



Australian Government

Australian Centre for
International Agricultural Research



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**Science for nourishing
the world, sustainably**

Andrew Campbell, ACIAR

Canberra, August 2022

40 years in 20 minutes



- 40 years of science for development partnerships
- What we have learned
- Contemporary food security crisis
- Converging insecurities
- Imperatives
- Ways forward

40 years of science for development partnerships



- ACIAR established under the ACIAR Act 1982 to '*find solutions to the agricultural problems of developing countries*'
- Commonwealth Statutory Authority within Foreign Affairs portfolio
 - CEO reports directly to the Foreign Minister
 - Advised by Commission and Policy Advisory Council
- 10-Year Strategy 2018-27
 - Know-how to underpin 6 development objectives
 - Consolidation to 10 research programs
 - 3 investment models: bilateral, multilateral, co-investment
 - Substantial overhaul of Outreach & Capacity Building
- Mid-Term Review 2021-2 chaired by Wendy Craik
- 1500 projects, 35 countries, >800 alumni

Some (not necessarily greatest) hits



- Conservation agriculture, China
- Happy Seeder, India
- Seeds of Life, Timor-Leste
- Hybrid Acacia and Eucalypt plantations, Vietnam, China
- Biosecurity
 - Fusarium TR4, bananas
 - Newcastle disease, poultry
 - Wheat blast, Bangladesh
- Landcare & LIFE extension model, Philippines
- Fishways, Lao PDR
- Virtual Irrigation Academy (& Chameleon), Africa
- Community forestry, Nepal
- Reef restoration, Philippines (& GBR)
- Farm Family Teams, PNG
- Insect feeds, Africa and beyond?



PAU
ACIAR
HAPPY SEEDER

HS feted at annual farmers' day
at Punjab Ag Uni 2004

It worked a dream!

WHEAT EMERGENCE

8 t /ha

4 t /ha

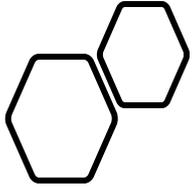
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Iraqi built no-till seeders

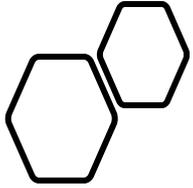
from DFAT-ACIAR project, hidden 3 years in Mossul under Daesh
recovered in 2018 for Centre of Excellence in Conservation Agriculture
University of Mossul



Fish passages, Lao PDR

- Fish provide most protein consumed by humans in Mekong Basin
- Fish need to migrate upstream to breed
- Irrigation weirs and hydro dams impede fish passage
- ACIAR (& now DFAT) funding CSU to design & monitor effective fishways for diverse structures

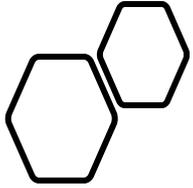




Farm Family Teams, PNG

- Training the entire family unit, helping senior males & females to work together
- Financial literacy, banking & savings, farm planning
- Planning, setting goals, making decisions – as a team
- Improving livelihoods, empowering women
- UC & NARI supported by DFAT and ACIAR

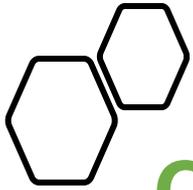




Seeds of Life, Timor-Leste

- AusAid/DFAT ACIAR partnership
- Developed a new national seed system for Timor-Leste, community-based
- Improved varieties of staple crops dramatically improved yields
- Reached about 60% of households

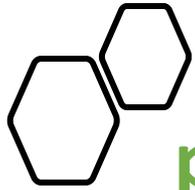




Coral reef restoration, Philippines

- Research to accelerate coral larval seeding and establishment
- On reefs damaged by blast fishing
- Dr Steve Harrison, SCU & partners
- Now being trialled on GBR
- Media tag 'coral IVF'

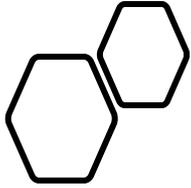




Acacia plantations, Vietnam

- 2.1m ha estate of “Australian” acacia hybrids, 1.7m of which on smallholdings
- Previously degraded & war-damaged lands
- USD\$14Billion wood product export industry – e.g. Bunnings
- CSIRO, VAFS & other partners
- Sophisticated local expertise now





