms located mostly in peri-urban areas,
- Moderate to High input system

POULTRY PRODUCTION SYSTEMS

1. Rural Backyard (Traditional) Poultry Rearing

- Almost every rural household keeps 10-15 adults/chicks,
- Low producing native breeds (Desi, Aseel, Naked-neck) as well as improved imported breeds (RIR, Fayoumi and Dhoki) are reared,
- Subsistence production with no expenditure on feeding, disease prevention or housing,
- Contributes 33% & 17% to national egg and poultry meat production, respectively.

POULTRY PRODUCTION SYSTEMS

(CONTD)

2. Commercial (Intensive) Poultry Production

- High input High output system of private sector,
- Modern techniques of hatching, feeding, housing/management and disease prevention are applied,
- Commercial poultry industry has shown impressive annual growth rates of 8-15%,
- More than 400 hatcheries, 170 feed mills and 40,000 poultry farms,
- Share in poultry meat production : 83%
- Share in national egg production: 67%

MAIN ISSUES OF LIVESTOCK SECTOR DEVELOPMENT

- Low Genetic Potential of Indigenous Breeds.
- Lack of FAnGR Management/ conservation programs.
- Shortage/Inefficient utilization of feed resources
- Lack of rangeland management/ improvement program.
- High incidence of diseases (FMD, PPR, HPAI ...)
- Weak System of Disease surveillance & reporting
- Poor reproductive efficiency of dairy animals
- Insufficient delivery of services to farmers
- Inadequate marketing infrastructure...Lack of value chain approach.

THANKS

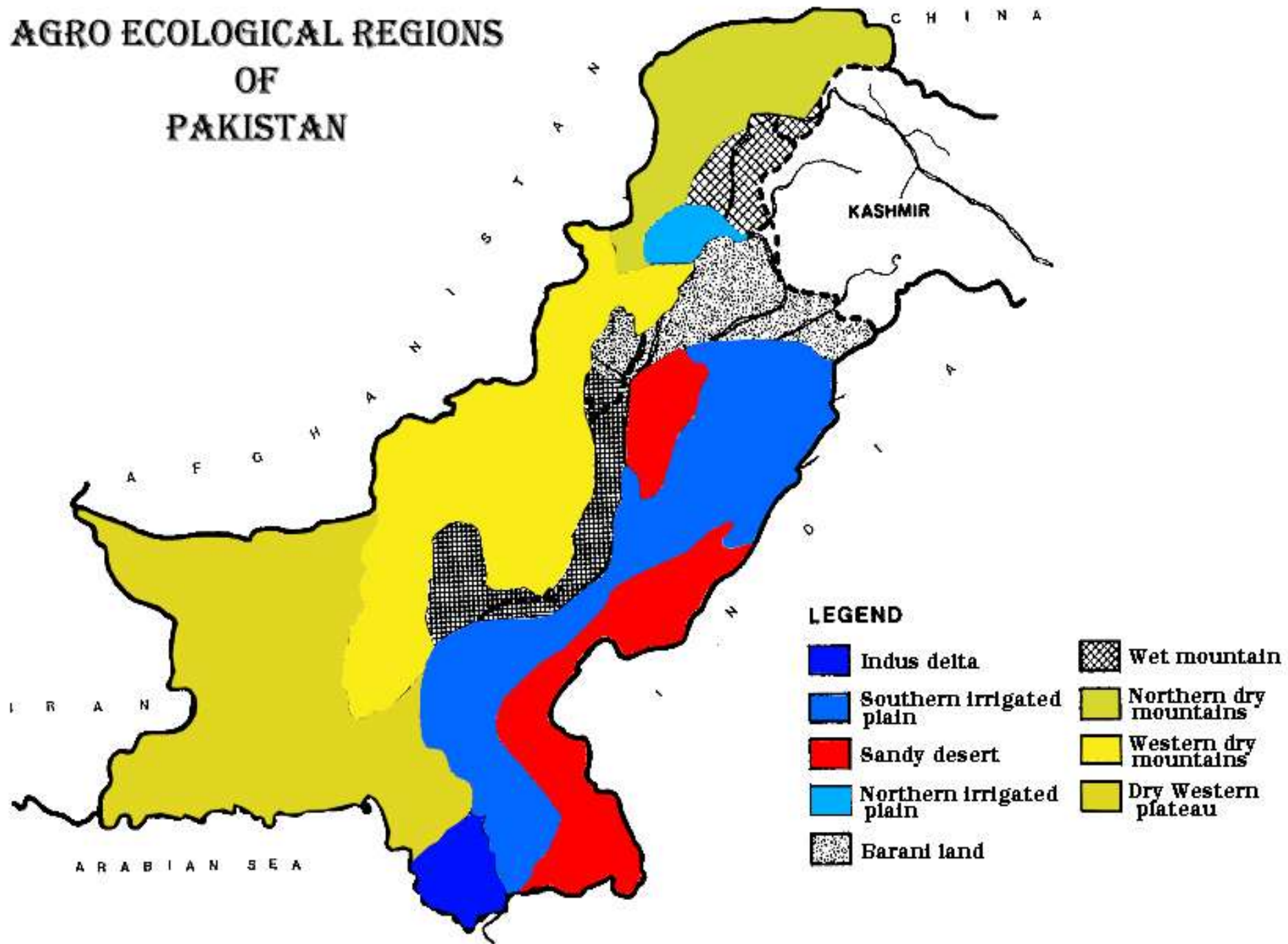
DISASTER RISK REDUCTION (DRR) AND CLIMATE CHANGE ADAPTATION (CCA) FOR THE LIVESTOCK SECTOR AND RELATED POLICY INTERVENTIONS.

