

Livestock for livelihood

Dr. H. Rahman

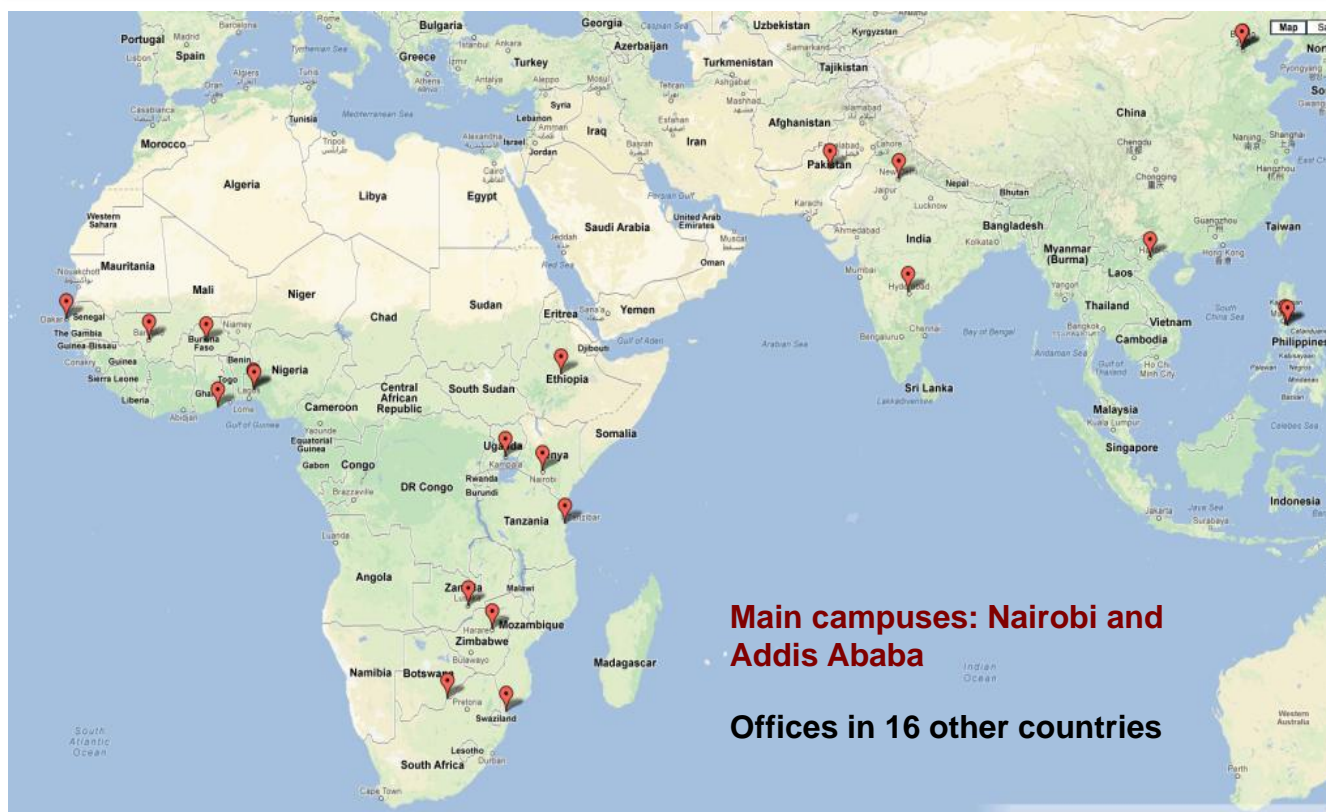
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ILRI Offices



ILRI SA

1. India
2. Pakistan
3. Bangladesh
4. Nepal

ILRI's vision and mission

- **ILRI envisions...** a world where **all people have access to enough food** and livelihood options to fulfil their potential
- **ILRI's mission...** to improve **food and nutritional security** and to **reduce poverty in developing countries** through research for **efficient, safe and sustainable use of livestock**—ensuring better lives through livestock.