Wheat blast, Bangladesh

- Detected Feb 2016
- ACIAR funded regional workshop July 2016
- Initiated project with CIMMYT & BARI to find & breed resistant varieties
- Precision Phenotyping Platform Jessore screening 4,000 lines/annum
- BARI Gom33 released by end 2017 (Bonus: higher Zn)
- 10% of planted area by 2022

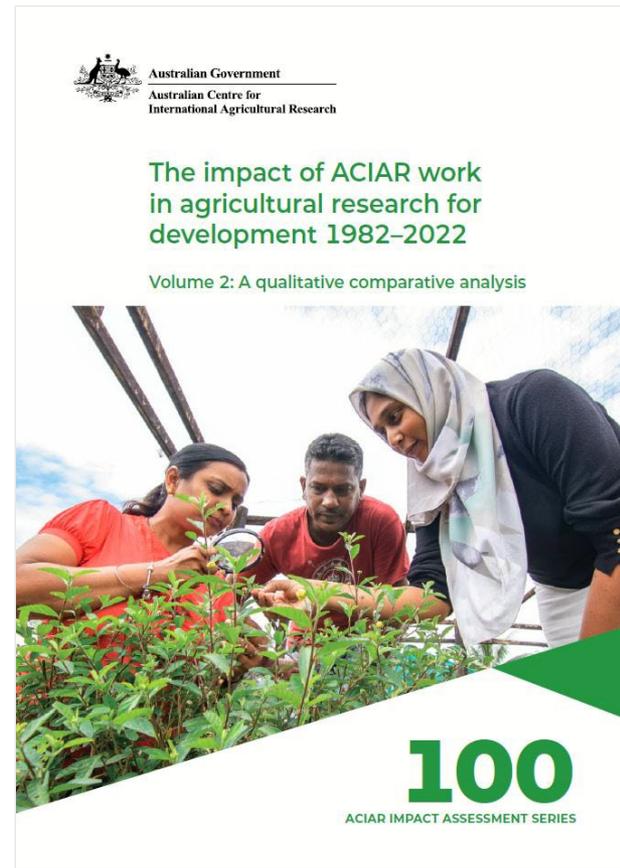
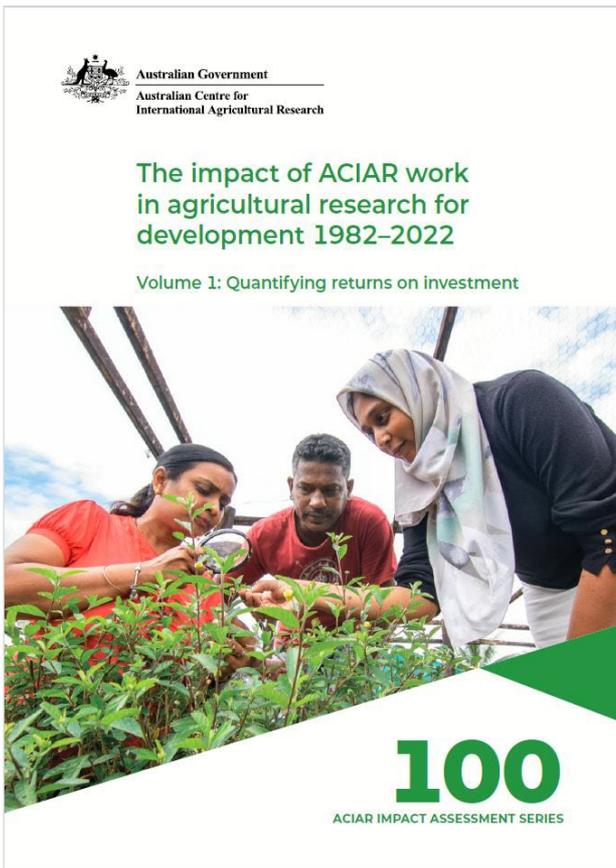


