



CRP-Commissioned External Evaluation of the Food Safety Research at the CGIAR Research Program on Agriculture for Nutrition and Health

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RESEARCH
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Agriculture for
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Led by IFPRI

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TABLE OF CONTENTS

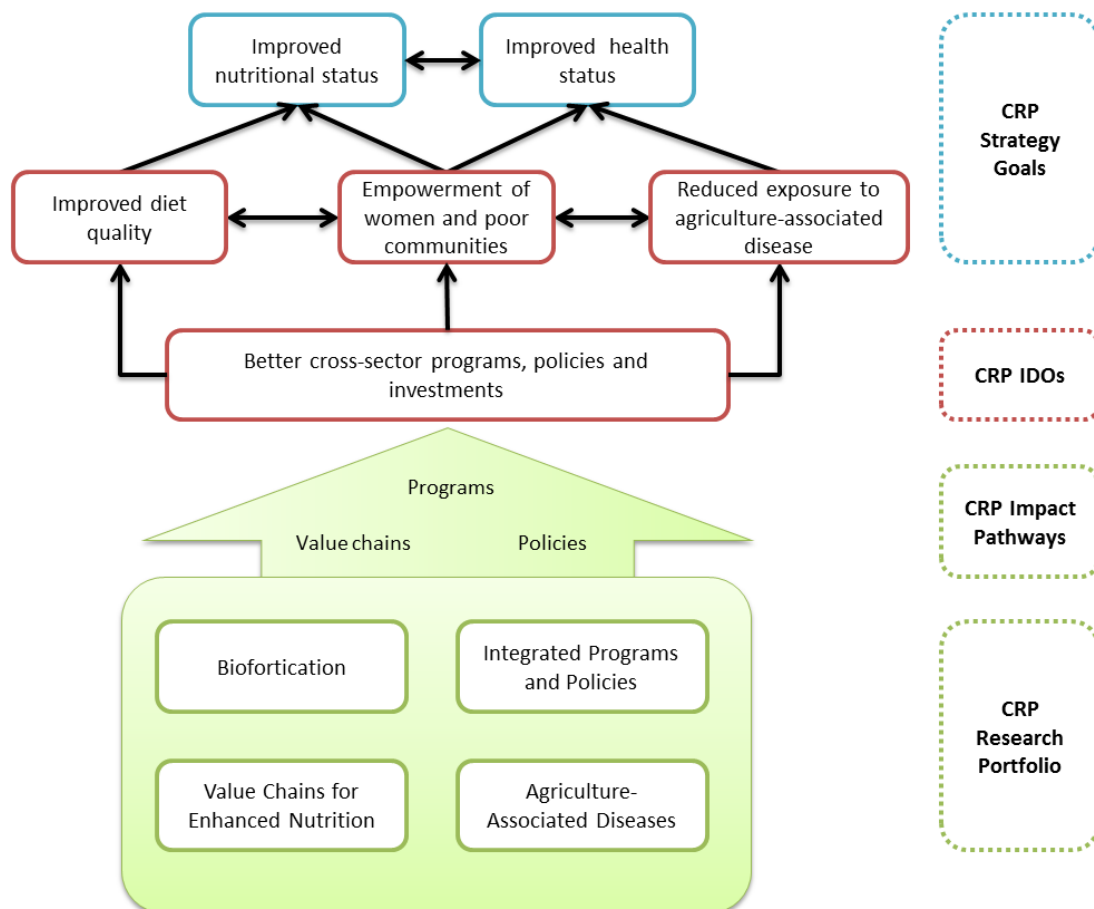
1. Introduction	4
2. Evaluation Approach	6
3. Evaluation Purpose	10
4. Evaluation Data	12
5. Methodology	21
6. Summative Assessment of Food Safety Research	23
7. Assessment of Published A4NH Food Safety Research	34
8. Learnings about the A4NH Food Safety Research: Feedback from Stakeholders	41
9. Recommendations	48
References	52
Appendix	54

1. INTRODUCTION

The journey from funding research on food safety to impacts on health is complex and convoluted. A4NH programming has been informed by a theory of change (Mayne, 2011), which includes several key assumptions. Evaluation provides an opportunity to interrogate such assumptions and potentially provide empirical support for them. The theory of change itself needs to be refined in an iterative manner; evaluation also provides an opportunity to revise the theory of change in light of new and better information or more useful conceptualization.