Source: ILRI

Better lives through livestock

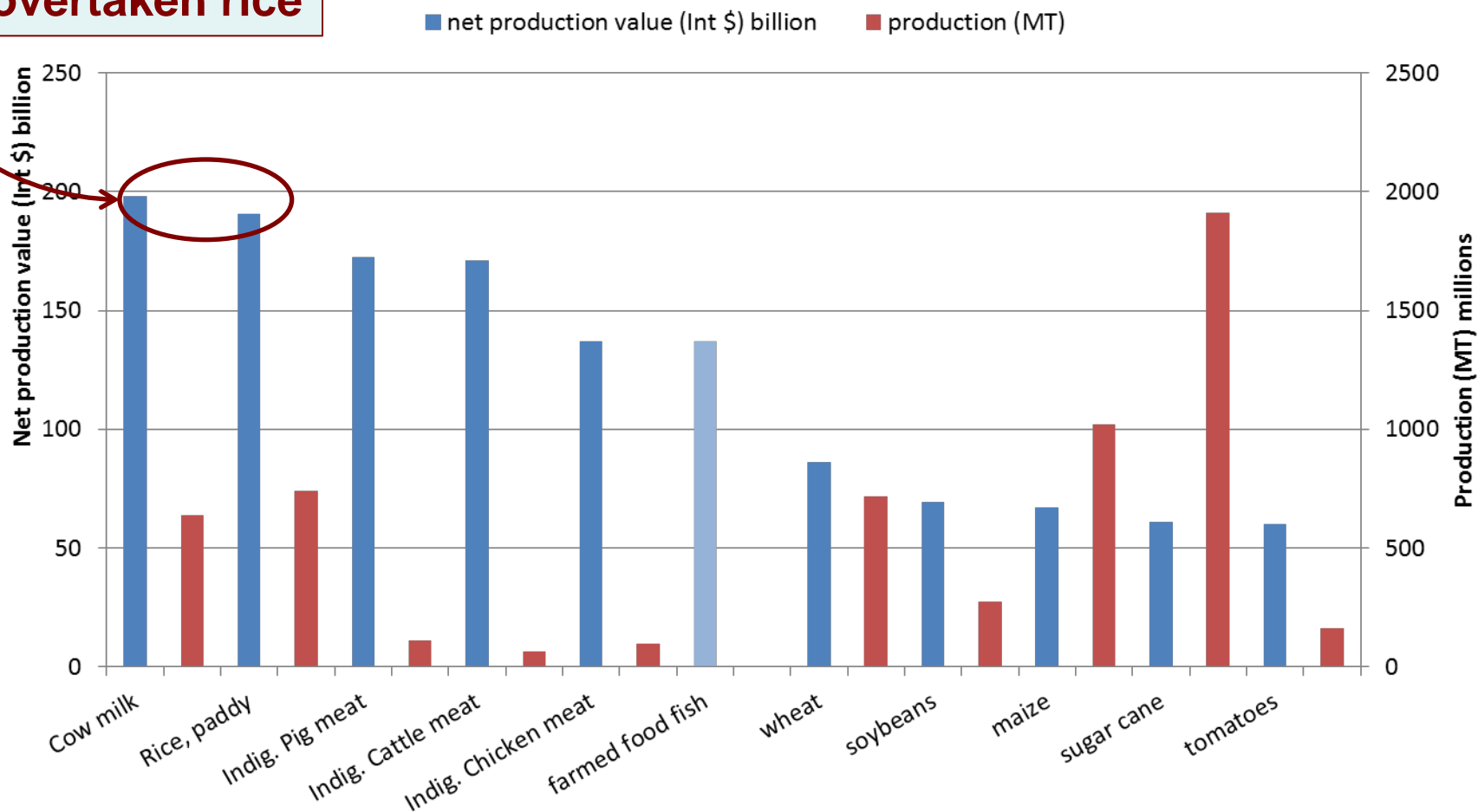
Livestock for livelihood

- **70% of the world's** rural poor rely on livestock for livelihoods.
- About **600 million poor** livestock keepers in the world, around **two-thirds** are rural women.
- **Contribute about 40% Agril. GDP**
- In the poorest countries, livestock manure comprises **over 70% of soil fertility**
- **90% of animal products** are produced and consumed in the same country or region
- Over **70% of livestock products** are sold 'informally'

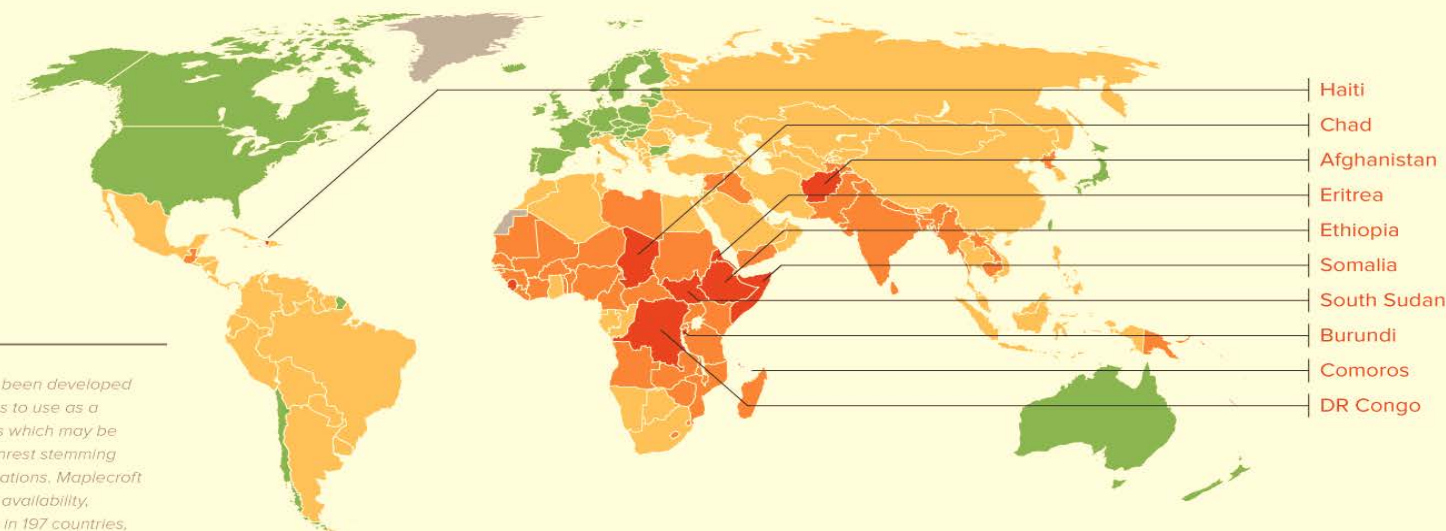
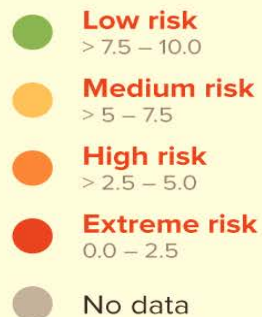


Animal source foods: 5 of 6 highest value global commodities (total value of these 5=US Int \$715 billion)

Cow milk has overtaken rice



Global Food Insecurity¹

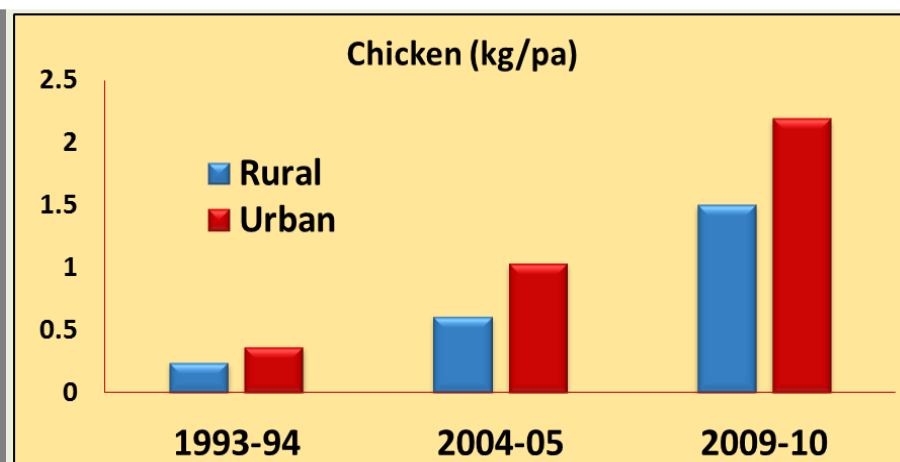
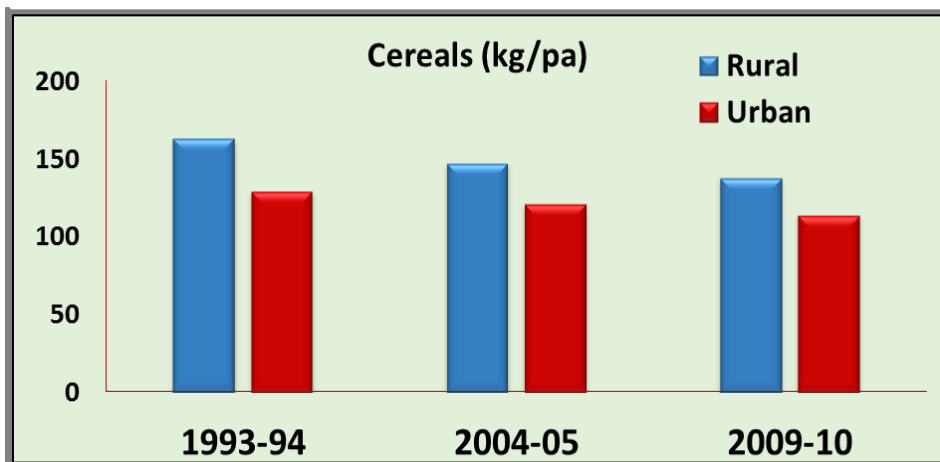


¹ The Food Security Risk Index has been developed for governments, NGOs and business to use as a barometer to identify those countries which may be susceptible to famine and societal unrest stemming from food shortages and price fluctuations. Maplecroft reaches its results by evaluating the availability, access and stability of food supplies in 197 countries, as well as the nutritional and health status of populations.

