Taking a wider view: the impacts of health on agricultural productivity

Discussions from a workshop funded by the Sydney Southeast Asia Centre at The University of Sydney


14 November 2014
Summary

Aid tends to be siloed into fields such as health, infrastructure, agriculture and education. Meanwhile, research tends to only take a disciplinary perspective. Increasingly, aid program managers and implementers are recognising the importance of taking a wider view and understanding the influence of other forces outside their sector on the outcomes of the programs they manage. Nowhere is this more evident than in the field of agriculture.

Agriculture is the primary source of income for most people in Southeast Asia and thus a major driver of economic development. Millions are invested in improving agricultural productivity, however, only a fraction of the potential benefits of this investment are realised, partly because poor health and nutrition in rural communities reduces labour availability by about 25 per cent. There is great potential to close these gaps through interdisciplinary research to understand how poor human health impedes program outcomes.

Key organisations in Australia currently involved in the intersection of agriculture and health of rural communities in Southeast Asia and the Pacific were represented at the workshop, including The University of Sydney, ACIAR, DFAT, CSIRO and ActionAid.

The challenges facing these Australian organisations as they consider the nexus between agriculture and health in rural communities in Southeast Asia arise from the difficulties faced in relation to developing multidisciplinary teams and limited opportunities for funding. In addition, research frameworks and monitoring and evaluation tools tend to be discipline-specific and often fail to capture the benefits of multidisciplinary research approaches.

The workshop, held in November 2014, built on research conducted by the University of Sydney to show how health development issues impact agricultural productivity in Southeast Asia. It proposed a model that might benefit future efforts to mainstream cross-cutting issues into aid initiatives. The proposed model brings various academic disciplines together in a holistic approach to improve the outcomes of investment in agricultural research and development programs for rural communities in developing countries.

The main objectives of the workshop were to shape the future research and policy agenda on improving agricultural productivity in Southeast Asia, to foster policy dialogue between program managers and policy makers and academics working on these issues, and to alert funding agencies to the available opportunities at the intersection of agriculture and health.
1. Introduction

Aid tends to be siloed into fields such as health, infrastructure, agriculture and education. Meanwhile, research tends to only take a disciplinary perspective. Increasingly, however, aid program managers and implementers are recognising the importance of taking a wider view in order to better understand the influence of other forces outside their sector on the outcomes of the programs they manage. Nowhere is this more evident than in the field of agriculture.

Millions of dollars are invested in improving agricultural productivity. Agriculture is the primary source of food and income for most people in Southeast Asia, and thus a major driver of economic development. However, the few impact studies undertaken show that only a fraction of the potential benefits of this investment are realised, due in substantial part to poor health and nutrition in rural communities that reduces the availability and productivity of labour (Asenso-Okyere et al. 2011). Conversely, programs aimed at improving health and nutrition in rural communities often lack traction because the most basic need of these communities is food and nutrition security. Until this is achieved, improving health has a lower priority, as suggested in ‘Maslow’s Hierarchy of Needs’ (Figure 1).

![Maslow’s Hierarchy of Needs](image)

**Figure 1.** Maslow’s Hierarchy of Needs (Maslow 1943)
Rural communities in Asia face complex challenges as economies transition from subsistence to market-driven systems, with increasing costs of inputs, limited access to health and education, the movement of productive labour to growing cities, and climate change. Nevertheless, smallholder agriculture remains the major livelihood for a majority of the population in most Southeast Asian countries, and under increasing pressure to provide adequate, affordable and nutritious food for growing populations (IFAD 2013). Conversely, growth in agricultural productivity is limited by poor health and nutrition in rural communities. Agriculture and health are linked in numerous ways such as labour, food, nutrition, health care, housing, environment, water quality, and occupational health and safety (Figure 2).

Figure 2. Linkages between agriculture and health, developed by participants at the workshop held on 14 November 2014 at the University of Sydney

We argue that these complex challenges require integrated, cross-disciplinary solutions. A challenge has been to raise awareness of the need for a new approach amongst scientists pursuing ever more specialised research interests, and funding agencies with clearly defined, sometimes inflexible, mandates.

