



Our responsibility to protect the future of our kids on the Planet Earth

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<https://dairysciencepark.org/ness/>

NESS Pakistan Vision

To support the research and
establishment of the *National
Eco-Security System of Pakistan*
(NESS-Pak) for 240 million people in
Pakistan

Mission

Coordinated approach to respond to the challenges faced by the people of Pakistan through: i) Environment Security; ii) Biological Diversity; iii) Food Security; iv) Public Health Security and; v) Livelihood Security

1. The Eco-Security Issues - Climate Security

- Pakistan has been ranked by Germanwatch as the 8th most affected country in the world over the period 2000–2019 (GOP 2021).
- Ranked top 10 ranking of Global Climate Risk Index by Germanwatch.
- ND-Gain Index has placed Pakistan as the 39th most vulnerable country and the 27th least ready' country in the world to address the impacts of climate change.
- In Fiscal Year (FY) 2020, 40% of households suffered from moderate to severe food insecurity and therefore cannot absorb further climate shocks to food systems.
- National consensus to accelerating the transition towards a climate-resilient economy as per Paris Agreement of the UN Framework Convention on Climate Change (UNFCCC).
- Market and non-market-based approaches have been identified to help diversify the funding sources like Nature Performance Bonds, Green/Blue Bonds, Carbon Pricing Instruments.
- Pakistan encourages the private sector to play a crucial role in implementing its climate ambition across sectors and the development of NbS that address its mitigation and adaptation potential.

Floods 2022

- The 2022 floods submerged one third of the country, affecting 33 million people, half of whom were children.
- The floods damaged most of the water systems in affected areas, forcing more than 5.4 million people to rely solely on contaminated water from ponds and wells ([UNICEF 2022](#)).



UN Climate Conf COP27

- The Conference was held at Sharm El Sheikh, Egypt.
- The catastrophic climate change induced floods in Pakistan during 2022 that resulted in losses and damages of over US\$ 30 billion refocused the global attention towards this critical issue.
- Pakistan welcomed the historic decision of COP27 to establish the Fund for Loss and Damage ([MOFA](#), GoP, 20 November 2022; [Arab News](#)).



COP27 - The five key takeaways



Holding businesses and institutions to account



Mobilizing more financial support



Establishing a dedicated fund for Loss & Damage



Maintaining clear intention to keep 1.5°C in reach



Making the pivot toward implementation

Mitigation Strategy

- Climate Change Adaptation
- Biodiversity
- Disaster Preparedness
- Socioeconomic Measures - Poverty and Gender
- Climate Change Mitigation
 - Energy Generation and Conservation
 - Transport
 - Industry
 - Urban Planning & Waste Management
 - Agriculture and Livestock
 - Carbon Sequestration and Forestry

(National Climate Change Policy 2021)

2. The Eco-Security Issues - Biological Diversity

- Pakistan signed the Convention on Biological Diversity (CBD) at the 1992 Rio Earth Summit.
- National Biodiversity Strategy and Action Plan (NBSAP) - 2017-2030 sets the strategic priorities and roadmap for Pakistan.
- 198 mammal species (6 endemic), 700 bird species (25 endangered) (([MCC 2019](#)))
- 177 reptile species (13 endemic), 22 amphibians (9 endemic)
- 198 fresh-water fishes (29 endemic)
- 5,000 species of invertebrates
- 6,000 species of flowering plants (over 400 endemic)
- 3,000 taxa and around 500 wild relatives of crops
- Two breeds of buffalo, eight of cattle, one yak, 25 goat, 28 sheep
- One horse, four camels and three poultry breeds
- However, this biological diversity is now declining due to large scale anthropogenic activities and the degradation of natural habitats.

Biological Diversity - Protected Areas and threats

- Pakistan has a well-established network of protected areas, including 28 national parks, 92 wildlife sanctuaries, 116 game reserves and a large number of private as well as community managed areas ([MCC 2019](#)).
- These protected areas hold some of the unique and valuable species and landscape diversity of the country.
- Astola Island has been notified as the first marine protected area of its type in the country. In Pakistan,
- Marine ensure long term conservation of coastal and marine biodiversity including globally important marine turtles, dolphins, porpoises, whales and many species of birds and to safeguard local livelihoods dependent on coastal fisheries resources.
- Major threats to terrestrial ecosystems:
 - Un-managed grazing and deforestation due to high population pressure and increasing poverty. Various wild animals and their habitats are increasingly vulnerable to escalating agricultural and industrial development, and expanding and changing demands for biodiversity resources.
 - Climate change, urbanization, unplanned tourism and the spread of invasive alien species, threaten survival of both terrestrial and aquatic biodiversity.