SOURCE: Maplecroft's Food Security Risk Index 2013

Changing Consumption Pattern

Increasing non-grain crops and animal products in daily nutritional intake



South Asia: A Backdrop



South Asia

Afghanistan
Bangladesh
Bhutan
India
Maldives
Nepal
Pakistan
Sri Lanka

- 1.749 billion (2013)
- 1/4 world's population
- Densely populated
- 5.1 million km²
- 3.4% world land area
- 11.51% of Asia
- 25% BPL
- 75% BPL in villages
- **India: Highest Malnourished**

CHALLENGE: Enhancing Food & Nutritional Security with sustainability



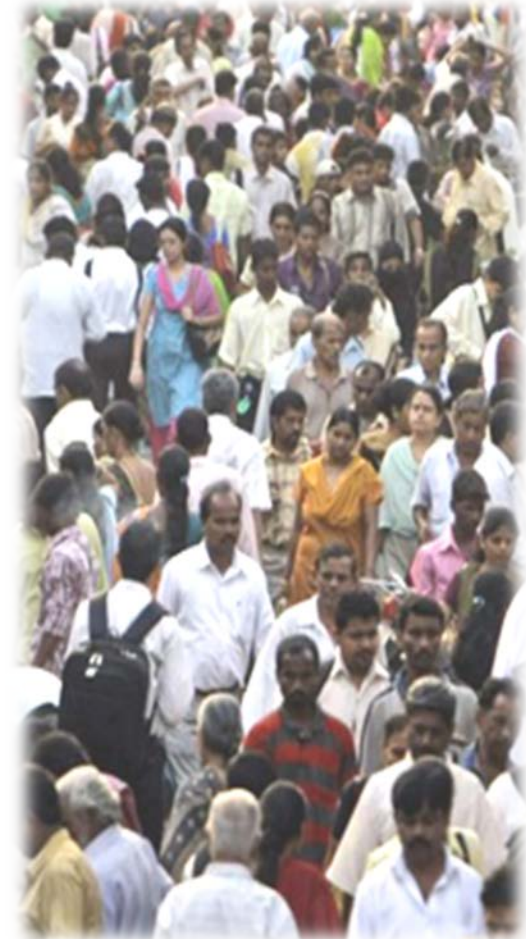
Challenges

- Ensuring decent **livelihood** for livestock keepers
- Enhancing **productivity** to narrow yield gaps within specific farm systems
- Adjusting to pressure on **ecosystems**, natural and genetic resources, tackling environmental externalities
- Adapting to **climate change** and extreme weather events, and **reducing Green House Gases (GHG)**
- Reducing, containing **zoonotic and foodborne** diseases
- Improving **food and nutritional** security
- Identifying **policies and actions** to contribute to sustainable agricultural development

Why South Asia?

Because of its

- large population
- abundant natural resources
- rich bio-diversity
- food and working habits coupled with a sizeable livestock and poultry population
- the region has hidden and hitherto unexplored potential to transform its economy through livestock and poultry centric growth and employment, if facilitated with appropriate technology and service injections



Why South Asia?

If done,

- the region can become the **livestock food production bowl** for the world
- benefitting the **small holder farmers**
- opening up smaller to larger livestock trade and
- business ventures in a supplementary and complementary mode paving the way towards production to **consumption value chain** tightening for quality



Indian Livestock Sector

- ❑ One of the largest livestock sectors in the world.
- ❑ **Food:** provide a considerable food requirements of mankind
- ❑ **Draught Power:** most affordable form of draught and transport
- ❑ Ranks first in milk production -**18.5 % of world production**,
- ❑ Growth of **milk production 6.26%** vs global growth of **3.1%**
- ❑ **Contributes 26% of agricultural GDP**
- ❑ Growth at an annual rate of 4-5 %
- ❑ Employment to **over 20 million people**
 - **Rural women**
 - **Small and Marginal farmers**
 - **Landless labourers**
 - **Rural unemployed youth, etc.**

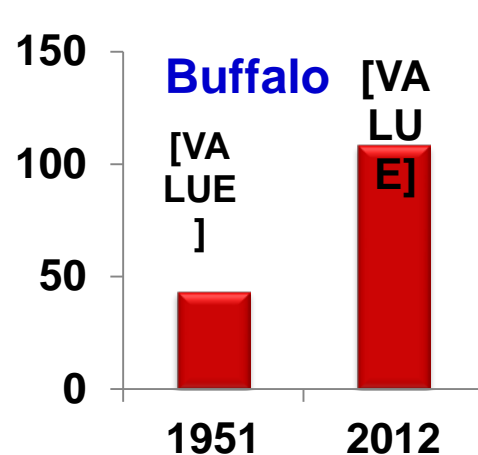


Species-wise Livestock Population (LC 2012)

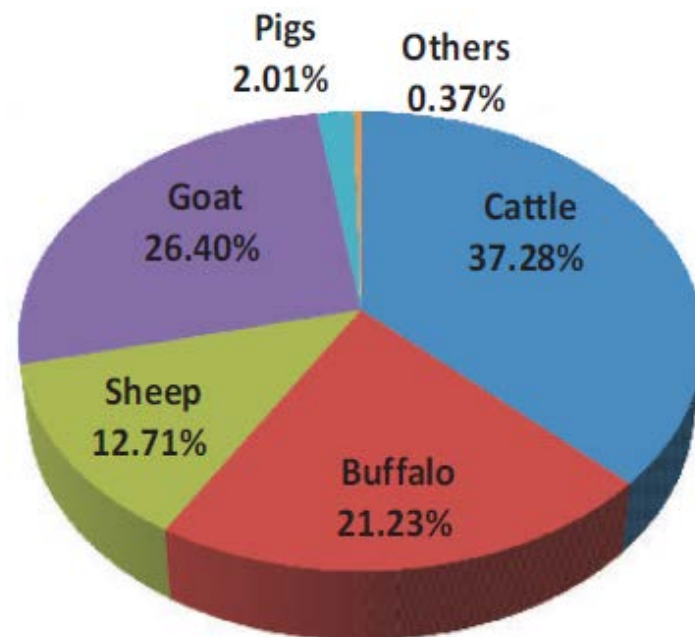
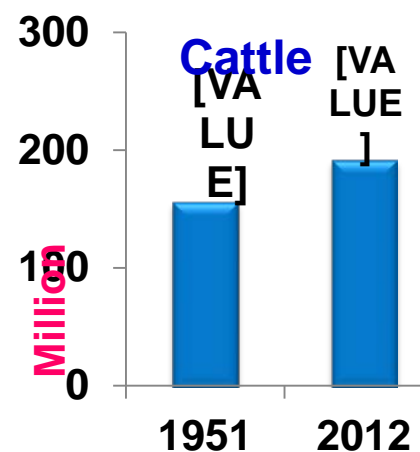
Species	No (Million)	% (Each species)
Cattle	190.90	37.28
Buffalo	108.70	21.23
Goat	135.20	26.40
Sheep	65.10	12.71
Pigs	10.29	2.01
Camels	0.40	0.08
Horses/Ponies	0.63	0.12
Mithun	0.29	0.06
Others*	0.60	0.12
Total Livestock	512.06	1241.00
Total Poultry	729.00	