We believe there is great potential to improve the impacts of aid programs through interdisciplinary research, based on an understanding of how these influences impede program outcomes. At a workshop held at The University of Sydney on 14 November 2014, representatives from the Australian Government and non-government organisations, and academics, discussed how health issues impact agricultural productivity in Southeast Asia.
The workshop fostered policy dialogue between stakeholders working with smallholder farmers in Southeast Asia and beyond, and proposed a model with the aim to benefit future efforts by incorporating cross-cutting issues into aid initiatives. The model brings together various sectors and academic disciplines to holistically and efficiently improve the outcomes of investment in agricultural research and health development programs for rural communities in Southeast Asia.

The specific objectives of this workshop were to foster policy dialogue between program managers, policy makers, development practitioners, and academics, to shape the future research and policy agenda on improving agricultural productivity in Southeast Asia.

2. The current state of play

The key Australian players at the intersection of agriculture and health in rural communities of Southeast Asia include the Australian Government through the Department of Foreign Affairs & Trade (DFAT), the Australian Centre for International Agricultural Research (ACIAR) and the, Commonwealth Scientific and Industrial Research Organisation (CSIRO), non-government organisations (NGOs) and universities, particularly the research intensive universities belonging to the Group of Eight (Go8) such as The University of Sydney.

Perspectives on the current state of play for these key actors were represented at the workshop by ACIAR, CSIRO and ActionAid. Across these agencies, while awareness of the links between agriculture and health has existed for some time, actual measurement of nutrition and health outcomes from agricultural research and development activities in partner countries has been virtually non-existent until recently. The transition needed for these agencies to incorporate human nutrition and health evaluation is substantial and requires elements of institutional culture change that takes time.

2.1 ACIAR

In Australia, ACIAR is responsible for agricultural research for development. Working closely with DFAT, ACIAR acts to build an effective aid program that promotes international economic growth and poverty reduction, with an increasing interest in evaluating impacts (ACIAR 2014). ACIAR formulates programs and policies, and commissions research specifically designed to address agricultural problems in developing countries. Further it establishes and funds training schemes and development activities related to its commissioned research projects, and it contributes funds to international agricultural research centres.
Currently, a main focus for ACIAR is the Asia-Pacific region, with Indonesia as the first priority and largest budget allocation, and Papua New Guinea second.

A challenge for ACIAR is that it lacks the mandate to engage in health-related projects, which were previously considered the realm of AusAID (now the Australian Aid program within DFAT). Therefore any past work on health and agriculture was limited to incidental studies, for example, the effects of pesticide use on human health, promoting vegetable production with the inferred aim of improving nutrition or consideration of food safety issues for the commodity value chain. Very little attention has been paid to monitoring the specific impacts of these activities on human health.

ACIAR has drifted toward consideration of health as a factor influencing agricultural production through reflection on the negative impacts of agriculture on human health and the environment. The impacts of pesticide use by rice farmers on farmer health and farmer deaths have been well documented (Pingali et al. 1994). These concerns are ongoing. Project staff in Indonesia report that farmers spray pesticides on their onion and potato crops daily that use multiple active ingredients, wash their equipment in irrigation canals, and do not use appropriate personal safety equipment. However these projects were not designed to monitor the environmental impacts or health impacts of these management practices. In fact there has been no monitoring of health impacts by ACIAR horticulture projects to date.

A further consideration for ACIAR is that it lacks specific competence to engage in health-related projects. The present capacity of ACIAR personnel to evaluate human health impacts from its projects is limited with the expertise of current program managers being discipline-specific and limited to production, marketing, extension and economic and social impact studies. Moreover, to date ACIAR has chosen not to contract out evaluation of nutrition and health impacts to an agency with the necessary expertise. Further research that extends to considering human health outcomes will involve collection of biological samples and data from people that require human ethics approval, a requirement largely beyond the current mandate of ACIAR. To engage fully with agricultural research that measures human health outcomes, ACIAR will require changes to their staff profile and to routine procedures for impact assessment and research conduct, and/or formal collaboration with human health institutions.

Progress within ACIAR toward consideration of human health outcomes from its commissioned research is indicated by participation in the Food Systems Innovation initiative and by funding of recent projects that have stated some goals in relation to human nutrition.
2.2 Food Systems Innovation (FSI)

The FSI initiative is a three-year collaboration between DFAT, ACIAR, CSIRO and the Australian International Food Security Research Centre (AIFSRC). The initiative brings together Australian and international partners to help improve the impact of aid investments in agriculture and food systems. It aims to improve the effectiveness of Australian aid by capturing and synthesising existing knowledge, translating research into use, and opening regional dialogue and engagement. One of three key focal themes of the initiative is the linkage between agriculture and nutrition, termed by some as “nutrition-sensitive agriculture”.