What we have learned



- Long-term partnerships, social capital
- Leadership, in Australia and partner countries
- The right people around the table
- Shared understanding of the problem
- Methodology appropriate for that problem with a clear pathway to impact
- Sufficient resources and time to do the job
- Building local capability for durable influence
- Tracking adoption and evaluating impact

Tracking & evaluating impact



>\$64 Billion total benefit for partner countries since 1982

Weighted average benefit:cost ratio 42:1

Median BCR 22:1

(also Crawford Fund *Doing Well by Doing Good*)

Tracking & evaluating impact

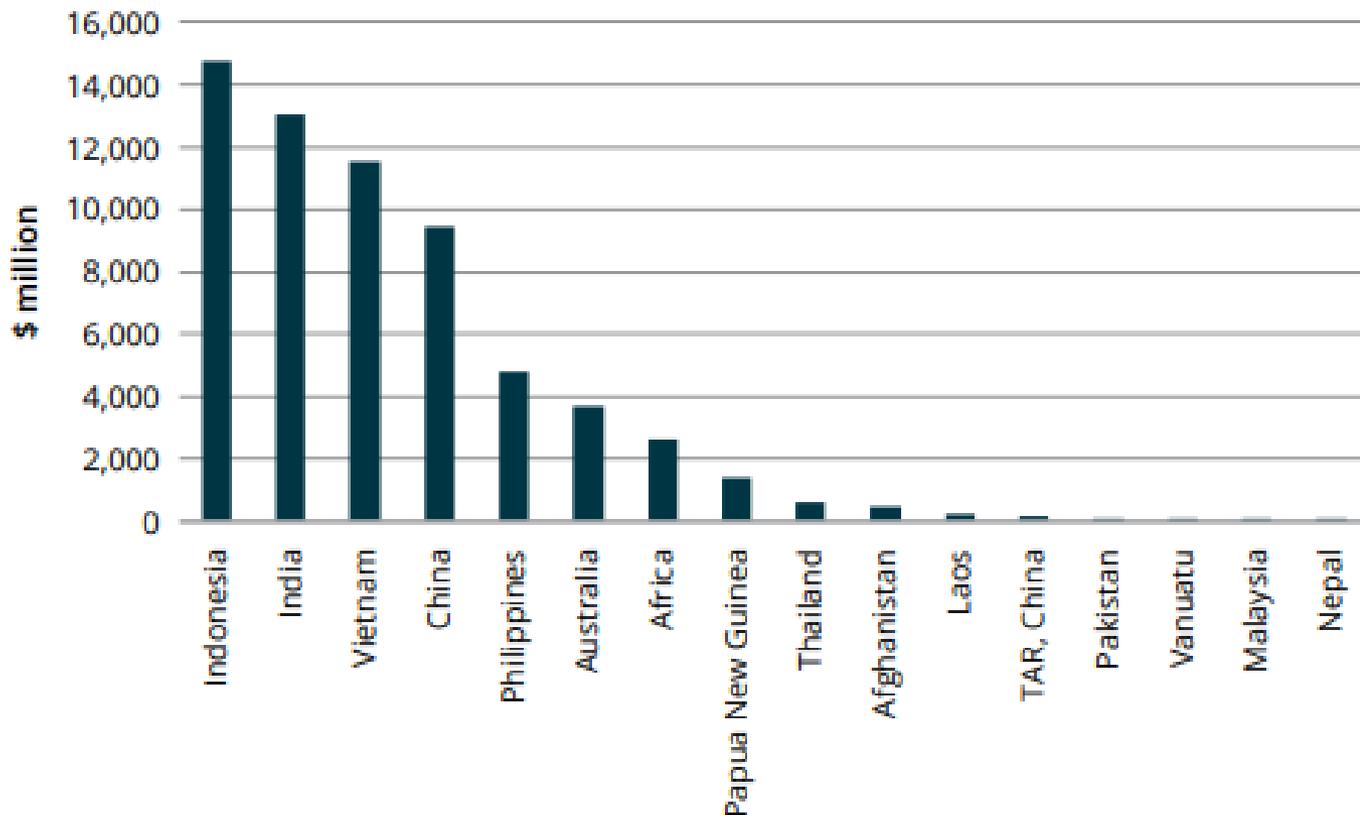
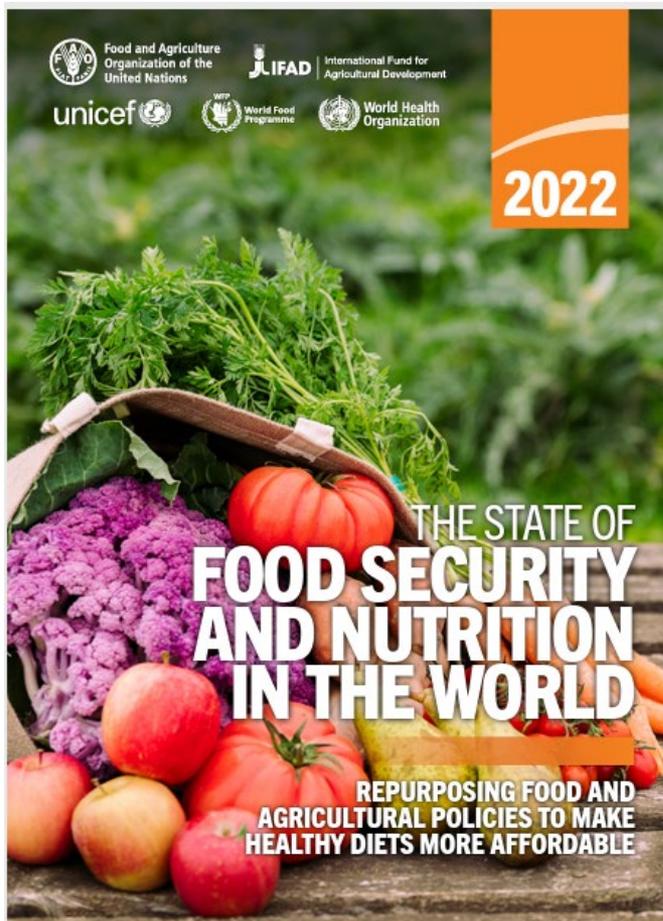