* Others include Mules, Donkeys & Yaks

150% increase



23% increase



ANIMAL GENETIC RESOURCES OF INDIA

CURRENT SCENARIO

Species	Breeds
Cattle	40
Buffalo	13
Goat	26
Sheep	42
Camel	9
Horse	6
Pig	6
Donkey	1
Chicken	17
Total	160

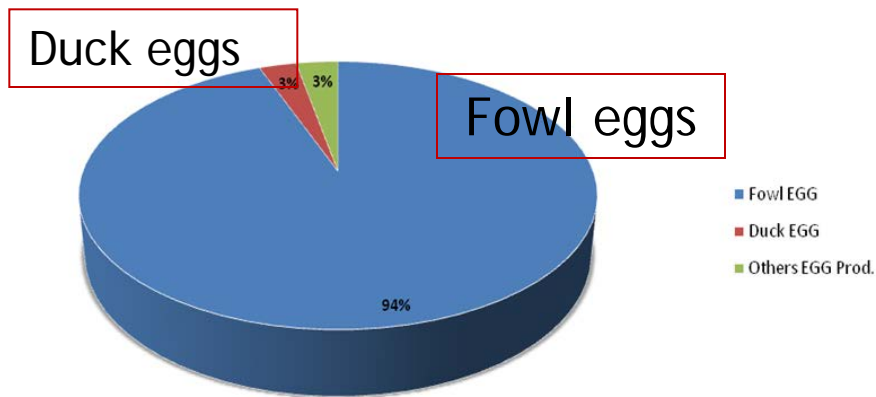


Livestock Products

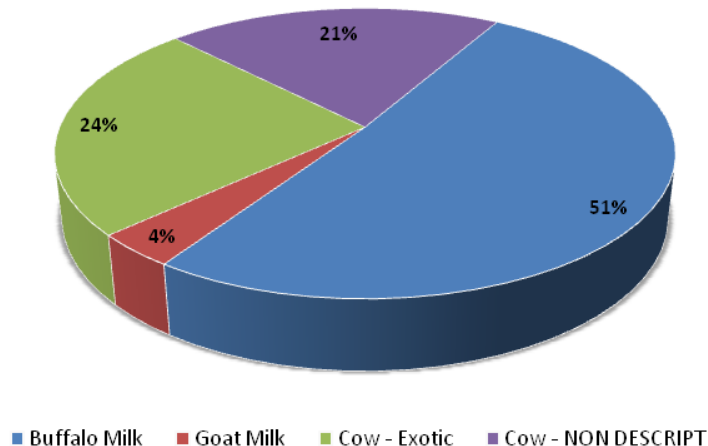
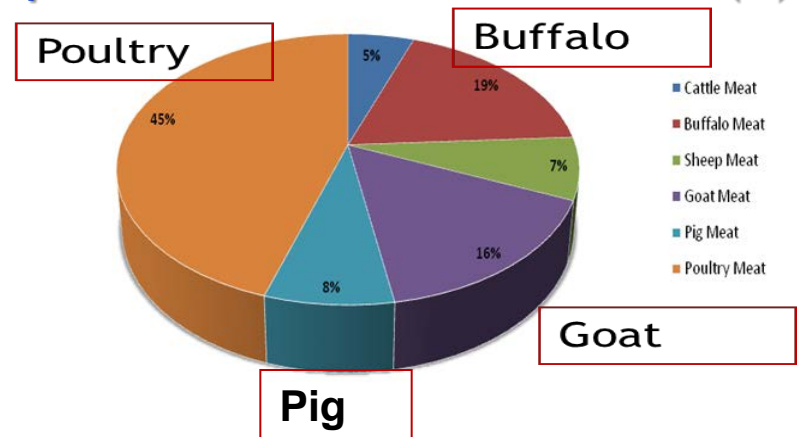
Milk	160 million Tons)
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Eggs	82 Billion (No)
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Meat	6.8 Million Tons
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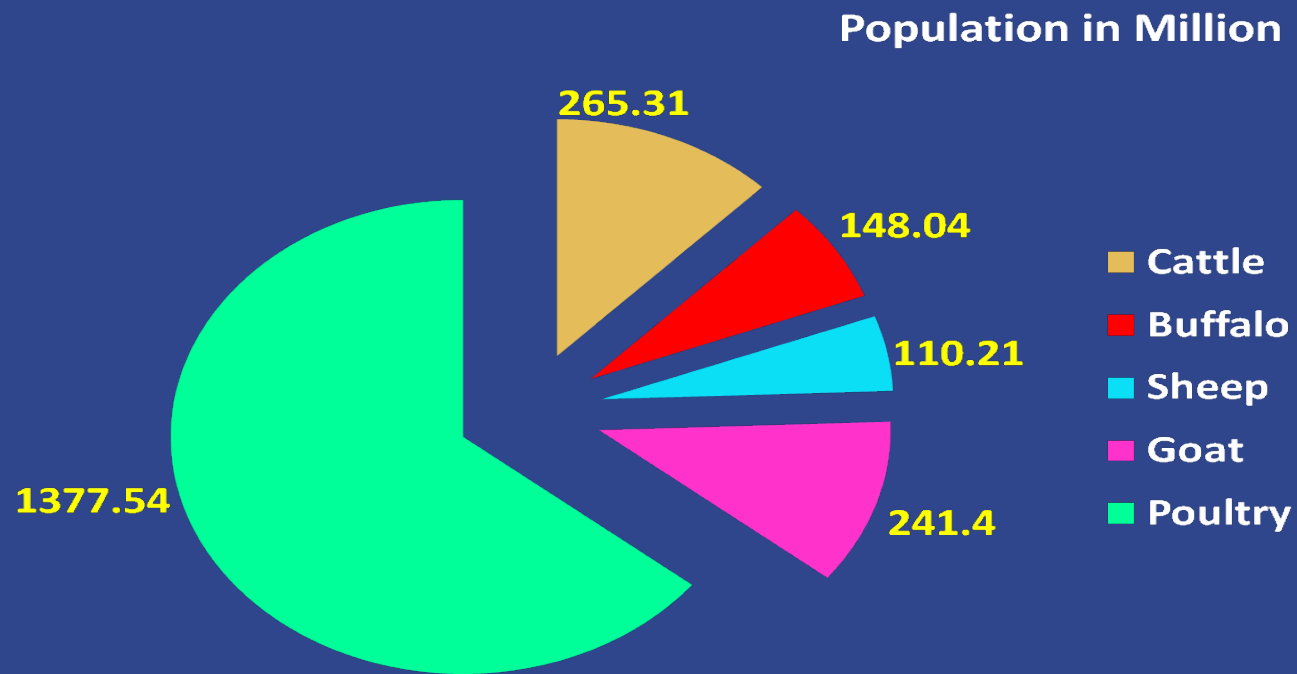