For the CSIRO, this extension of outcomes from agricultural research to include impacts on human nutrition has been challenging for the organisation. It is seen as an ambitious cultural change requiring researchers to address complex, trans-disciplinary issues beyond their specific expertise, including nutrition, gender, ecosystem and lifespan approaches. It has required an intense and sometimes difficult change management process to identify champions within the organisation who can encourage their colleagues to look at the context and the application of their research, rather than focussing only on accumulating publications.

Valuable lessons have been learnt. While the sentiment of using trans-disciplinary approaches is a noble one, how does it translate into the way people work? What does it mean for the culture of the organisation? For example, it may mean that the benefits have to be clearly explained, that effort is required to develop trust between research partners, and that there may be failures along the way that can be turned into important lessons. It may require developing new interpersonal team skills, finding useful ways of demonstrating impacts at different levels in diverse areas, and it may require intermediaries to help interpret the impacts across different fields. Ultimately, it means viewing the purpose of doing science in the organisation differently – rather than papers, the outputs are policy and community impacts. Internal resistance to change is inevitable, especially if it carries judgements about the superiority of “pure” science.

Real change takes people and organisations out of their comfort zones and requires persistence, patience and time. A good starting point is to build on common ground by identifying shared goals and developing a shared vision of success. It is necessary to identify and address organisational barriers, to place value on diverse skills and perspectives, and to accept the discomfort that comes with change. The benefits are the creation of a neutral space to challenge existing systems with innovative and holistic approaches that involve close collaboration and capacity building that will ultimately contribute to more sustainable impacts from Australian aid investment on agriculture and health.
2.3 ActionAid Australia

Smallholder farmers and specifically women are a central focus of the links between agriculture and improving health outcomes for rural communities. Currently, there are five-hundred million smallholder farmers producing 80 per cent of the food in Asia and sub-Saharan Africa, with two billion people depending on them for food. Women on average constitute 43 per cent of the agricultural labour force, however, women only own 1 per cent of the land in Africa and only receive 7 per cent of extension services and 1 per cent of all agricultural credit. Closing the gender gap has the capacity to reduce the number of hungry people in the world by 12-17 per cent (at least 100 million people) (FAO 2011), and thus to lead to substantial improvements in the health of individuals and communities. Women can be powerful drivers of change in communities if they have power to make decisions, however, power is an issue and it links to access to agencies in terms of extension and credit, for example.

A major challenge for women smallholder farmers is that they are often invisible to policy makers - rarely are their needs put on the agenda. Where dowry is prevalent, women are owned, they are bought by the family which feeds into invisibility and lack of recognition for the contributions that women make to the household. Invisibility adds to the lack of access to inputs and power to make decisions. There are several hurdles women smallholders face including lack of recognition for their unpaid farm work; they bear a disproportionate load in caring for families; they are deprived access to markets, key assets and inputs; they are frequently excluded from decision-making processes; and they are disproportionately impacted by poverty/hunger with lower access to education and health services than men (ActionAid, 2011).

A value chain and gender study by ActionAid in Uganda, Cambodia, and Palestine, showed that power is an issue. Women often do not have agency to negotiate their role in the value chain for the agricultural commodity they produce. It found that when women were given opportunity to act as participants in the value chain, they benefited in terms of livelihood and empowerment. Women value economic empowerment beyond the income they generate. An increased income is a means for change as well as an end in itself, and a tool for changing power relations in households and communities. It provides women with more autonomy and more ability to have input into decision-making. As women hold traditional responsibility for household food security, improving their income and level of control over decisions will see more investment on nutrition and better health for smallholder households (Kristjanson et al. 2010).
Among non-government organisations, strengthening the links between food security, nutrition, and health is also an area of growth. These agencies, too, have silos within sections and links with other agencies that have complementary strengths and programs which may be weak. There is a need to enhance the evaluation of health outcomes from income generation and empowerment programs in rural smallholder communities.

