WESTERN SYDNEY
UNIVERSITY

Global Centre for
Land–Based Innovation

GLOBAL CENTRE FOR LAND–BASED INNOVATION

Advancing Food Security, Supporting Environmental Sustainability, Innovation from Research, Training and Education

westernsydney.edu.au/gclbi

THE GLOBAL CENTRE FOR LAND-BASED INNOVATION

OUR INTEGRATED RESEARCH AND INNOVATION FRAMEWORKS HELP INDUSTRIES AND POLICYMAKERS TO MAKE BETTER DECISIONS AND PROMOTE AGRICULTURAL AND ENVIRONMENTAL RESILIENCE BY UNLOCKING KNOWLEDGE, INNOVATION AND VALUE FROM RESEARCH.

Worldwide demand for food and fibre is growing—driven by population growth, changing diets, wealth and, increasingly the diversion of more food crops and land to biofuel production. Additionally in the Asia-Pacific, farm productivity has gone into structural decline and further farm inputs no longer translate into increased yields.

If these trends continue, farm profitability and global food security will be severely impacted. An innovative, multi-disciplinary, and collaborative approach is urgently needed to increase productivity and manage our natural resources for sustainable delivery of food, fibre and biofuels now, and into the future. Climate variability and extreme weather events can further compromise farm productivity and food security. The Centre's partnerships with experts, affiliated scientists and emerging leaders from across the Asia-Pacific region provide an innovative hub to tackle the earth's food security challenges working with industries, policy advisors and global experts.

The mission of the Global Centre is to create and disseminate innovative solutions and evidence-based approaches to promote farm productivity, food security and environmental sustainability.

GLOBAL SOLUTIONS

The Centre offers a rare opportunity to contribute to global food security by:

- → Combining the recognised excellence of participating organisations.
- → Improving food production and agri-business outcomes with benefits to health and environmental resources.
- → Establishing innovation hubs and creating skilled employment.
- → Building the next generation of leaders with education and training partnerships.

The Global Centre will provide solutions for these challenges in close partnership with industries, policy advisers and global experts.

BETTER DECISIONS FROM RESEARCH, ADOPTION AND KNOWLEDGE

RESEARCH. KNOWLEDGE TRANSFER. INNOVATION.

Our world faces enormous challenges in both human and natural systems, as rising populations demand a higher standard of living at the same time as agricultural productivity growth has stalled and pressure continues to grow in our life-supporting ecosystems.

To address these challenges, we have formed the Global Centre for Land-Based Innovation – a consortium of international scientists based in Australia, China and India. The Global Centre's primary purpose is to uncover the enormous value that lies in the world's scientific research and connect the knowledge within to address specific agricultural and ecological issues in an integrated manner.

Scientists in the Global Centre are enabling knowledge transfer and innovation from a broad suite of research from across the world, using the very best scientific technologies and methods to support advances in crop productivity, environmental remediation and pest and disease management to drive food security in Australasia.

The opportunity of the Global Centre lies in its connected, collaborative and internationally-focussed approach – finding solutions and delivering management frameworks that are proven to deliver successful outcomes in today's complex operating environments.

The Global Centre invites you to take a closer look out our approach, our capabilities and the opportunities available to address today's pressing issues and deliver a safer future for the world of tomorrow.

Professor Brajesh Singh
Director Global Centre for Land-Based Innovation

9 BILLION

GLOBAL CHALLENGES IN AGRICULTURE AND THE ENVIRONMENT DEMAND INTEGRATED APPROACHES TO SAFEGUARD THE WORLD WE LIVE IN

N BY 2050

Our world faces complex issues in agriculture, food and the environment. By 2050, our population will be more than 9 billion people. The rising demand for higher-quality food and fibres in the Asia-Pacific region means we need to find better ways to produce these premium foods in an environment of rising costs and more variable climate conditions.

Access to premium markets in China and India is improving for many agricultural products, presenting both a major regional opportunity and a challenge in supplying the volume of quality produce that these markets demand.

