Director's Message

Flood and waterlogging is misery to 113 million people (9% population) in India. It affects agricultural lands, forest lands, crops, livestock, and human life. The excess water causes anaerobic environments in the rhizosphere of the plants which results in poor gas exchange. Available data show that perennial and seasonal waterlogging occurs in about 11.6 million ha in the country. In eastern India, waterlogging problems are associated mainly due to riverine, cyclonic floods and, flash floods. In Bihar, waterlogging problem is the most serious and it occurs in about 0.8 million ha every year due to flooding from Nepal-based rivers viz. Gandak, Burhi Gandak, Bagmati, Koshi, Kamla-Balan etc.

In Bihar, 28 districts out of 38 are flood-prone, and 15 are the most vulnerable accounting for 17% of total flood-affected area of the country. Some of the major causes of waterlogging in the Gandak command include release of excess water during monsoon season in the canal system, superfluous irrigation supplies, over-irrigation, seepage from canals, causing rise in the water table, accumulation of rain and floodwaters in depressed land, silting and weed growth in canals, unfavourable outfall conditions and lack of surface/ subsurface drainage. Hence, natural resource management of these agroecosystems is very challenging for sustainable agricultural development and farmers' welfare.

With this background, Scientists of Mahatma Gandhi Integrated Farming Research Institute (MGIFRI), Motihari are working with the following two broad mandates and five action areas:

❖ *To develop location-specific integrated farming systems (IFS) with crop diversification, fish and animal components for flooded, flood-prone and waterlogged ecosystems;*

❖ *To provide training/ capacity building of all stakeholders including the farmers of the region.*

Five action areas of the Institute:

❖ *Delineation, situation analysis and mapping of flood-prone, flood-affected and waterlogged areas;*

❖ *Characterization and monitoring of soils and nutrient status of water congested ecologies;*

❖ *Design and development of IFS technology/ packages/ model for water congested ecosystems;*

❖ *Post-flood crop management, design and development of efficient water management technology, and*

❖ *Capacity building of all stakeholders including farmers on different components of IFS.*

The institute is a new research establishment under the Natural Resource Management Division of the ICAR. Considerable infrastructure development has been made. Some more facilities are in the process of creation, which are essentially required for research and development of the Institute. We have planned a few prospective research projects, which are being started quite systematically so that the mandates of the Institute are met, and impactful technologies are developed on integrated farming in the near future for the benefit of farmers. In addition to institute-funded projects, we are working at the farmers field for the welfare of

the farmers directly through an external-funded scheme of the Govt of India, SCSP scheme and farmers' FIRST project of the ICAR.

The research projects planned will definitely probe systematic scientific interdisciplinary studies of integrated farming with appropriate economic analysis, validation in the farmers' field, and technology development. This will help to make the waterlogged areas more productive and profitable. Our Scientists are putting all-out efforts for capacity building of farmers and stakeholders through on-campus as well as off-campus training programmes, demonstration, organizing awareness campaigns, Kisan Gosthi, Krishi Mela, Field Days etc. We are developing collaboration at the state and national levels to highlight the importance of the organization. We get every support and guidance from Hon'ble DG, ICAR, DDG (NRM), ICAR HQ, State Govt., farmers, and the people. Surely, the new direction at the Institute and integrated farming models will provide solutions to the water congested ecosystems, especially in north Bihar.

K.G. Mandal
Director