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World Development Report 2008:

Ideas. Innovation. Impact.

Idées. Innovation. Impact.

Canada



Background Paper: Research and Development and Extension Services

Annie S. Wesley and Merle Faminow

Food Security in Asia and the Pacific – Symposium

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Purpose of the paper

- Examine the role of research and development in agricultural production and processing for countering challenges of declines in production and productivity levels
- Examine the relevance of the extension services
- Public and private sector Investments in R&D

Outline

- Relevance of research and extension
- Past successes and challenges
- Current situation
- Future opportunities

In the context of food security

definition *(Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutrition food to meet their dietary need and food preferences for an active and healthy life”)*



Relevance of Research and Extension in Asia

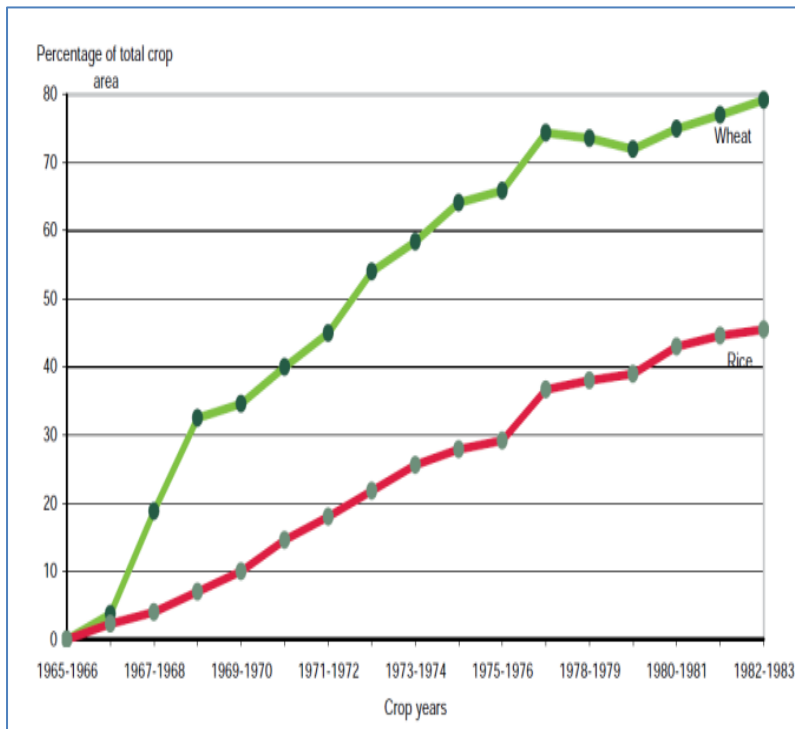
Asia-Pacific region (very diverse)

- largest supplier and consumer of produce
- very poor and very rich countries
- agriculture is one of the key economic sectors
- houses about 58% of the world's population
- has only 38% of the world's agricultural land

Agriculture R&D with extension services - strong driving force for meeting the food supply in the region

Past Successes:

Decades of progress due to research and innovations



Adoption of high-yielding strains of rice and wheat in South and South-East Asia, 1965-83. Source: Dalrymple, 1985

Ranking of rural public investments that increased agricultural productivity the most (Source IFPRI 2000)