Species-wise meat contribution (%)



Species-wise contribution of Milk in India

Livestock and Poultry Population in the SAARC Region



Source: SAARC

Dairy Animal Population in the SAARC Region

Population in Million

Country	Cattle	Buffalo	Sheep	Goat	Camel	Total
Afghanistan	4.8	0.0	12.3	5.8	0.2	23.1
Bangladesh	23.70	1.47	3.33	25.76	0.0	58.26
Bhutan	0.38	0.001	0.017	0.039	0.0	0.437
India	191	108	65.07	135.20	0.4	499.67
Nepal	7.3	5.2	0.8	9.5	0.0	22.8
Pakistan	37	33	28.5	64.9	0.8	163.3
Sri Lanka	1.3	0.4	0.1	0.3	0.0	2.1
Total	265.6	148.01	110	240.5	1.4	765.5
% Global	25%		15%	7%		21%

Source: SAARC, 2015 & Member States Information

Productivity of the Dairy Animals in the SAARC Region

Kg/Per Animal/Year

Country	Cattle	Buffalo	Goat
Afghanistan	369.21	-	50.00
Bangladesh	304.98	400.00	80.00
Bhutan	257.00	-	50.00
India	1191.54	1700.78	150.16
Nepal	459.07	858.85	50.00
Pakistan	1229.96	1934.96	140.56
Sri Lanka	683.26	537.35	-
SAARC Region	627.86	1257.96	83.45
Europe & USA	7500.00	-	-

Source: SAARC, 2015

Milk Production and Demand in the SAARC Region

Country	Production (MMT)	Demand (MMT)	Availability (MI/Day/Head)	Deficiency / *Surplus (MMT)
Afghanistan	1.8	2.92	154	1.12
Bangladesh	6.9	14.6	118	7.7
Bhutan	0.04	0.06	167	0.02
India	132	120	275	12*
Nepal	2	2.4	208	0.4
Pakistan	36.6	17.33	527	19.27*
Sri Lanka	0.4	1.8	56	1.4

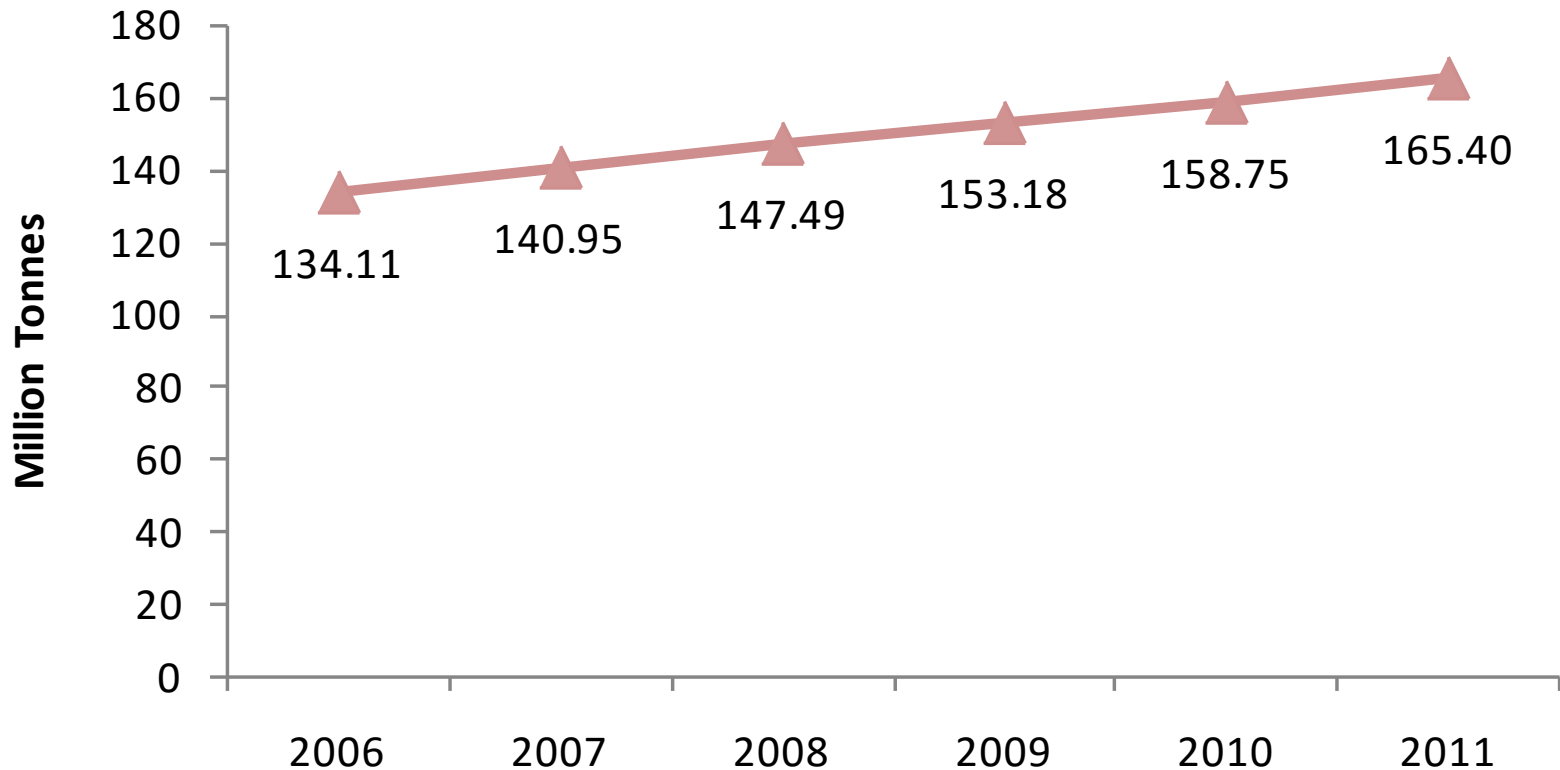
* On the basis of daily minimum requirement 250ml/day/head