ActionAid is very active in the area of crop diversification; looking to complement food security with education and communication, health services, water and sanitation. ActionAid has identified that national surveys of health parameters are useful to access impact and to track progress but greater political support is needed to achieve the regular conduct of such surveys (such as every three years) that will allow long-term monitoring of health outcomes.

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3. The nexus between agricultural productivity and health: case studies

Technological change in agriculture may affect human health and nutrition through impacts on (Pinstrup-Andersen & Hazel 1985):

1. Farm incomes
2. Food prices
3. Livelihood strategies
4. Level of risk
5. Nutritional value of food
6. Role of women
7. Labour demand

Increasing scrutiny of the real impacts of investments in agricultural productivity on human health has shown that most interventions have a negligible effect, if any, on human nutrition and health (Pinstrup-Andersen 2012). In fact, as demonstrated by
the agency reports in the previous section, agricultural intervention projects that aspire to improve the income, nutrition and health status of households rarely evaluate change in nutrition and health status.

From this realisation has emerged a focus on nutrition-sensitive agriculture that is being actively taken up recently in Australia such as by the Food Systems Innovation initiative. Nutrition-sensitive agriculture recognises that improving nutrition outcomes for households and communities is dependent on a complex web of social, physiological, economic and cultural interactions, and applies approaches that focus on improving these underlying determinants of malnutrition.

An analysis conducted by Turner et al. (2013) revealed key knowledge gaps in our understanding of agriculture for improved nutrition. These include; 1) lack of articulation of the direct impact pathways between agricultural inputs and practices to nutritional outcomes; 2) a failure to adequately measure nutritional status, the food environment or the food value chain of agricultural interventions seeking to enhance nutrition outcomes; 3) lack of research on maternal nutrition and on overnutrition and associated non-communicable disease particularly in urban populations; 4) the indirect effects of agriculture on nutrition especially institutional, policy, and governance effects; 5) the need for cost-effectiveness studies linking agricultural interventions to nutritional outcomes.

The conceptual framework developed by Turner et al. (2013) is a useful tool for mapping and analysing the agriculture-nutrition impact chain for agricultural interventions (Figure 3).

Conversely, there is a need to map and analyse the mechanisms by which human health status constrains agricultural productivity. The World Health Organisation compiles data on disability-adjusted life years (DALY) lost due to communicable, maternal, perinatal, nutritional, non-communicable diseases and injuries (http://www.who.int/healthinfo/global_burden_disease/estimates_country/en/). The selected country data presented in Figure 4 shows that countries in the Asia-Pacific region typically lose around a quarter of labour productivity due to poor health. What is interesting is that while losses due to injuries and non-communicable diseases (NCDs) is relatively constant, developing countries suffer much greater losses due to communicable diseases, maternal and perinatal illness, and malnutrition.

Perspectives on the relationship between agriculture and in human health were presented at the workshop by University of Sydney researchers from the Faulty of Agriculture & Environment, Faculty of Veterinary Science and Sydney Medical School, respectively. From the collective experience of these researchers, there is a
need to quantify the impact of human health upon agriculture, and of agriculture on human health, with recognition that currently there is increased impetus to address the second under the banner of nutrition-sensitive agriculture.

Furthermore, there is a need to design and conduct innovative, multidisciplinary projects that will address the context in rural communities in a more holistic way and more effectively recognise the role of women as agents for change in these communities. These initiatives challenge many aspects of the traditional institutional culture within universities, research organisations, government agencies and funding bodies.

Figure 3. Conceptual framework for research on agriculture for improved nutrition (Turner et al. 2013)
Figure 4. Disability-adjusted life years lost (per 100,000 years) due to poor health (WHO, 2004 estimates)

3.1 Smallholder cocoa farmers in Sulawesi

*Professor David Guest*

Smallholder farmers in developing countries harvest a fraction of the potential yields of their crops because of a combination of factors including poor crop, soil and water management, compounded by pest and disease losses (Oerke et al. 1994, Pinstrup-Andersen 2001). Losses are much greater than in industrialised agriculture because of poor infrastructure, financial constraints and low returns to labour, largely resulting from poor health and nutrition. The inappropriate use of pesticides and fertilisers, and unsafe food storage, further threatens human health and environmental sustainability. The success of the Green Revolution in addressing human calorific needs has led to complacency in many countries about supporting smallholder agriculture and improving the nutritional quality of food, leading to a decline in investment, and aging rural population and the rise of non-communicable and infectious diseases (Figure 4). The narrow focus on cereal-based food security policies for growing urban populations has seen rising malnutrition in micronutrients and vitamins, and controlled market prices mean cereal farming often becomes a poverty trap (Frison 2010).

