

## From the Desk of Director

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**W**aterlogging and recurrent flooding remain among the most critical challenges affecting agriculture and rural livelihoods in eastern India. Across the country, nearly 113 million people—about 9% of the population—are vulnerable to flood and waterlogging hazards, which adversely impact agricultural lands, crops, livestock, forests, infrastructure, and human health. Excess water creates anaerobic conditions in the root zone, disrupting nutrient uptake, crop growth, and overall ecosystem productivity. Available estimates indicate that nearly 11.6 million hectares of land in India are affected by perennial or seasonal waterlogging.

In eastern India, particularly in Bihar, the problem is aggravated by riverine floods, cyclonic rainfall, flash floods, and poor drainage conditions. Every year, nearly 0.8 million hectares of land in Bihar experience varying degrees of flooding and water stagnation due to transboundary rivers originating from the Himalayas and Nepal, including the Gandak, Burhi Gandak, Bagmati, Koshi, and Kamla-Balan river systems. These recurring hydro-climatic stresses pose serious threats to agricultural sustainability, food security, and farmers' livelihoods.

ICAR–Mahatma Gandhi Integrated Farming Research Institute (MGIFRI) is committed to developing resilient, resource-efficient, and climate-smart farming solutions for flood-prone and waterlogged ecosystems. The Institute is actively working on integrated farming systems, water management technologies, resilient crop and livestock production systems, eco-friendly disease management, mechanization for waterlogged situations, and livelihood diversification approaches aimed at transforming flood-affected regions into productive and profitable agricultural landscapes. Through dedicated scientific innovation and technological convergence, we have successfully developed Integrated Farming System (IFS) models through integrating e.g., fish (IMC), goat (Black Bengal), Fish with goat/ cattle/ buffalo/ duck/ poultry/ horticultural crops, modified lowland area and converted horti-based IFS models etc for water congested ecologies that directly uplift small and marginal farmers of Bihar, Eastern India. Furthermore, our dedicated efforts in participatory research, capacity building/ training/ demonstration and stakeholder-centric interventions, the institute strives to enhance resilience, improve farm income, and promote sustainable natural resource management in vulnerable agro-ecosystems. We firmly believe that integrated and location-specific technological solutions can convert the challenges of flood and waterlogging into opportunities for sustainable agricultural development and livelihood security.