India

Agriculture R&D

Roads

Education

China

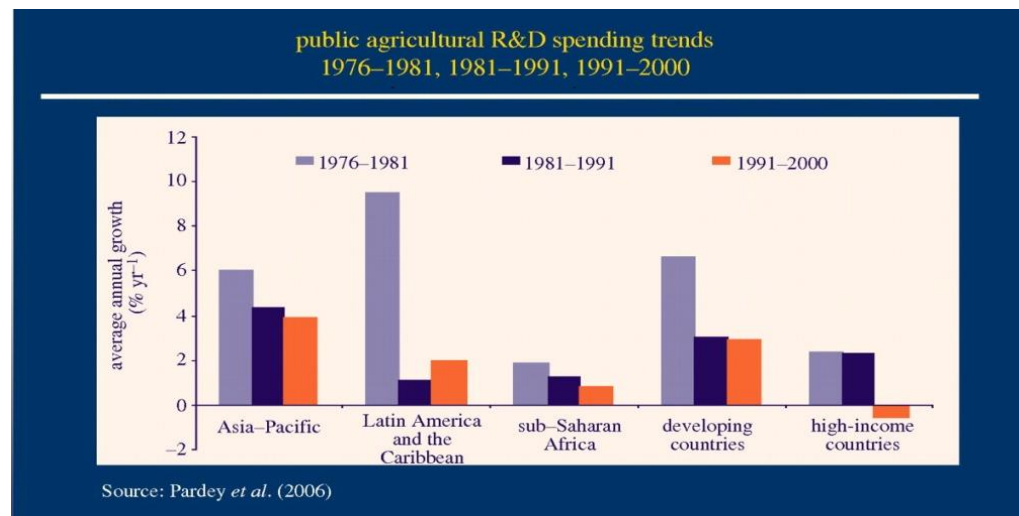
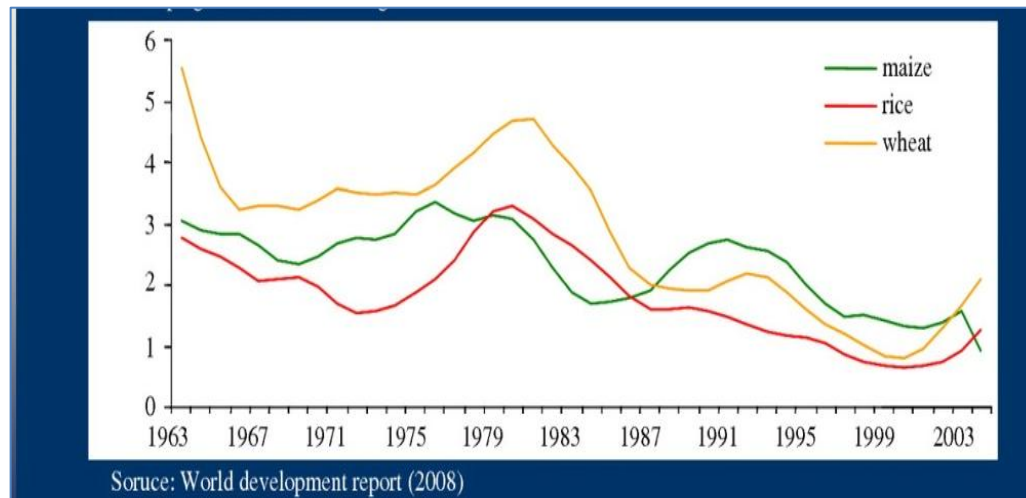
Agriculture R&D

Education

Roads

Challenges and Productivity vs research investments

- Sensitivity of gains to economic, climatic and political changes
- Region's food supply system – fragile
- Issues of mono-cropping and environmental impacts
- Connection to years of lower investments in research and productivity growth



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Renewed Recognition for R&D to Address Food Crisis