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AGRO ECOLOGICAL REGIONS OF PAKISTAN



HISTORY OF MAJOR NATURAL DISASTERS & CALAMITIES IN PAKISTAN

❖ FLOODS

- ❖ 1950,
- ❖ 1973, 1976, 1977, 1978,
- ❖ 1988,
- ❖ 1992, 1995, 1996, 1998
- ❖ 2010, 2011

❖ DROUGHTS

- ❖ 2000, 2014

❖ EARTHQUAKES

- ❖ 1974, 2005

DROUGHT PHENOMENON



- ✓ GHG emission
- ✓ Increase in mean global surface temperatures
- ✓ Decrease in mean annual precipitation

MAY LEAD TO:

- Lower river flows
- Drier soils
- Degradation of Rangelands/ Pastures
- Shorter growing seasons of crops
- Increased frequency and intensity of Droughts

FLOOD PHENOMENON

- ✓ Variation in snow fall
- ✓ Variation in glacier melt
- ✓ Variation in monsoon intensity/ spread

MAY LEAD TO:

- Alterations in seasonal flow pattern of Indus River System,
- Increase in formation/ outburst of glacial lakes
- Increased frequency and intensity of Floods



VULNERABILITY OF AGRICULTURE & LIVESTOCK SECTOR TO CLIMATE CHANGE THREATS

- ❖ Extreme weather events (drought, flood) directly affect crops/ fodder/livestock productivity,
- ❖ Enhanced heat and water-stressed conditions lead to reduced agricultural/ livestock productivity, particularly in arid, semi-arid areas,
- ❖ Reduced precipitation is a major cause of reduced productivity of crops and livestock in rain-fed areas.

EFFECT OF NATURAL DISASTERS ON LIVESTOCK SECTOR

- ❑ Increased mortality
- ❑ **Loss of adapted animal genetic resources**
- ❑ Non-functioning of local animal markets (daily, weekly, monthly) due to interrupted animal movement... Farmers are forced to sell their animals at throw-away prices
- ❑ **Higher morbidity in surviving livestock**
- ❑ Increased incidence of vector born diseases
- ❑ **Reduced productivity (50-80%) due to:**
 - ✓ **Shortage of feed and clean drinking water**
 - ✓ **Loss of shelter**
 - ✓ **Worsening of rangeland/ pasture degradation**

LIVESTOCK PRODUCTION SYSTEMS MOST VULNERABLE TO CLIMATE CHANGE THREATS

- ❖ **Rural Smallholders Subsistence Production:**
 - ✓ Dairy Animals
 - ✓ Goats
 - ✓ Poultry
- ❖ **Rangeland/Pasture Based Production:**
 - ✓ Nomadic (Sheep/ Goat/ Camel)
 - ✓ Transhumant (Sheep/ Goat/ Camel)

