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SIFS-CLIM: Sustainable Integrated Farming Systems for Mitigation and Adaptation of Climate Change with Smallholder Farm(er)s in India

country/countries	India
funding agency	Federal Ministry of Food and Agriculture - BMEL
project management	Federal Office for Agriculture and Food – BLE
project coordinator	Prof. Dr. Nicolas Brüggemann, Forschungszentrum Jülich GmbH, Germany
project partner(s)	Deutsche Welthungerhilfe e.V.; University of Calcutta; Vaagdhara; Abhivyakti Foundation; Development Research Communication and Services Centre
project budget	985,558 EUR
project duration	1 April 2024 – 31 March 2027

keywords	Sustainable integrated farming systems, climate mitigation/adaptation, food/nutrition security; circular economy, multifunctional systems, carbon sequestration/storage, water management, agroecological farming
background	A systemic facilitation approach called 'Sustainable Integrated Farming Systems (SIFS)' has been developed and implemented by Welthungerhilfe (WHH) and partners in the last decade. The approach moves away from individual crop performance to increased system productivity and nutrient use efficiency, integrating crops, horticulture, agroforestry, livestock, and aquaculture into an interactive relationship. It emulates natural cycles, using wastes from one subsystem as inputs for other subsystems, thus enhancing the overall synergy of the system. The proposal is based on the hypothesis that the SIFS approach helps to mitigate and adapt to climate change better than conventional high external input-driven intensive farming systems and thus is a pathway to climate protection and resilience, while contributing towards several of the Sustainable Development Goals (SDG) of the United Nations.
objective	The SIFS-CLIM project aims to answer two research questions (RQ). RQ 1: What determines the adaptation and mitigation potentials of SIFS multi-component farms along the four dimensions of resource use, agricultural productivity, landscape diversity and nutrient-rich food production? RQ 2: What are the opportunities to adapt and improve the SIFS approach in terms of crop and breed selection and combination, farm management and ecosystem processes on the farm and in the farm landscape to achieve better performance in the four dimensions of resource utilization, farm productivity, landscape diversity and nutrient-rich food production?
short description	The research project will address resource use efficiency as well as mitigation of and adaptation to climate change in SIFS by generating and analyzing quantitative data on climate mitigation potential and climate adaptation processes. With its multi-disciplinary approach, the project will assess individual contributions and focus on the following four relevant dimensions: a) Use of resources for agriculture and their associated biogeochemical matter fluxes; b) crop performance and productivity; c) landscape diversity – characterization and mitigation impact; d) food production for high-quality nutrition. The project will also suggest changes in improving the SIFS approach, its components, and technologies towards climate resilience and mitigation potential. The approach is inter- and transdisciplinary, action research-oriented, socially inclusive and gender responsive.