Science for nourishing the world, sustainably

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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?
HS feted at annual farmers’ day at Punjab Ag Uni 2004
It worked a dream!

WHEAT EMERGENCE

8 t/ha  4 t/ha  0 t/ha
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”?  

Food, fuel & fertilizer prices compared with GDP Growth (%)

- 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: Hadey and Hirvonen IFPRI Blog March, 2022
Conflict and Food Security

Prevalence and number of undernourished worldwide

Forcibly displaced people worldwide

Source: FAO 2020
Source: UNHCR 2019, 2020

Addressing the global food security crisis | IFPRI : International Food Policy Research Institute
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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