Strategies and Action Plan

- Biodiversity awareness
- Gender, Poverty and Biodiversity Nexus
- Mainstreaming biodiversity in national planning and policy process
- Terrestrial Ecosystems, Habitats and Species
- Forest Ecosystems
- Inland Wetland Ecosystems
- Coastal and Marine Ecosystems
- Sustainable Agriculture and Agrobiodiversity
- Sustainable Production and Consumption
- Synthetic biology, challenges and opportunities

3. The Eco-Securities Issues - Food Security

The Food Resourcebase

- Total Cropped Area: 24.1 million hectares ([FAO 2023](#))
- GDP Share: Services Sector: 58.6%; Livestock 14%, Crops 8.9%. Industry 18.5%
- 4th largest Basmati rice exporter in the world
- Textile exports account for 60 percent of total
- Indigenous oil production caters to 30 percent of the domestic energy demand
- Food imports have increased to USD 9 billion, half of which is edible oil
- Employs 37.4 percent of the national labour force
- Contributes 70 percent of exports
- 30.5 million hectares (47% of the national land is agricultural land, higher than the global average of 38 percent.



The Food Resource-base - Livestock

- Livestock population: 225 million ([FAO 2023](#))
- Value addition of PKR 5.5 trillion in 2023
- The 5th largest milk producer with a gross annual production of 67 million tonnes
- Fetches USD 950 million in leather exports; the 4th in at World level

The Issues ([DSP Society Profile 2019](#))

- Poor practices at farmers' and industry level limits productivity and products quality
- Limited scope of education system create hurdles in food safety and entrepreneurship
- Slaughter houses/poultry butchers delivering low quality meat
- Farming and farm products create threats to public health
- Underutilized/unskilled labor at farms, factories and marketing networks
- Price capping of livestock products restricting industrialization
- Public Service Organizations (PSOs) ignore the entrepreneurship aspects of the sector
- Input suppliers grabbing major share of farmers' produce for low quality inputs
- Livestock transportation/marketing in open places and vehicles contaminate the environment

The Issues

Total value in KP **Rs.1000 b**
An meat prod **Rs.200 b**

- Entrepreneurship contribution???
- Hygienic food production ????



NESS
Pakistan



The Issues

- *Animal transportation ?*
- *Products processing ?*
- *Formal investment ?*
- *Traceability of products ???*
- *QC certification ?????*



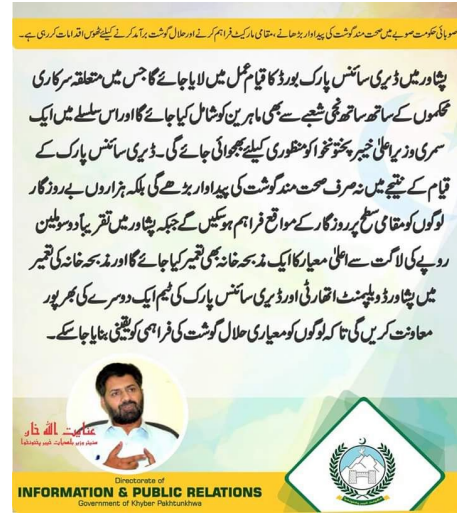
The Dairy Science Park Approach

The Mission

Utilization of indigenous human and natural resources for welfare of the people around the Globe, through academia – industry linkages, with focus on entrepreneurship development, Halal/hygienic food production, biorisk management and production of quality-certified products

The Approach ([UN SDG Action 40154](#))

- Focusing on SME production and processing units
- Sensitizing public and NGO sectors to reshape their functions for better services.
- Shifting pricing policy to quality based pricing or free market based on quality standards
- International Conferences and Industrial Exhibitions
- Biorisk Management Initiative
- Livestock Technoparks suggested ([FAO-UN 2019](#); [ITC-UN 2022](#))



Biennial Series of International Conferences and Industrial Exhibitions on Dairy Science Park