* World average consumption of milk & milk products 103kg/capita/year

Source: SAARC, 2015 & Member States Information

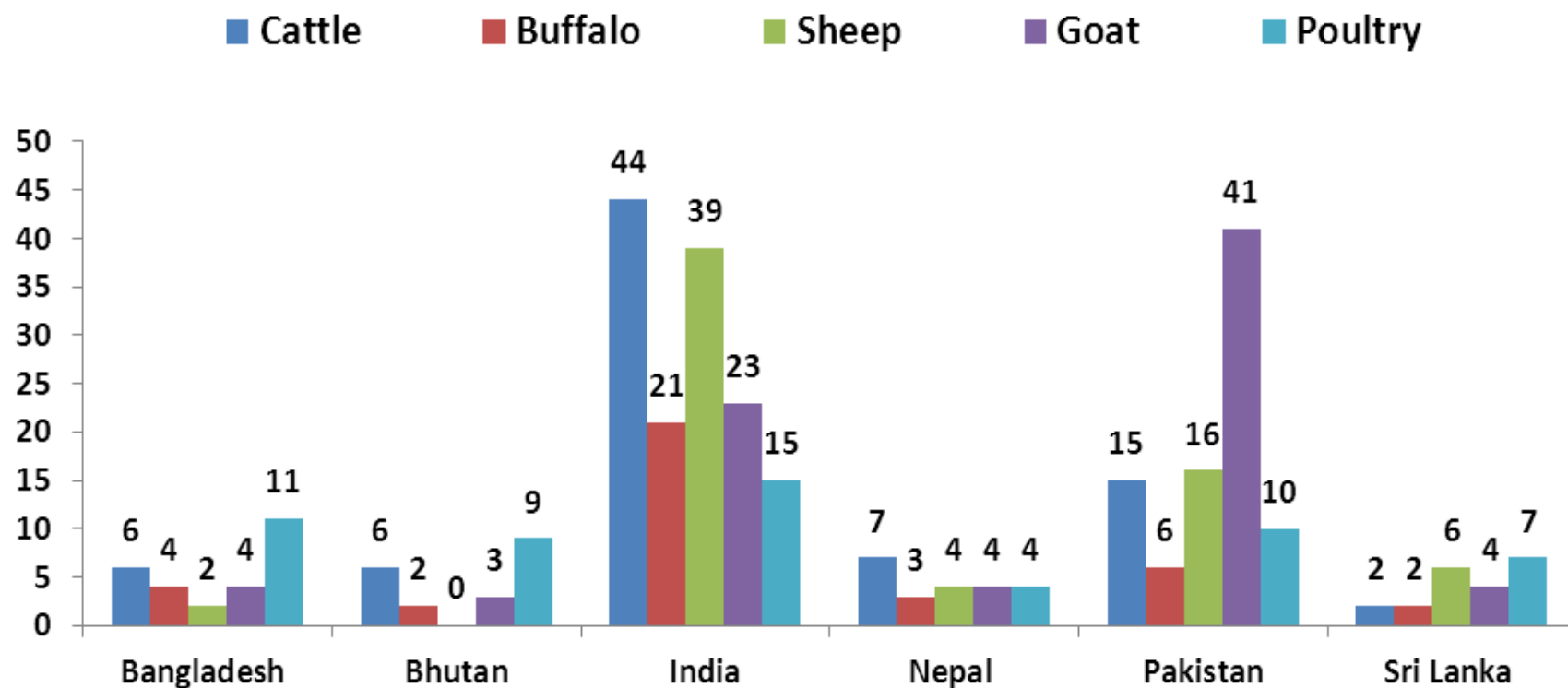
Trend in Milk Production in SAARC Region

Total Milk production



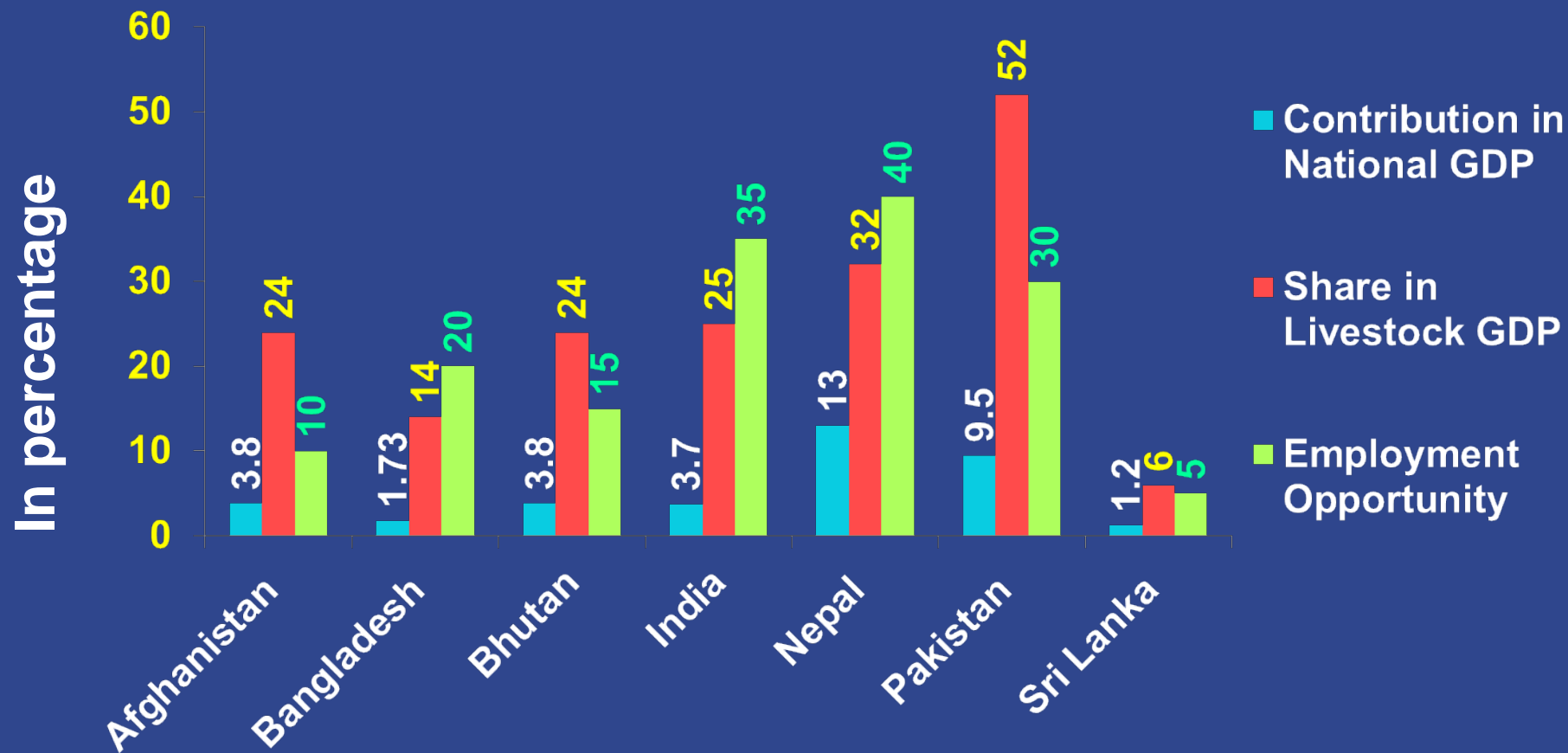
Source: SAARC, 2015

Farm Animal Genetic Resources (FAnGR) in SAARC Region



Source: SAARC, 2014

Contribution of Livestock in National and Agricultural GDP with Employment Opportunity