Labour availability and productivity is limited by the poor health and nutrition of rural communities (Pinstrup-Andersen 2006). Immunisation rates are low, antenatal, maternity, and child healthcare is often not readily available in rural villages, and treatment may require lengthy absences from farms. Plus there may be an
over-reliance on traditional medicines, with health services constrained by poor diagnostic capacity and limited ability to provide follow-up treatments. In addition, poor nutrition and mental health compounds these issues with the management of health.

Much of the attention in agricultural development programs has been on breeding potentially more productive lines of crops and livestock without understanding the constraints that limit productivity on smallholder farms or resulting changes to nutrient profiles in the new crop lines developed. In many cases the technologies exist to improve on-farm productivity, but there is poor adoption. Part of this is due to the lack of a clear economic incentive, and part is due to poor infrastructure and the limited availability of labour and capital that is usually required to implement improved management technologies (Muzari et al. 2012).

Therefore, a more productive approach would be to understand and address these constraints in a holistic way, requiring a participatory, multidisciplinary approach engaging stakeholders along the value chain from the farmer to the consumer. Rather than addressing individual constraints to improving productivity, multidisciplinary teams should work with stakeholders to develop integrated livelihood packages that include agriculture, health, nutrition, education, infrastructure and business skills. Resource centres, supported by new technologies such as smart phones and web-based systems, could provide primary advice and support for trained village-level agents in plant, animal and human health based in rural communities.

The challenge is to convince funding agencies of the advantages of research that cuts across disciplines, and in many cases across the portfolios they manage. One approach may be to formulate better monitoring and evaluation that takes into account health impacts on agricultural development programs. Providing the necessary skills and expertise may have implications for staffing to facilitate coordination between agencies and programs.

3.2 Smallholder mixed farming systems in East Africa and Timor Leste

Associate Professor Robyn Alders, AO

Food and nutrition security is when all people at all times have physical, social and economic access to food, which is consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life (Wüstefeld 2013). Global child nutrition trends over the past twenty years show a decreasing proportion of stunting paralleled by an increasing percentage of overweight children. Stunting and obesity have compounding effects that accumulate over the life cycle, from low birth weights,
malnutrition, impaired learning ability and mental capacity, higher rates of chronic
disease and mortality.

Agricultural interventions have had little impact on childhood nutrition, and
malnutrition now causes losses of 11 per cent of GNP in Africa (Horton & Steckel
2013). The “modernisation” of agriculture, including intensification, monocultures
and reduced genetic diversity, has increased the risk of infectious disease
epidemics, such as avian influenza (H5N1) (WHO 2015) and Ug99 stem rust of
wheat (FAO 2015). Increased dependence on a narrow food base has affected the
quality of foods and increased food safety risks such as those posed by mycotoxins
in poorly stored grain. Food consumption patterns have changed as farmers are
more dependent on cash crops and use the income to purchase processed, usually
less nutritious, foods.

A more holistic approach is to promote smallholder mixed farming systems that
include crop and livestock rotations. This diversity helps smooth peaks and troughs in
seasonal food availability, provides resilience to food security and more
sustainable livelihoods for rural communities (Alders et al. 2014a). The role of
women must be recognised and addressed when promoting mixed farming systems,
by promoting small animals e.g. chickens, rather than large animals e.g. cattle or
goats and by recognising and addressing the different ways that men and women
are impacted by disease (Bagnol et al. 2015). Focussing on women has been shown
to result in better educational and health outcomes for rural communities
(Quisumbing et al. 1995).

This approach, focused on women, is being used in projects in Tanzania and Zambia
and Timor-Leste involving a multi-disciplinary team under the Charles Perkins Centre
Food and Nutrition Security Project Node at the University of Sydney
(http://sydney.edu.au/perkins/research/current-research/food-nutrition-
security.shtml). The team involves specialists in public health, food and agriculture,
and veterinary health. It involves understanding nutritional and socio-cultural
challenges, seasonal variations in food supply, funding and time constraints, and
identifying and measuring useful indicators of nutrition and health outcomes (Alders
et al. 2014b).

