

# The Role of Agricultural and Food Systems Research in Combating Chronic Disease for Development

## Report of an LCIRAH workshop

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Agriculture, food systems, nutrition and health are intimately linked through multiple channels, but we have little insight into the impact of agriculture on the advance of non-communicable diseases (NCDs) in low- and middle-income countries (LMICs). The linked demographic and dietary transitions, away from rural areas and traditional foods and towards urban centres and more processed and energy-dense foods, are seen to precipitate rises in NCDs such as diabetes and cardiovascular disease. But the complex political, social, economic and physiological processes at work require more research if we are to better understand and intervene. The recent Chicago Council report *Bringing Agriculture to the Table: How Agriculture and Food Can Play a Role in Preventing Chronic Disease* identified a need for further research to help fill knowledge gaps and aid decision-makers in formulating policies and programs. The aims of this workshop were to look critically at agriculture's contribution to chronic disease in LMICs as a development problem; to identify an interdisciplinary research agenda which will increase our understanding of how changing agricultural and food systems might influence NCD risk; and to explore interventions at various levels which might alter this risk, in poor communities in LMICs.

### Agriculture, health and development perspectives

Agriculture is the mainstay of economies and livelihoods in most LMICs, but there is currently little sense of how to reconcile the goals of those working in agriculture—to turn a profit and manage risk—with the goals of the public health community—to improve health, particularly of the most vulnerable in a population. Drivers of food systems are consumer demand, producer supply, and government intervention, and each of these is becoming more complex as food chains become longer and globalisation more pervasive.

NCDs have been a neglected area of health for development. Absolute mortality rates from chronic diseases are higher and growing faster in LMICs than in high-income countries. NCDs have led to a measurable loss in productivity at the national level in many countries, and NCDs can push households into poverty through increased health costs and reduced labour capacity. Consumption of foods that are energy-dense and low in essential vitamins and minerals is a risk factor for many NCDs; agricultural development- focused largely on increasing dietary energy supply- has made such diets inexpensive, while investing less in nutrient-rich commodities like pulses and vegetables.

The development community is justifiably focused on supporting agriculture to reduce undernutrition amongst the rural poor, and often views NCDs as an issue of food choice for wealthier, urban populations. However, poor people everywhere have limited access to nutritious foods and often can only afford low quality diets that increase risk of NCDs. There are linked problems of under- and over-nutrition in many poor households; many LMICs face a triple-burden of diet-related disease arising from deficiencies in dietary energy; micronutrient deficiencies; and excessive energy intake in parts of their population.

### Value chain interventions and NCDs

Value chain analysis is a promising tool for assessing agricultural food chains and identifying entry points, in terms of actors and processes, for improving access of the poor to nutritious foods. The analysis allows researchers to look at complex food systems from both the supply and demand side, and the way that these affect available food choices in different contexts along a continuum of dietary problems from under- to overnutrition. Work in this field from a development perspective is mainly conceptual to date, and focused on reducing undernutrition in relatively short rural food chains. However, case studies on value chains for milk, beans and sweet potatoes in LMICs identify opportunities for creating and capturing both monetary and nutritional value, linked to effective producer and consumer education. Effective institutions, including influential “lead firms” and governance which gives integrity to the value chain, are critical to success; consolidation at all levels of the globalised food industry means it is likely that both the problems and the solutions come in part from the private sector, and a better understanding is needed of systems, entry points and interventions to steer the drivers of these systems on a course for health.

## Agricultural and food policy and NCDs

What little evidence there is on the impact of food policies aimed at reducing NCDs comes from commodity programmes in high-income regions, and results differ along disciplinary lines: public health research finds that policies are generally making unhealthy foods more affordable, but economic research largely does not. Policies aimed at changing production of healthy or unhealthy foods locally or nationally are limited by the capacity to source cheap foods globally, making price interventions less likely to be effective. In recent decades, there has been a shift towards consumer-based approaches, putting the onus for change on individuals. For LMICs, policy intervention for “short chain” food systems typical of rural or island communities may target local production which directly affects local markets. However, “long chain” systems are now characterizing many LMICs. Here, with more nationally and globally traded commodities and more processed foods, policy interventions might best be directed at foods rather than commodities, and at influencing the behaviour of various value chain actors, including but not limited to consumers. Examples from Pacific and Caribbean island states characterised by high levels of import of unhealthy foods and little local production of healthy foods reveal a policy focus on managing quality of imported foods, and encouraging food production and education. In West Africa, where NCD- policy remains strongly rooted in the public health sector, building evidence for the role of agricultural and dietary diversification in improving health has been an initial focus of efforts towards policy change.

## Conclusions and research priorities

With agricultural research for development focused on increasing food supply and profits, and health research on managing illness, the challenge of bringing these communities together around a shared theory of change for sustainable, healthy agriculture is considerable. However, there are clear ways in which agricultural change could reduce NCD risk, explored above. The workshop expressed a strong sense of urgency: many elements driving the rapid rise in NCDs can be addressed now through effective advocacy and action without further research. However, research will be critical to establishing the evidence for changes in food systems and policy, and for guiding locally relevant interventions- in other words, to refining what action is taken. Required actions are unlikely to be the same in all cases: context will be important, with different strategies needed for commercial or smallholder systems, rural or urban populations, different geographic contexts and so on. Overall however, the relationship between agriculture, food systems, nutrition and NCDs in LMICs is particularly poorly understood, and extrapolation directly from experience in high income countries is probably not wise.

Broad areas and specific suggestions identified for the attention of the research community included:

- Capturing changing food environments, diets and consumer behaviour in households in rural and urban communities and their potential contribution to NCDs.
- Characterising and understanding the function of short and long value chains in LMICs; understanding who or what is driving the food system, and behaviour of agents within the food system.
- Examining, by the use of modelling and other means, the likely effect of specific changes in agricultural practices and policies on food value chains, food consumption and health in LMICs.
- Bringing together datasets on agriculture, food and health to examine possible outcomes of changes in agriculture and food value chains in NCD incidence in LMICs.
- Researching the policy-making process to understand the factors necessary for greater cooperation between policy-making in agriculture, nutrition and health, including studying the political economy of agriculture and health related to NCDs, and factors which drive policy making in different sectors.
- Assessing diets and health from a multiple nutrient perspective, in contrast to the single crop or nutrient focus of much current agricultural intervention for improved nutrition.
- Improving understanding of the links between under- and overnutrition in LMICs.

The workshop ended with a consensus on the need to take an intersectoral and interdisciplinary approach to research on agriculture, NCDs and development. Using such an approach, the research community needs to understand the current situation and opportunities; develop theories of change for reducing NCD risk through agricultural interventions; and generate the information and methods necessary for predicting and changing the health outcomes of those interventions.