DSP I - 2011 Peshawar



DSP II - 2013 Peshawar

- Academia
-industry-society-government nexus developed
- Industrial innovations demonstrated
- Stakeholders sensitized
- Policy guidelines developed
- Students motivated
- Faculty/Students Exchange with Turkey established
- [Online proceedings](#) published



DSP IV - 2017 Konya



DSP VI - 2023 Bahawalpur

Organogram of Action Plan for BLBP2022

LDD Dept

Genetic Impr &
Health/ Reprod
Mngt

HHP/SPU/AI/Camel
R&D/LEDC Washuk

LTQ/ LEDCs facilitn

Forest Dept

Rangeland
Management/ Trg

Introducing new
grass varieties;
Community
Support/LEDC
Turbat

Local Govt Dept

Livestock Markets

LEDC/LS Market
Mashriqi Bypass,
E-marketing,
Comty Centers/,
Students
Intship, PG res

Industries Dept

SMEs Dev

Regul Support to
LTQ (Livestock
SMES Regulatory
Support Cell)
(LSRSC); Local/Intl
linkages

UoB (CEGAPH/LEDC Kharan/CASVAB Accreditation/LTQ hosting) +
BUIEMS (HMREC/LEDC Zhob) + LUAWMS (CBEL/LEDC) +
SBKWU (LEDC Noshki) + QCCI (LSSC)

9 Livestock
Entrep Dev
Centers
(LEDCs)

Livestock Technopark
Quetta (LTQ)

BoG (18)/
Endmt Fund (Rs.1.72 b)/
NLD Grant (Rs.1.28 b)

2 Centers of
Excellence
(CEGAPH-BU/
CBEL-LUAWMS)

National Food Security Policy - Strategic Framework

Strategic Framework (GoP 2018)

- Developing close partnership with the Provincial Governments, entrepreneurs, research scientists, investors, exporters, importers, academia, progressive farmers and civil society for achieving Food Security and Nutrition (FSN)
- Periodical deliberations of National Food Security Council (NFSC) on the issues of agricultural development and food security.
- Provide the requisite patronage to agriculture sector at the highest level to achieve the synonymous goals of food and the national security of the country.
- Shifting the current emphasis of the PSOs from a few crops such as wheat, rice, sugarcane and cotton towards other aspects such as:
 - raising incomes and employment through developing business clusters
 - the efficient use of water, land, rangelands, pasture and forests
 - safe food production for better environment and climate change compatibility
 - equity including how to empower women and vulnerable groups such as shared croppers, tenants, the landless, transhumants and marginalized communities

The Dairy Science Park Approach

- Proposed Livestock Technopark Peshawar and Quetta under [FAO-UN](#) and [ITC-UN](#) Consultancies

Strategic Framework - continued...

- Reducing the cost of production of agriculture through enhancing the farm level supply of certified seed, quality fertilizers and pesticides, access to institutional credit, and appropriate farm machinery
- Diversifying the food systems for better diets and nutrition through developing innovations targeting household food diversity specially focusing on implementing zero hunger program.
- Improving market support for achieving the goals of fair prices to both consumers and producers and value chain development for better food availability and access.
- Putting Pakistan on a high trajectory of development while exploiting unutilized trade potential lying in all sub-sectors of agriculture viz. Horticulture, (fruits, vegetables and floriculture), livestock, dairy development, poultry and fisheries

4. Public Health Security

Challenges

- Shortage of Human Resource in health; Pakistan has one of the lowest doctors, dentists, nurses and paramedics to population ratios ([National Health Vision Pakistan, 2016-2025](#))
- Maldistribution of HR, retention issues and low work-place satisfaction levels
- Brain drain at all levels
- Professional education in health is run at suboptimal level without synchronizing the curriculum with modern pedagogic techniques, int'l standards and the local requirements
- Licensing and renewal of licensing of health practitioners is weak, and is not linked with improved qualification, competence, performance and continuous professional development
- Weak institutional levers for gauging the performance of health staff
- Apparent stagnancy in the coverage of community health workers, and their numbers, coverage and quality are far from the required standards