Source: SAARC, 2014 & Member States Information

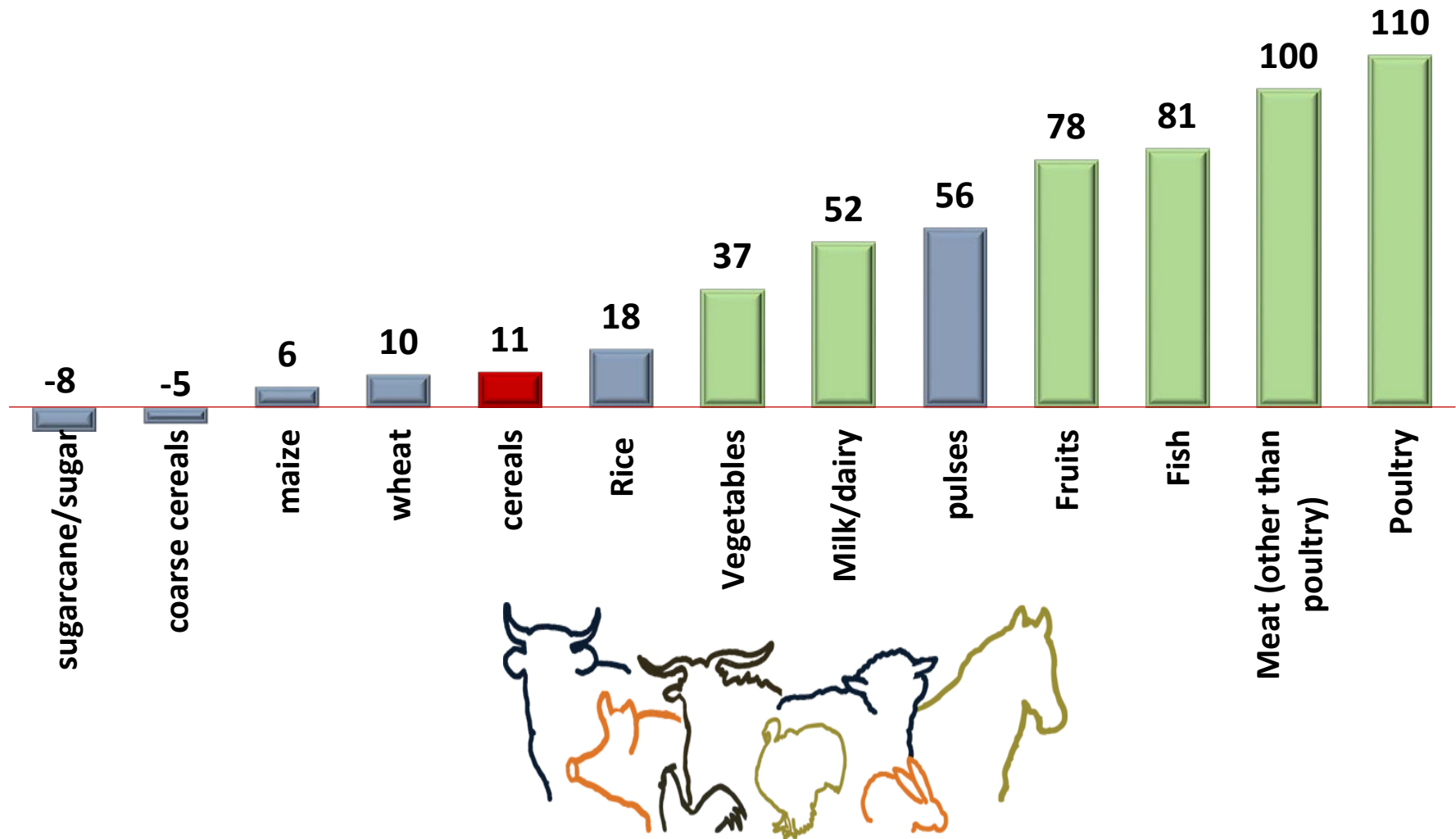
World Cattle Inventory: Ranking Of Countries (USDA)

World		998,313,000	
Rank	Country	2017	% Of World
1	India	303,350,000	30.39%
2	Brazil	226,037,000	22.64%
3	China	100,085,000	10.03%
4	United States	93,500,000	9.37%
5	European Union	89,250,000	8.94%
6	Argentina	53,515,000	5.36%
7	Australia	27,750,000	2.78%
8	Russia	18,430,000	1.85%
9	Mexico	16,500,000	1.65%
10	Turkey	14,047,000	1.41%
11	Canada	12,100,000	1.21%
12	Uruguay	11,845,000	1.19%
13	New Zealand	9,903,000	0.99%
14	Egypt	6,995,000	0.70%
15	Belarus	4,320,000	0.43%
16	Japan	3,800,000	0.38%
17	Ukraine	3,780,000	0.38%
18	South Korea	3,106,000	0.31%

Source: FAS/USDA (head)

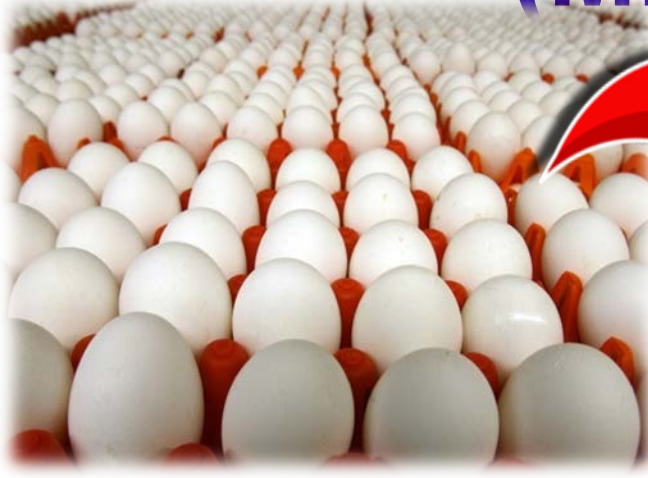
Shift in Composition of Food Demand in India by 2030

Projected Increase in Food Demand in India by 2030
(% change relative to 2011)