3.3 Linking nutrition and agriculture in South and Southeast Asia

Professor Michael Dibley

Wasting, estimated to have affected 52 million children under five globally in
2011 (Black et al. 2013), significantly increases the risk of mortality and chronic
disease, while reducing learning performance and eventual work capacity and
productivity.
Undernutrition that leads to stunting (low height for age, an indicator of chronic undernutrition) and wasting (low weight for height, an indicator of acute undernutrition), results from lack of access to nutritious food, lack of support for parents and children, inadequate access to sanitation, clean water and health services. These failures are rooted in complex political and cultural environments, poverty, disempowerment of women, and environmental degradation.

Emergency interventions like food fortification and supplements are not a long-term solution. Nutrition-sensitive agriculture that enables social and political environments to be involved in increasing the availability of nutritious foods, clean water, sanitation, education, employment, and health care, thus building resilience in communities provide more sustainable solutions. These integrated approaches have been successful in projects in Bangladesh, India and Indonesia.

Agriculture and health are linked through food production, sources of income, empowerment of women and improved worker health (Ruel & Alderman 2013, Hawkes & Ruel 2006). Comparisons between similar countries show that a 10% increase in per capita income is followed by a 6% reduction in childhood stunting. There is overwhelming evidence that empowerment of women has a positive association with improved maternal and child nutrition. Women often take primary responsibility for food gardens for both household consumption and sale at local markets, thus provide a direct link to household food security and health, as well as to economic development. It has been argued that every $1 spent on reducing undernutrition yields economic benefits of $30 through better health, education and productivity (Copenhagen Consensus 2012). Targeted agricultural development programs achieve the complementary aims of increasing agricultural productivity, global food supply, household livelihoods, diet quality and food security, and protecting consumers from high food prices.

A number of barriers confront studies of links between agriculture and health. Firstly, as previously discussed, researchers and program managers are often constrained by disciplinary or mandated program limits. Funding bodies may lack the flexibility to support emerging opportunities, may require preliminary or foundation research to justify a cross-disciplinary approach, and may require that impact pathways have been developed and that appropriate and robust monitoring and evaluation criteria have been established. Within research institutions such as research-intensive universities, the emphasis on research income and on publication rates counters the ability of researchers to progress innovative, collaborative work to address the constraints communities face in striving to attain food security and the societal benefits that flow from it. For example, it is well known that cross-disciplinary research is notoriously difficult to publish in discipline-specific journals.
An alternative is to enhance existing agricultural development projects by adding a component of health and nutrition. This might include incorporating or strengthening nutrition goals in the design and implementation of the project, or adding a specific focus on women’s nutrition, time, health and empowerment.

4. Recommendations: how can aid and research solve these problems?

The case studies presented make it clear that a model of effective, cross-disciplinary research to address interconnected issues impacting on households is needed to improve the outcomes of investment in agricultural research and development programs for rural communities in Southeast Asia. This approach acknowledges that agricultural development, nutrition, health, and gender equality are inextricably bound together. However, it will require significant cultural changes, for scientists, policy makers and funding agencies.

To inform these changes, it is apparent that research to quantify the additional benefits gained from cross-disciplinary projects will strengthen justification for institutional reform. Furthermore, work should be undertaken to refine evaluation methodologies and to develop a framework to realistically measure impact pathways and constraints. Flexibility and responsiveness would be essential features of such a framework.

One recommendation from the workshop is a research project that consults with stakeholders to audit and analyse the impacts of several current projects with smallholder farmers in Southeast Asia, and the additional expertise and activities that would extend the scope and sustainability of project achievements. Stakeholders would include smallholder farming communities, private interests, NGOs, policy makers, funding agencies and academics. The goal of this research being to identify constraints to outcomes of current projects, and to propose cross-disciplinary interventions to overcome the constraints. Outcomes applicable to such agricultural development projects that will be measured include crop yield, livestock productivity, household income, family diet and health, housing, education, and social capital. Lessons from this evaluation will then be drawn together to develop a framework for future cross-disciplinary work. It was proposed that a concept note for this research would be developed to take to the AIFSRC.
5. Conclusions

Improving the health outcomes of rural farming communities in Southeast Asia requires an interdisciplinary, holistic and efficient approach. Such an approach would better identify the constraints on the adoption of new technologies in agriculture (in particular the availability and capacity of labour and investment capital) and the contributions of nutrition-sensitive agriculture to preventive measures in relation to improving human health.