Thematic Pillars

- Health Financing: responsive and efficient health financing
- Packaging Health Services: To improve the coverage and functionality of health services
- Human Resource for Health: To tailor education to the health needs of the population
- Health Information Systems and Research: Technologies utilization for speedy/reliant information
- Governance: PSOs to rebuild their stewardship of the health system through professional independent advice and strive to become the forefront provider of essential health services
- Essential Medicines and Technologies: Health Technology Assessment (HTA) capacity will be created at various levels of Governments and will be vigilantly monitoring the system
- Cross-Sectoral Linkages: Focus on cross-sectoral action for advancing health, with a particular focus on communicable and non-communicable disease
- Global Health Responsibilities: Global sustainable agenda will be reflected in all health strategies and plans, for which governments will be provided technical support and appropriate expertise

The Dairy Science Park Approach - Biorisk Management (BRM)



Amsterdam: DSP-SNL USA Collaboration

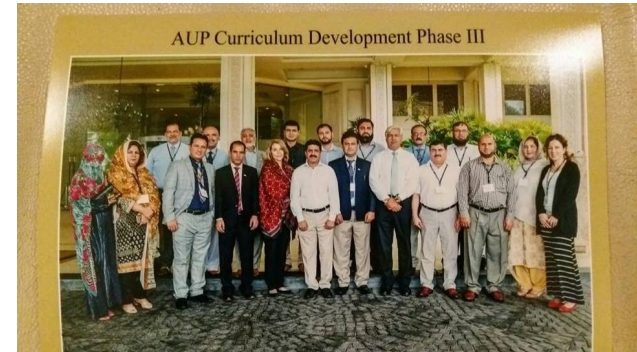


Dubai: Consideration in teaching programs

- DSP-SNL USA Collaboration: 2017-2019
- Workshops held in different countries: 8
- Persons-times trained: 105
- Sectoral participation: Academia, Industry, Civil Society, Government
- Outcome: Sensitized stakeholders, developed BRM Package for DVM Curriculum



Phuket: Stakeholders awareness



Colombo: DVM BRM Package developed

5. Livelihood Security



[Small and Medium Enterprises \(SME\) Policy 2021](#) was launched by the Ministry of Industries and Production, Govt of Pakistan. The following situation was highlighted:

- SMEs base comprises manufacturing, services and trading.
- SMEs are distributed among micro and small enterprises with limited investment; access to resources and services; unskilled labour and ineffective linkage with the universities.
- SMEs face higher and disproportionate costs of regulatory and tax compliance, compelling SMEs to remain unregistered and informal. Interface with PSOs is considered predatory.
- Export-oriented SMEs are concentrated in textile, light engineering, surgical and sports goods; mostly in low value added products. Inter-firm collaboration is not supported by the Policy, preventing scale-ups.
- Infrastructural provision like industrial estates, roads, electricity, security, etc, are deficient and SMEs are located in congested urban areas, restricting their growth.

Policy Framework



- Macro Policy and Regulatory Environment: Government interventions to ensure a more stable macro environment conducive for SMEs growth.
- Supply Chain Challenges: Provision of quality and affordable business development services, suitable credits, productive manpower, innovations space and opportunities and sustainable infrastructure.
- Demand side Challenges: Local and international market access and increasing demand opportunities.
- Institutional mechanisms: For strengthening the voice and representation of SMEs, comprehensive implementation; and for tailoring government decisions with the SMEs requirements.

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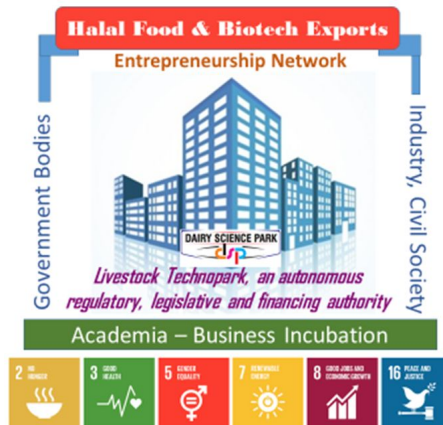
Silage introduced as quality feed



Quails entrepreneurship tested



Univ Feed Mill functionalized



Livestock Technopark



Dairy entrepreneurship models

A Chance for Survival for our Grandkids



1959 (3.0 b)

Environment +
Biol Diversity + Food +
Public Health + Livelihood =
Eco-Security



2023 (8.1b)
27

References and Courtesy



References

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- [List of Supporters of NESS: Download](#)
- [National Climate Change Policy 2021](#)
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Courtesy

- Courtesy Smiling Earth: [.everypixel.com](#)