Since the early 2000's, worldwide agricultural productivity growth has plateaued, while operating challenges have become more complex and unpredictable. Extreme weather events such as drought and floods impose significant changes on agricultural ecosystems with flow-on effects on farm viability and environmental resilience.

Worldwide investment in research, development and innovation is estimated at more than one trillion dollars, yet there remains a significant gap between findings from research and translation into practice and policy that considers the complex and interconnected nature of regional challenges.

FLEXIBLE SOLUTIONS

OUR COLLABORATIVE APPROACH

The Global Centre for Land-Based Innovation specialises in developing tailored and integrated solutions to complex agricultural problems through its alliance of leading institutions in Australia, India and China.

The Centre's unique focus bridges the gap between science and policy by uncovering the enormous value that lies in research and its application to complex agricultural and environmental problems. The Centre draws on the expertise of scientists from across the globe to deliver solutions that bring regional and industry-specific insights to industry and policy makers so that they can make more informed decisions.

Importantly, the Centre provides a connected and collaborative training program based on knowledge exchange through our international partner networks, ensuring that the best practices and skills are available to address challenges with international expertise.

INTEGRATED CAPABILITIES

Innovation From Research

The Global Centre uncovers the enormous value in scientific research to provide tailored solutions to agricultural and environmental challenges. With access to expertise from across the world and leading technologies, researchers at the Global Centre have been able to support productivity for cotton, grain and sugar industries under new and variable climatic conditions.

Decision Management Frameworks

The Global Centre has been instrumental in helping growers to make decisions about their cropping practices under very variable growing conditions. Our work with the cotton industry has focussed on using research and innovation to develop management frameworks to help growers adapt to drought, flood and extreme temperature events and the subsequent impacts on the soils and plants. These frameworks enable growers to make the right decision based on the conditions they face, and deliver profitable and sustainable crops each year.

Adoption To Policy And Practice

There are significant challenges in translating research into practice and informing policy development. The Global Centre's connected approach enhances the transfer of knowledge from discovery to adoption by connecting challenges to research networks. This approach starts with the challenge first and foremost, followed by analysis from national and international partners to address the challenge and its context through research and innovation.

Education and Leadership

The Global Centre 's promise includes education and training for the scientists of tomorrow. Our connections, scientific facilities and professional networks provide an excellent training ground to deliver the skillset required to solve complex problems in natural and human systems. Through exchange programs, professional transfers and international collaborations, students and scientists based in the Global Centre enjoy the benefits that flow from deeply connected and collaborative research environments in Australian, China, India and beyond.

Innovation Agriculture

Supporting Australia's multi-billion dollar cotton industry under extreme climates

Australia's cotton growers produce yields two and a half times the global average and have produced the world's highest cotton yields for 20 years running. With widespread adoption of technologies and research, the industry is worth approximately three billion dollars, of which 75% is exported to China. Cotton growers have readily adopted integrated pest and weed management strategies because of the need to preserve the efficacy of genetic technologies that underpin the sustainability of the industry in Australia.

The Global Centre for Land-Based Innovation has partnered with major cotton growers, the Cotton Research Development Corporation and CSIRO to develop an innovative decision-making framework that considers these variable conditions to manage soil and plant resources effectively. This research contributes to the principles and recommendations of the Australian Government's Agricultural Competitiveness Whitepaper that advocates for smarter farming, better drought preparedness and access to premium market economies.

INVITATION TO PARTICIPATE

The Centre offers a rare opportunity to contribute to food security, enhanced farm productivity and environmental sustainability.

We invite you to present real industry challenges that you face and the Centre will work with you to provide solutions for these challenges in close partnership with industries, policy advisers and global experts. Now is the time to act to deliver economic, social and environmental benefits for participating countries.

International Partners

Research Centre for Eco-Environmental Sciences,
Chinese Academy of Sciences

Institute of Urban Environment,
Chinese Academy of Sciences

Institute of Agricultural Resources and Regional Planning,
Chinese Academy of Agricultural Sciences

Tamil Naidu Agriculture University, India

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