

Department of Livestock Services(DLS)-Led Climate-Smart Dairy System for Smallholder farmers in Bangladesh

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Problem statement

Bangladesh's livestock sector drives food security, nutrition and rural livelihoods but faces climate threats:

- Heat waves reduce milk yield & fertility
- Floods, cyclones, droughts and salinity disrupt fodder production
- Poor manure management increases GHG emissions
- Feed and fodder availability is affected by climate changes
- Smallholders face rising feed costs, unstable incomes, animal health risks

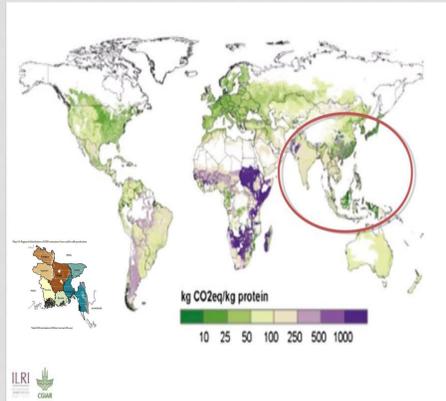


Fig 1. Green House Gases Emission Intensity against Livestock Production in Sub- continent is higher (Source: ILRI)



Fig 3. DLS extension officers conducting on-farm climate-smart dairy training, demonstrating fodder, housing, and biogas practices to smallholder farmers (Source: DLS)

The solution/Innovation

Nationwide DLS extension model:

- Perennial Napier fodder (Pakchong/Super/BLRI varieties)
- Maize fodder & silage (year-round pits/bags)
- Salt-tolerant fodder varieties in the coastal zone such as Napier-2
- Drought-tolerant fodder like Pakchong fodder
- Fodders like Baksha, Para and German in lowland areas as water stress-tolerant varieties
- Household biogas from manure
- Organic fertilizer from manure and farm waste
- Climate-resilient elevated sheds
- Local breeds (Red Chittagong Cattle, Netrokona Hill Black, Munshiganj, Pabna, North Bengal Grey) through selection and cross-breeding
- NLAS digital advisories (RIMES-supported app/chatbot)



Fig 2. Perennial Napier grass for year-round high-biomass, protein-rich fodder, and maize silage for high-energy feed during floods and dry seasons (Source: DLS)



Fig 4. Climate-Resilient Ventilated and elevated shed reducing heat stress and flood rise (Source: DLS)



Fig 5. Household Biogas plant converting manure into clean energy and organic fertilizer (Source: DLS)



Fig 3. Promotion of climate-resilient indigenous breeds (Munshiganj and Red Chittagong Cattle) genetic selection for stress tolerance & productivity (Source: DLS)

Scalability and regional relevance

- Nationwide via DLS district/upazila networks
- Affordable and local: Low-input crops, simple technologies, local construction and breeds
- Scalable through partnerships with BLRI, FAO, World Bank, RIMES, NGOs and farmer cooperatives
- Replicable across Asia-Pacific countries facing heat, flood, salinity and smallholder feed/energy challenges

Key results/impacts

- ↑ Milk production and household incomes
- ↑ Nutrition and food security
- ↓ Heat stress, disease, feed and fuel costs
- ↓ Methane and waste emissions
- Stronger digital extension services
- Preserved local genetic diversity

Partners and donor involved

Department of Livestock Services (DLS); Bangladesh Livestock Research Institute (BLRI); FAO; Regional Integrated Multi-Hazard Early Warning System (RIMES); World Bank; Danish Veterinary and Food Administration (DVFA); NGOs; development partners; Green Climate Fund; farmer cooperatives.

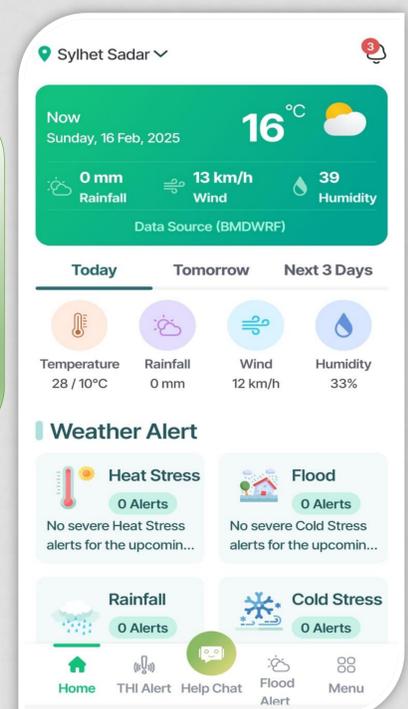


Fig 6. NLAS: Real-time weather, heat, flood, and health advisories via mobile app

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