CCA AND DRR

- ❖ **Climate Change Adaptation** refers to adjustments in natural or human systems, in response to actual or expected climatic threat, in order to reduce its adverse effects.
- ❖ **Disaster Risk Reduction** refers to mitigation of the known causes of climate change.
- ❖ Both DRR and CCA share a common concern... To reduce the vulnerabilities of communities and ensure sustainability of development.
- ❖ **For livestock sector, DRR mainly involves a comprehensive strategy to reduce GHG emissions.**

CCA BY LIVESTOCK SECTOR

SMALLHOLDERS PRODUCTION SYSTEM

- ❖ Conservation of fodder....ensiling
- ❖ Use of feed blocks (MNB, UMB)
- ❖ Efficient utilization of crop residues & agro-industrial by-products for animal feeding.
- ❖ Conservation of well adapted local breeds
- ❖ Up-grading mobile veterinary services in disaster prone areas
- ❖ Raising awareness/ training of small farmers about appropriate animal husbandry practices and disease prevention

CCA BY LIVESTOCK SECTOR

(CONTD...)

RANGELAND/ PASTURE BASED PRODUCTION

- ❖ Improved rangeland/ pasture management to increase carrying capacity
- ❖ Promoting use of fodder trees and shrubs
- ❖ Cultivation of drought-tolerant fodder crops
- ❖ Diversification of herds/flocks (multi-species and multi-breed)...browsing and grazing animals.
- ❖ Herd splitting and right sizing
- ❖ Rotational grazing

CCA BY LIVESTOCK SECTOR

(CONTD...)

GENERAL

- ❑ Improving water productivity and water use efficiency in rain-fed areas.
- ❑ Livestock Insurance Schemes to compensate for loss of animals or reduced productivity due to a natural disaster.
- ❑ Forecasting emerging infectious animal diseases.
- ❑ Early warning forecasts (disaster-specific, season-specific)

DRR BY LIVESTOCK SECTOR

REDUCTION OF GHG (Methane) EMISSION BY ANIMALS:

- ❑ Use of high proportion of concentrate in feed
- ❑ Use of high efficiency feed additives
- ❑ Use of high quality forage in animal feed
- ❑ Use of breeds having high Feed Conversion Efficiency
- ❑ Use of clean fresh water for animal drinking
- ❑ Improving animal-waste management and promoting biogas production

POLICY INTERVENTIONS FOR CCA

(INCLUDED IN N.C.C.POLICY,2012)

- Development of high producing, less prone to heat stress and drought tolerant livestock breeds.
- **Promotion of Biotechnology to produce improved livestock breeds using genetic engineering.**
- Promotion of feed conservation techniques.
- **Establishment of Fodder Banks in arable areas.**
- Ensuring availability of quality feed and feed supplements (UMB, MNB) for grazing animals in rangelands.
- **Establishment of animal disease monitoring and surveillance system at district level.**
- Conservation of local AnGR and establishment of Gene Banks (semen, embryo, DNA)

POLICY INTERVENTIONS FOR CCA

(CONTD..)

- **Building vegetative barriers to safeguard against erosion of rangelands/ pastures.**
- Control and maintain livestock densities (Herd Right Sizing) for optimal output.
- **Ensuring close coordination among livestock and forest departments.**
- Promoting rotational livestock grazing methods in pastures/ rangelands.
- **Designating alternative pastures and passages in case of an un-usual weather change.**
- Developing appropriate varieties of grasses and increasing grasslands in saline and waterlogged zones.

POLICY INTERVENTIONS FOR DRR

- ❑ Promoting better management practices for livestock with reduced water use.
- ❑ Promoting development of biogas and manure digester for methane reduction.
- ❑ Development of new breeds of animals having lower methane production from enteric fermentation.
- ❑ Promoting use of feed mixes/ additives/ supplements to reduce methane production.
- ❑ Institutional capacity building to undertake actions to reduce methane production.

THANKS

AGAIN