Figure 10 Distribution of net benefits by country by dollar value

Source: ADIA

The impact of ACIAR work in agricultural research for development 1982–2022 | ACIAR

The current food security crisis

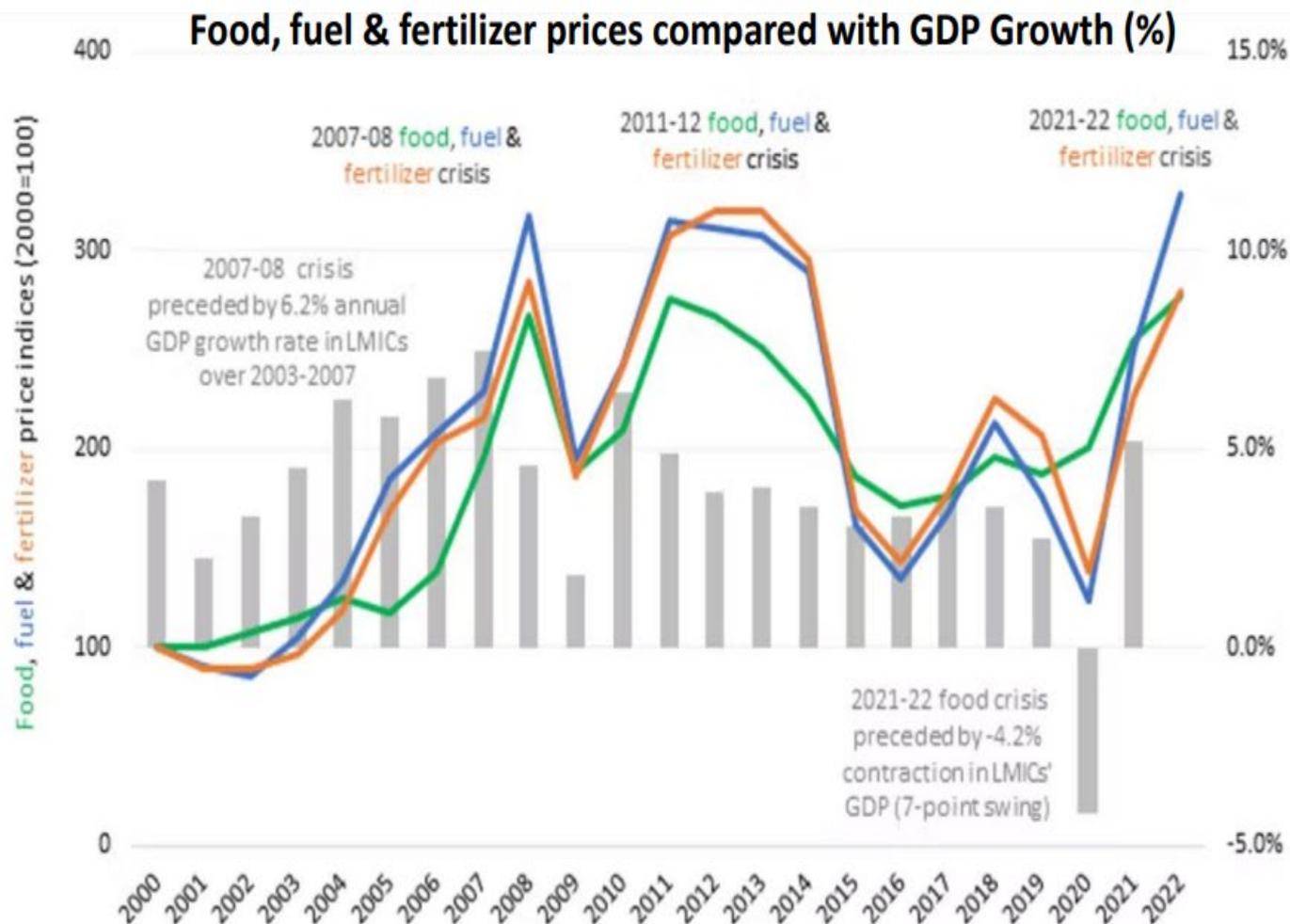


Climate, COVID and Conflict:

- Number of people suffering from lack of calories and micronutrients is growing in low-, medium- and high-income countries:
 - 350m facing acute food insecurity
 - 50m actual starvation