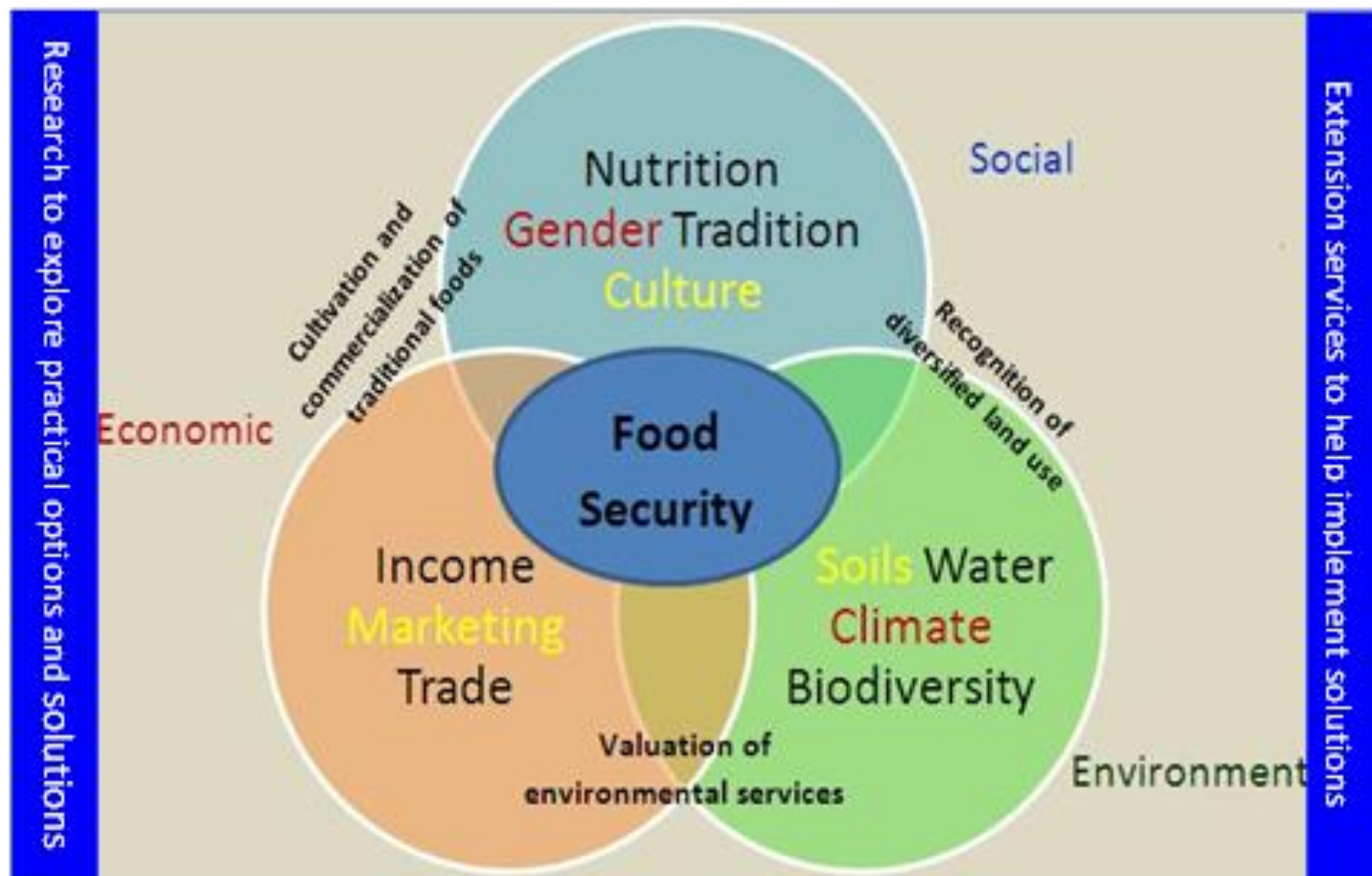
Renewed global commitments including Canadian leadership in research through CIDA-IDRC collaboration

Complex issues of food security and changing dynamics - need consideration for planning research and extension services to achieve food security

World Development Report 2008: “Improving the productivity, profitability, and sustainability of smallholder farming using ‘agriculture for development’ is the main pathway out of poverty, **with innovation through science and technology being one of the key instruments**”

Significance of complexity and interconnectedness

Challenge: The world must produce 40 per cent more food by 2050 but with limited land and water while coping with rapid changes & complexities



Source: Adapted from: IAASTD, 2009. Agriculture at a crossroads – Synthesis report

Research and Development

Increase production and productivity (examples)