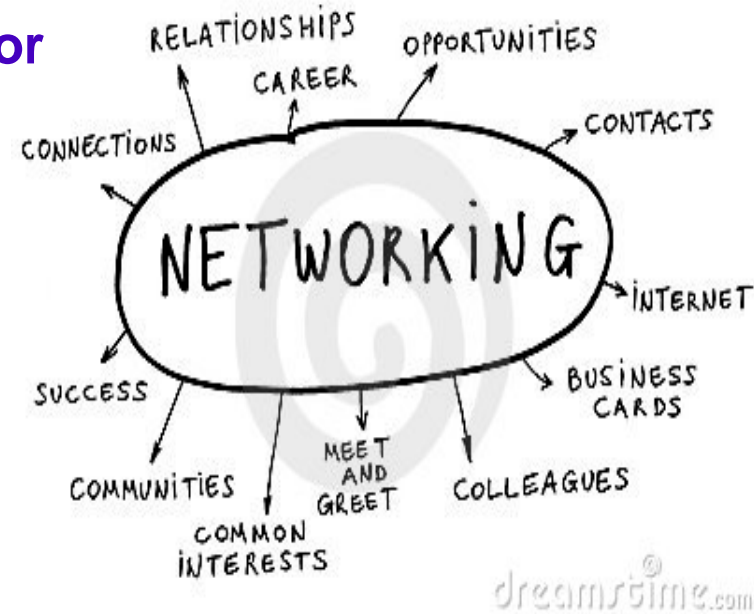
Mission

More From Less 4 More (MLM)



Strategy 1: Networking

- ❖ Technology integration for livestock sector growth, employment and income in the region and global collaboration,
- ❖ Linkages with NARS in the region
- ❖ Partnership development with the CG centers for implementing projects of mutual interest.
- ❖ National and provincial governments and the development agencies active in the



Strategy 2: Policy and Institutional Arrangement

- Create a **partner** in the livestock **development projects** and programs of the SA countries
- Build ILRI's capacity in terms of **infrastructure** **human** and other resources

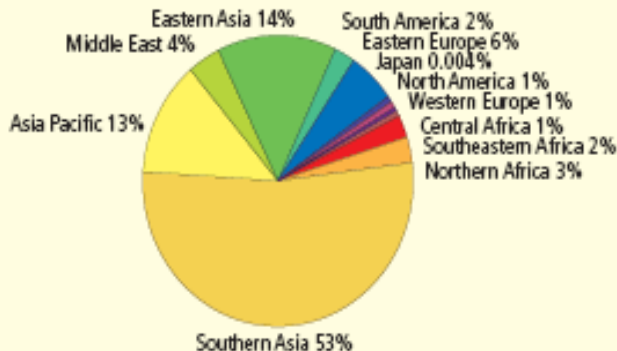


Strategy 3: Targeting



- Target the tribal and other communities living in the region through their **social institutions and local governments** to make a difference in the livestock production scenario through the tested technologies while bringing home **researchable agenda** for funding by donor agencies
- To **convince the donor agencies** on the strength of such research agenda for food, nutritional and economic security and mobilize support
- **Technology – policy – finance – partnership** nexus to aid and assist small holder livestock producers to augment productivity, process

WORLD DISTRIBUTION OF AGRICULTURAL WOMEN



Strategy 4: Capacity strengthening



- Recruit efficient manpower from relevant countries
- Build capacities of the existing staff to meet the demand for future expertise and experience
- Organize exposure trip to/ exchange visits, if necessary
- Organize joint workshops on some critical areas of national/regional interest for deliberation



Strategy 5: Increased presence in South Asian countries

- Establish strong relationship with NARS in South Asian countries, ICAR, PARC, BLRI, NARC, etc
- Identify Challenges and Prepare Strategy Papers for possible adoption by the South Asian Countries
- Setting-up of liaison offices in most of South Asian countries

Strategy 6: Best fit for the region

- Action-Research to Solve Problems in Livestock Sector in different target countries
- Appraising the activities of ILRI across the Government system





USAID
FROM THE AMERICAN PEOPLE

CIMMYT
MR
International Maize and Wheat Improvement Center



Agricultural Innovation Program (AIP) for Pakistan

Holistic paradigm for improving livestock productivity in Pakistan



Dairy Value Chain *Strengthening Indigenous Treasures*

Small Ruminants Value Chain *Poor mans cow: liquid assets*



Feed, Fodder and Rangeland

Combating feed scarcity & nutritional deficiencies





CSISA –ILRI Activities in Bangladesh

- Chopping and grinding straw improve their digestibility and subsequently nutrient intake;
- Increases the milk yield (0.5 to 1 liter/day/animal) and improves animal health condition.
- Reduces the wastage of Straw, saving on feed costs.
- Feeding Chopped straw and/or stover to animals reduces the requirement for



Women Farmer feeding Chopped Straw



Traditional Chopper



Modern Chopper

Smart farming 4 small farmers



- Consolidation
- Integration
 - Enhance Animal Productivity
 - Enhance Farmer's

Income

Integrated Farming System

Some priority areas

R & D Issues (Facilitate – Partner – Linkages)

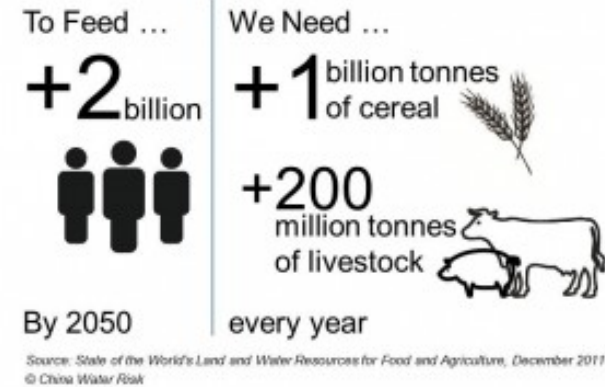
- Sexing of semen (sorted semen)
- Semen bank of elite animals
- Genomic selection of indigenous animals
- Combined vaccines/thermo-stable vaccines

Technology Foresighting (Projection: Niche Modelling – Climate Modelling)

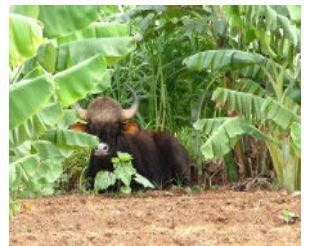
- Emerging infectious diseases including zoonoses
- Trans-boundary animal diseases (TAD) & AMR

Policy Issues (Success Stories – Strategy Papers – Facilitate Implementation)

- Animal Feed and Fodder- use of crop residues



Animal Menace



Our Collective Vision

- **Increase agriculture and livestock production :** *Feeding the world within the carrying capacity of earth*
- **Improve global cooperation in research and technology :** *Accelerate/strengthen knowledge and technology development that would not happen without the Alliance*
- **Work with farmers and partners, provide knowledge:** *Develop relevant mitigation options and strengthen productivity and resilience of food systems*



If an egg is broken from outside force,
a life ends, but always life begin,
if an egg break itself from inside

So..... think within the box !

A red ballpoint pen is shown in the process of writing the words "Thank you" in a cursive script on a white surface. The pen is positioned at the end of the word "you", with its tip touching the final stroke. The lighting creates a soft shadow beneath the pen and the text.

Thank you

**Better lives through
livestock**