- FAO: 30% of world's population now suffer moderate-severe food insecurity (up from 22% in 2014)
- IFPRI: interlinked crises reinforce the transformation and resilience agenda, and the need to invest structurally in global solutions

High prices may be more challenging this time

Price shocks “the new normal”?



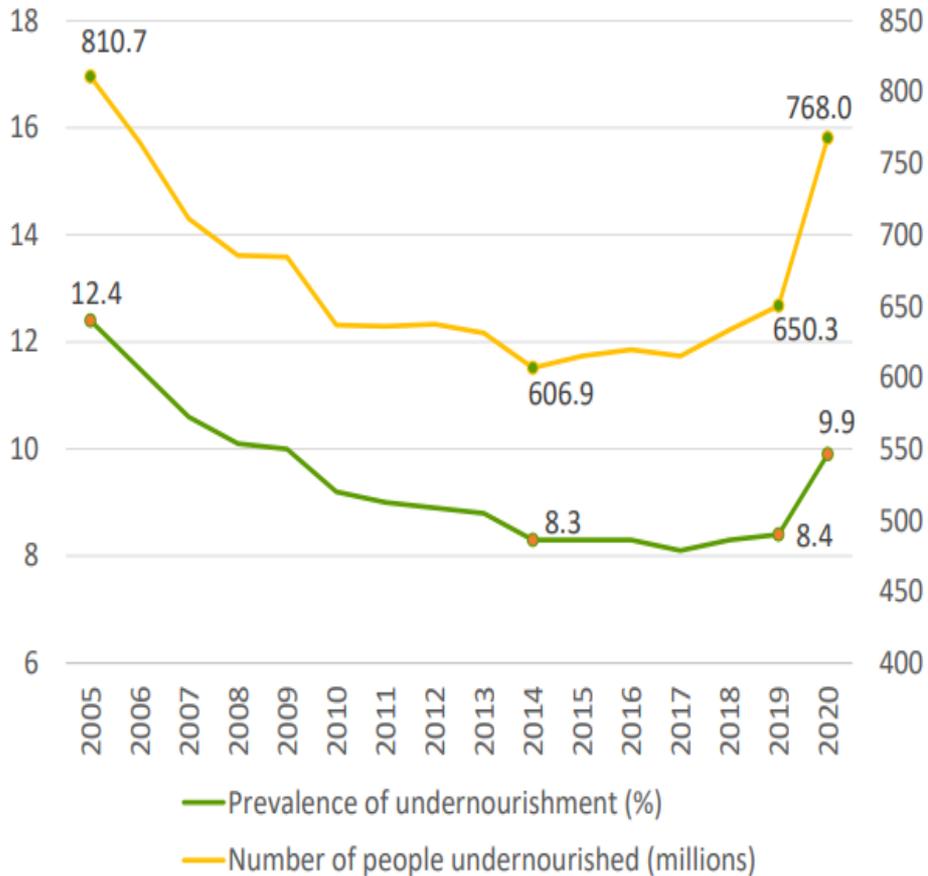
- Hunger and malnutrition were on the rise
- The poor are still recovering from COVID crisis
- Cash strapped governments have little room to maneuver
- Fertilizer shortages have dynamic effects