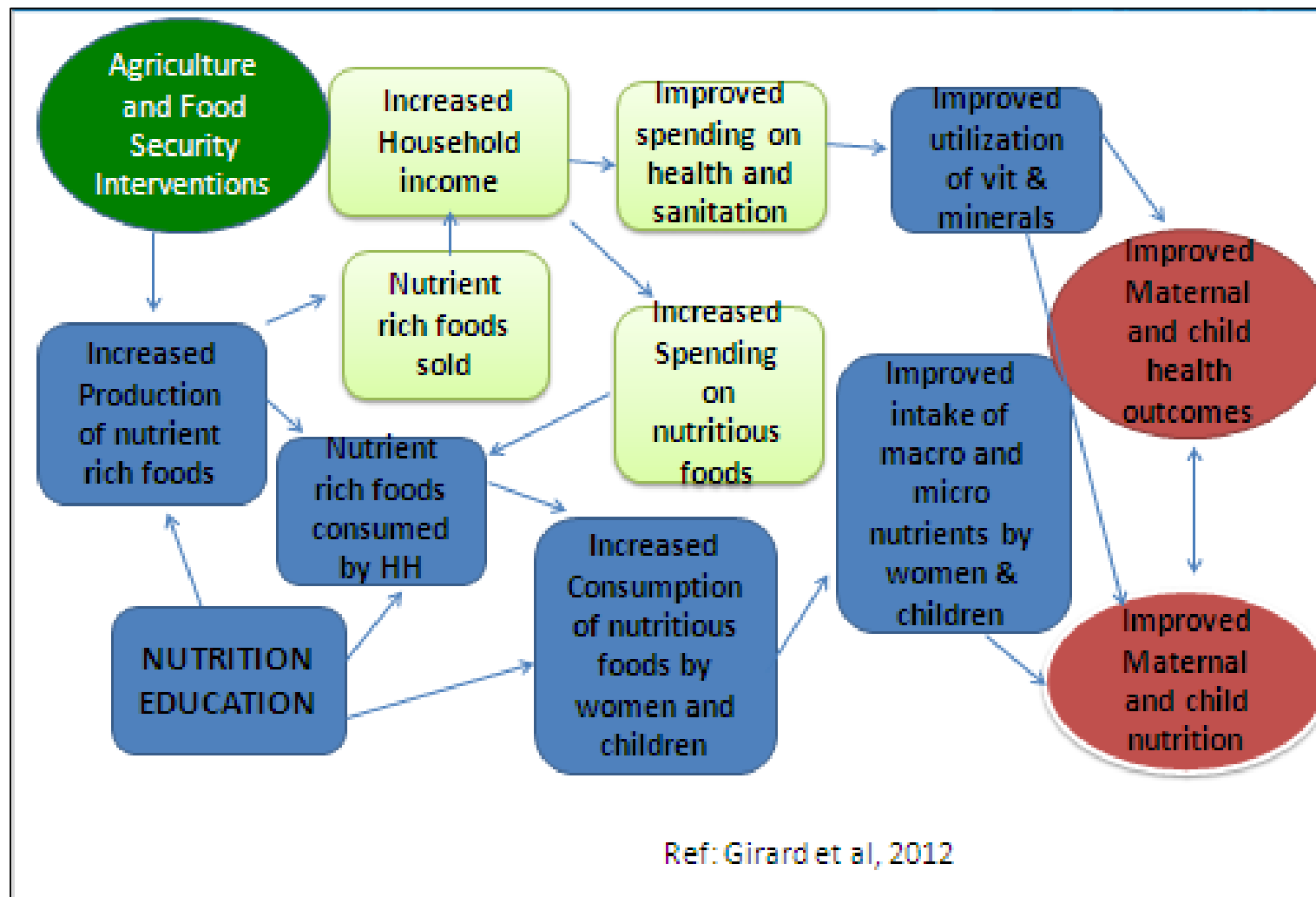
- Crop Diversification and improved practices
- Neglected and secondary crops
- Expanding Agro-ecological zones
- Agriculture systems approach

Improve distribution (examples)