Cultural change is necessary to facilitate the development and funding of interdisciplinary projects. Funding agencies, institutions and researchers tend to avoid risk by confining their activities to their own disciplines. However, this conservative approach limits the opportunities for truly innovative breakthroughs that could improve the impacts of aid and development projects.

Initiatives with a broad mandate, such as the AIFSRC, have the opportunity to nurture and support multidisciplinary approaches that address the critical links between health and agriculture. Meaningful criteria and tools must be developed to monitor and evaluate the success of projects that cut across traditional boundaries of expertise. Such frameworks and tools will act to drive research collaborations, policy changes and greater flexibility from funding agencies. The case studies presented at this workshop highlighted the potential benefits of taking a wider view on the multidimensional links between agriculture and health.

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Biographies

Assoc. Prof. Jenny-Ann Toribio, Faculty of Veterinary Science, University of Sydney. Jenny-Ann has contributed to research on smallholder livestock and aquaculture in Indonesia, Philippines and Timor Leste. Her research in these contexts focuses on biosecurity and infectious diseases of concern for livestock and people.

Dr. Richard Markham, ACIAR. Richard is the Research Program Manager for horticulture. The program focuses on improving the productivity, profitability and sustainability of fruit, vegetable and ornamental crop production in developing countries and Australia. He has worked for 30 years in international development research, and previously worked as a Program Director for the CGIAR centre, Bioversity International.

Dr. Lucy Carter, CSIRO. Lucy leads agriculture-nutrition linkages for the Food Systems Innovation (FSI) Initiative. She has a health background and has experience with social science working in food security and at the nutrition / health end. She has published widely on topics such as GM food and plants, medical ethics and substance addiction.

Mr. Archie Law, Executive Director ActionAid Australia. ActionAid Australia is an international non-governmental organisation whose primary aim is to fight poverty and injustice worldwide. Archie has worked in conflict affected environments throughout Asia, the Middle East and Africa. Prior to joining ActionAid, Archie worked for the United Nations Development Program in South Africa and the UN’s Department of Peacekeeping Operations in New York. He was a member of the UN team that developed the contingency plan for an emergency response to the conflict in Iraq in 2002-2003. He also spent four years heading up the Mine Advisory Group’s 500-person Cambodia Program.

Assoc. Prof. Robyn Alders, AO. Faculty of Veterinary Science, the Charles Perkins Centre and the Marie Bashir Institute for Infectious Disease and Biosecurity. Robyn has worked for over 20 years with smallholder farmers in Africa and Asia working Newcastle disease (ND) and avian influenza in Ethiopia, Indonesia, Kenya, Lao PDR, Malawi, Mozambique, Tanzania, Thailand, Timor-Leste and Vietnam. Robyn believes that livestock research can directly contribute to ecologically sustainable development and improved livelihoods for rural communities both in Australia and internationally.
Prof. Michael Dibley, School of Public Health, University of Sydney. Michael has worked and published extensively in the areas of obesity, diabetes, cardiovascular disease, and maternal, child and reproductive health in Asia, Africa and Australia. In Asia, his recent focus has been on food security and improving infant feeding practices of women in Myanmar; mobile health solutions to promote maternal and infant nutrition and health in rural India; hypertension, vitamin D and the parathyroid studies of populations in China; the factors affecting adolescent obesity in Vietnam; and the use of nutritional supplements in preventing neonatal deaths in Indonesia.

Dr. Lucas Shuttleworth, Honorary Associate, Faculty of Agriculture & Environment, University of Sydney. Lucas has previously been involved with international projects such as the Australia Awards, a cornerstone of the Australian Government’s development assistance program for Africa. His interests lie in the research and education of growers concerning disease management of their crops.

Prof. David I. Guest, Faculty of Agriculture & Environment, University of Sydney. David has active research partnerships with scientists and farming communities around the Asia-Pacific region, working to develop effective crop management strategies. He advocates trans-disciplinary “One Health” collaborations: healthy soils, healthy crops, healthy livestock, healthy environments and healthy people.