Source: Headey and Hirvonen IFPRI Blog March, 2022

Conflict and Food Security

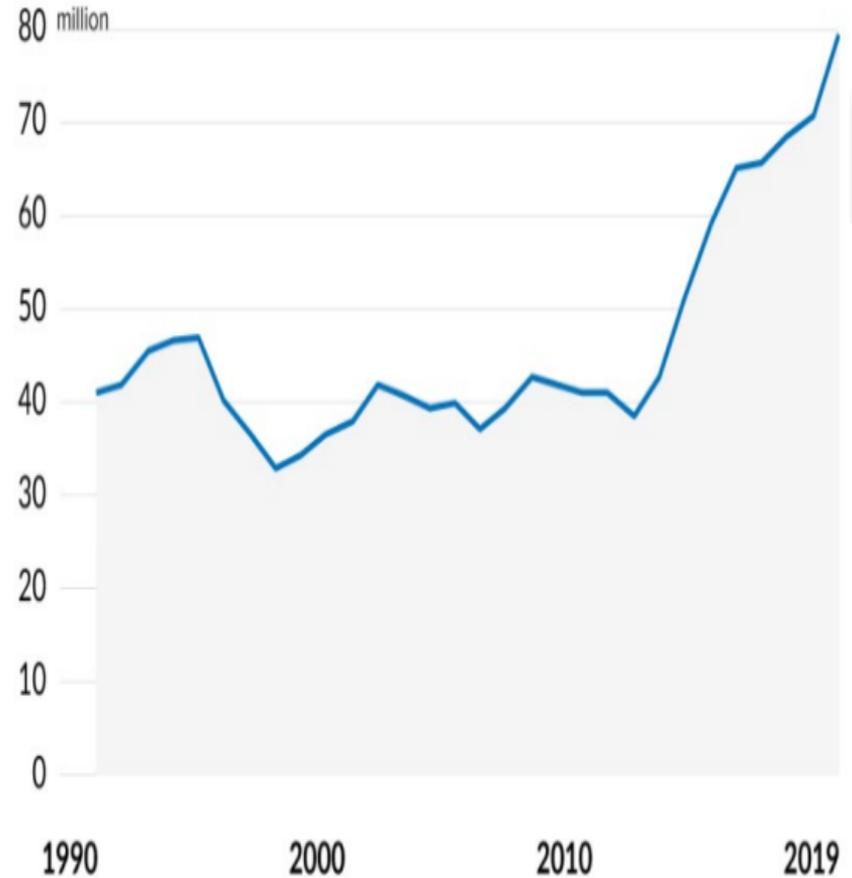


Prevalence and number of undernourished worldwide



Source: FAO 2020

Forcibly displaced people worldwide



Source: UNHCR 2019, 2020

Converging insecurities



- Agrifood systems drive multiple SDGs
- Food security is intertwined with water security, energy security, biosecurity and health security
- All of these feed into national, regional and global security – conflict and migration
- All of the above are **amplified by climate change**: impacts, adaptation and mitigation