- Post harvest technologies
- Connectivity to markets
- Value chains

Availability, access and utilization

Significance of pathways to nutritional outcomes



Significance of Women's Role in Agriculture

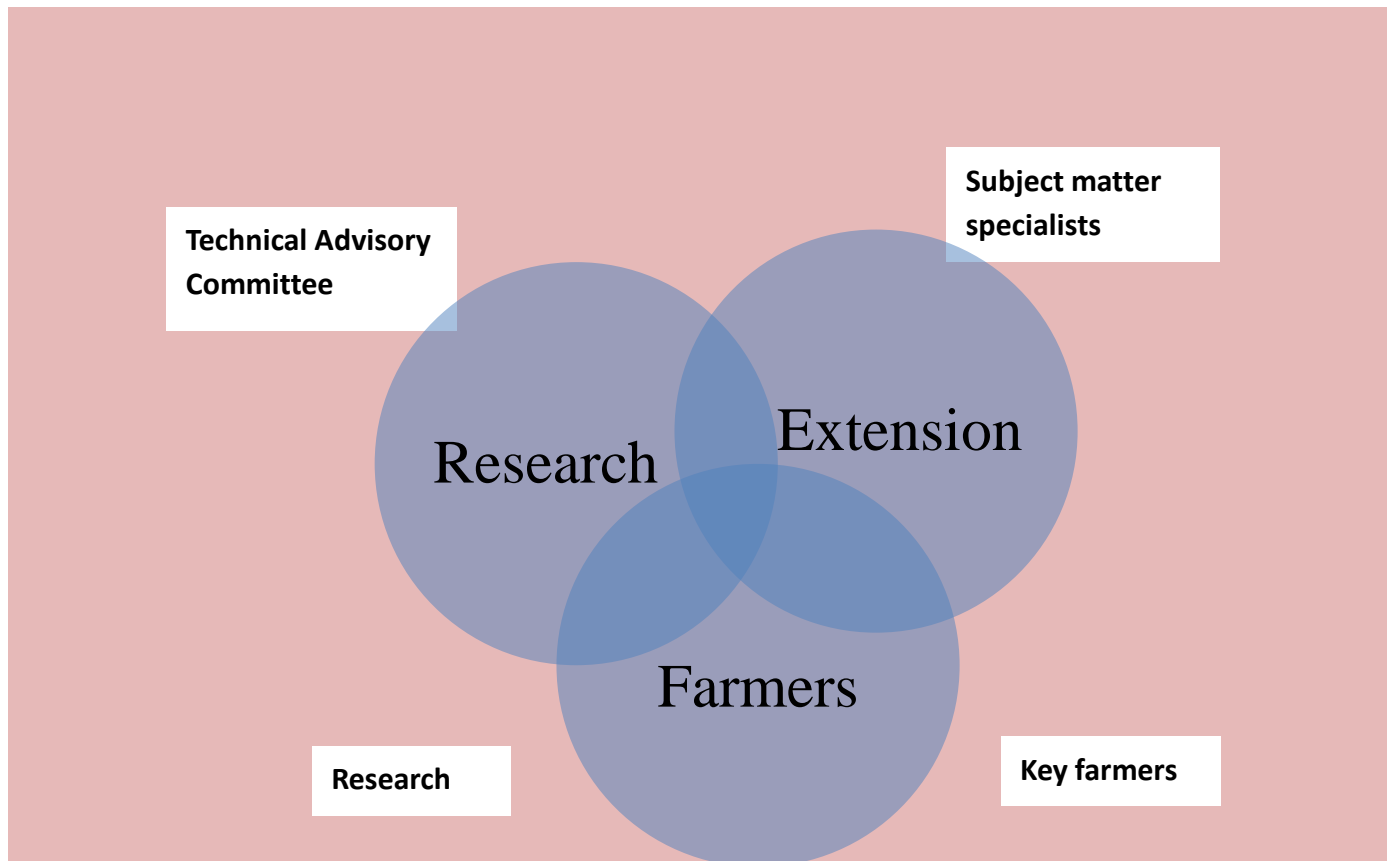


Source: FAO 2011, Role of Women in Agriculture

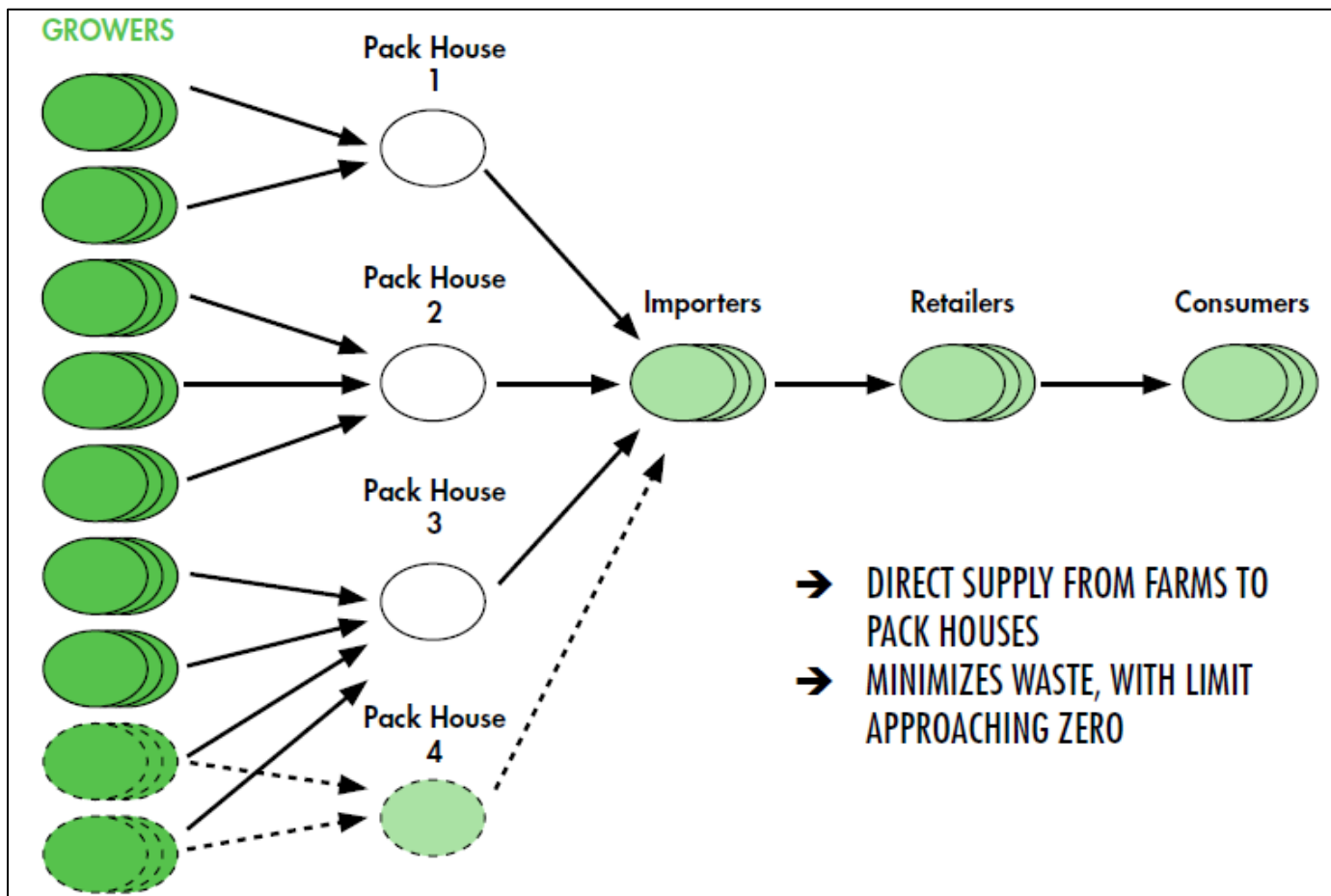
Research priorities: Summarized from the review

- Research that is interdisciplinary and addresses the diverse needs and context of smallholder farming systems
- Research for Development which is demand-driven considering farmer concerns
- Research that develops cost-effective business models and financing options (example – value chains)
- Research that includes considerations of nutrition pathways and gender dimension
- Research that generates strong evidence for policy and programming (example: impacts of Ag intervention on nutrition)
- Research optimizing the contributions of the public and private sectors

Significance of Extension Services



Potential expanded role for extension services



Investments in R&D and extension

Public and private sector

Traditionally R&D is funded by public sector

Recognition that technological change can no longer be advanced solely by public-sector investment in agricultural R&D

Mode of operation of public and private sectors are very different but there is a need to find ways to work together.

So far private R&D investment in developing countries focused on a small set of crops and technologies

New incentive based mechanism (Agresults) is being tried as a model in Africa first to be expanded to Asia



IDRC program

Agriculture and Food Security (AFS)

AFS started in 2010 to build on past programming of IDRC by focusing on agriculture and food security

Canadian International Development Research Fund (CIFSRF)

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CIFSRF

- A partnership between CIDA and IDRC
- To fund research partnerships between Canadian and developing country organizations

Objectives:

1. Increase food security through applied agricultural and nutrition research
2. Combine Canadian and Southern expertise and knowledge in food security
3. Use the results to inform food security policies and programs

CIFSRF projects in Asia

- Traditional grains, agri-biodiversity and nutrition (India, Nepal and Sri Lanka)
- Fruit storage using nanotechnology (India and Sri Lanka)
- Sustainable Aquaculture through Social Learning (Sri Lanka)
- Integration of small-scale aquaculture with Homestead Food Production for household foods security and nutrition in rural Cambodia
- Bio-intensive gardens and fortified foods to improve school meal programs for nutritional outcomes (Philippines AFS project)
- Research capacity development in South East Asia



Conclusion

- Well planned investments in inter-disciplinary research to find solutions
- Innovative extension methods and services that can facilitate translated the results to farmers
- Bringing together public and private investments to maximize the returns and sustainability

For more information:

Annie Wesley

Senior Program Specialist, awesley@idr.ca