IMPLICATION

- Agricentric, sector or crop-specific, farm-scale research and innovation is still essential, but **far from sufficient** to develop viable paths forward

Imperatives – policy agenda

Short-term:

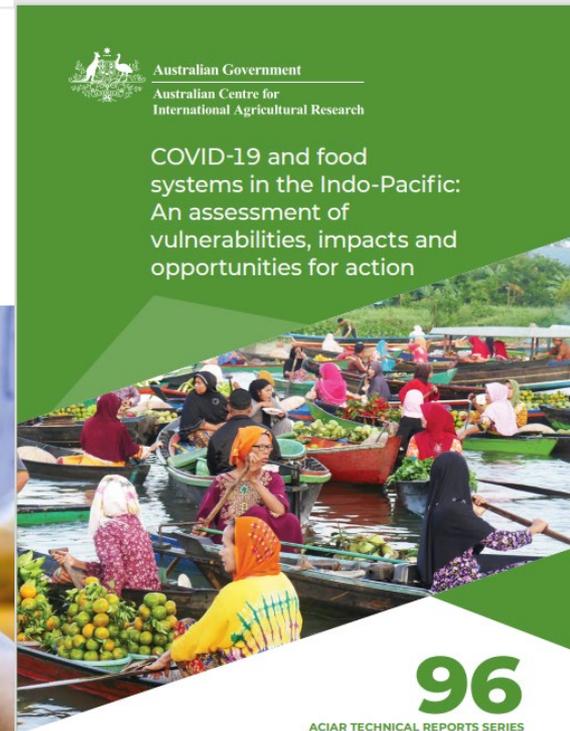
- Avoid food export bans
- Suspend biofuel mandates and subsidies

Medium-term:

- Social protection measures targeted to help local food production systems
- Reduce food loss and waste (viz ABC TV *Landline* last Sunday)

Long-term:

- Repurposing poorly targeted/perverse subsidies (IFPRI, WB)
 - **87%** of current USD\$540B/yr in subsidies is inefficient, inequitable, price-distorting, unhealthy or degrading
 - **only 35 cents** in each dollar of subsidies reaches farmers



Our agricultural innovation system is so 20th Century...



- **Big challenges for agriculture:** climate, water, food, nutrition, energy, gender, resource competition, biosecurity, One Health, social license
- **All cross-sectoral, with strong public-good dimensions**
- Yet innovation architecture is overwhelmingly commodity-based, production-focused, farm-based, agri-centric, with modest incentives & capacity for public-good, system-level innovation
- Innovation system architecture for the 21st Century needs better integration of research, technology development, private sector value chains, finance, extension, education and governance

Ways forward



- Beyond incremental, reactive responses
- Integration
 - Food, water, energy, health, climate
 - Systems approach, value chains & regions
 - Short-, medium- and longer-term solutions
 - Structural/transformational as well as adaptive
- Governance (how society shares power, benefit & risk)
 - Multilateral: integrative, systemic, transformational – complementing national systems – viz OneCGIAR
 - Bilateral: more why? and how?, less what?, **partnering**, rather than partnership
- New kinds of professionals?

ACIAR strategic directions



- Strategic Actions viz Mid-Term Review
 - Transformational research initiatives
 - Faster commissioning & contracting
 - Next generation country partnerships
 - Stronger Australian partnerships
 - Maximise synergies multilateral/bilateral
- New partnerships
 - icipe/AgriFutures: insect feeds
 - IDRC: OneHealth & Food Loss
 - DFAT: OneHealth & FishTech
 - SunRice: Lower Mekong integrated agronomy
- CGIAR System Council, TropAg, dialogue event
 - Brisbane, 31 October – 4 November

Conclusion

- Managing public investment in research to nourish people, sustainably, is a noble, strategic, rewarding pursuit - a great way to make a positive difference in the world



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