As an example, *the A4NH results chain* provides a simplified view of such a complex process.

Figure 1:



The translation of research on agriculture to improved nutrition and health is uncertain in many ways:

- The timeline of impact (Sridharan et al., 2006) between funding research and impacts on nutrition and health is uncertain.
- The results chain describes three mechanisms by which A4NH research can impact health and nutritional outcomes: improved diet quality, empowerment of women and poor communities, and reduced exposure to agriculture-associated diseases. The theory of change views all three mechanisms as being influenced by better cross-sectoral policies, programs, and investments. How these mechanisms play out for food safety research in real world settings is unclear and is often 'emergent' (Morell, 2010).
- The uptake, collaboration and partnerships needed to transform research findings into impacts are often unclear. As an example, consider the following from the recent A4NH 2015-2016 Extension proposal: "The A4NH partnership strategy is based on the reality that A4NH must partner with and add value to broader agriculture development efforts and link these to nutrition and health initiatives through the impact pathways of value chains, programs and policies. Capacity sharing and development is embedded in the partnership strategy. A4NH works with other research and capacity development organizations to share its knowledge and to learn from others." The evaluation provides an opportunity to learn about such partnerships in a food safety research context and how such mutual learning is occurring in real-world settings.

Much of the above discussion focuses on the full set of research under A4NH. The focus in this report is limited to the food safety research conducted by A4NH. A number of key assumptions underlie the theory of change as it applies to food safety research, and these may be satisfied to varying degrees in the systems in which the food safety research is working.

2. EVALUATION APPROACH

This evaluation has been informed by a theory-driven perspective (Pawson, 2006; Pawson and Sridharan, 2009; Mayne, 2011).

We explore the relationship between research and capacity building conducted as part of A4NH food safety research, its dissemination, potential use and influence, and early impacts. Taking a theory-driven perspective, a simplified implementation chain by which A4NH food safety research can impact health and sustainability is described in Figure 2 below.

Figure 2 below is an illustrative *theory of change*. It is a visual depiction of how a program such as the A4NH food safety research program can have impact or achieve its intended outcomes. We stress that this theory of change is intended to be illustrative: the theory of change helps frame the questions for the evaluation.¹ While many of the pathways in Figure 2 are reasonably obvious and logical, thinking theoretically and explicitly about how research on food safety can impact health outcomes has the following advantages: it highlights key assumptions that underlie the process, and it depicts in a simplified manner the linkages between various activities, components and outcomes. Key assumptions and risks are outlined in Table 1, and mapped onto the theory of change in Figure 3 (Note: These assumptions and risks can also be viewed as hypotheses about which evidence need to be generated as part of the research process. In all likelihood, the relationships are likely to be bi-directional as well as unidirectional. This is not explored in this report)

The logic of the theory of change approach to evaluation is described in Pawson and Sridharan (2009):

A theory-of-change analysis inspects the ‘stepping stones’ of the programme implementation chain in the expectation that some will wobble, their spacing will prove irregular and there is a danger of them being covered in a policy swell. Less metaphorically, the presumption is that the programme theories will always be achieved imperfectly. They will face ambivalence or resistance, they will generate unintended consequence, other priorities and programmes will intervene. The purpose of the analysis is thus to inspect the fidelity of the hypothesized implementation chain in order to uncover its flows, blockages, and leakages.

¹ Note: more detailed applications of a theory of change are also possible for an evaluation of such a nature. However we only use the theory of change as an organizing device—we do not probe and interrogate the theory of change in great detail in this report as it is outside our remit.

Figure 2:

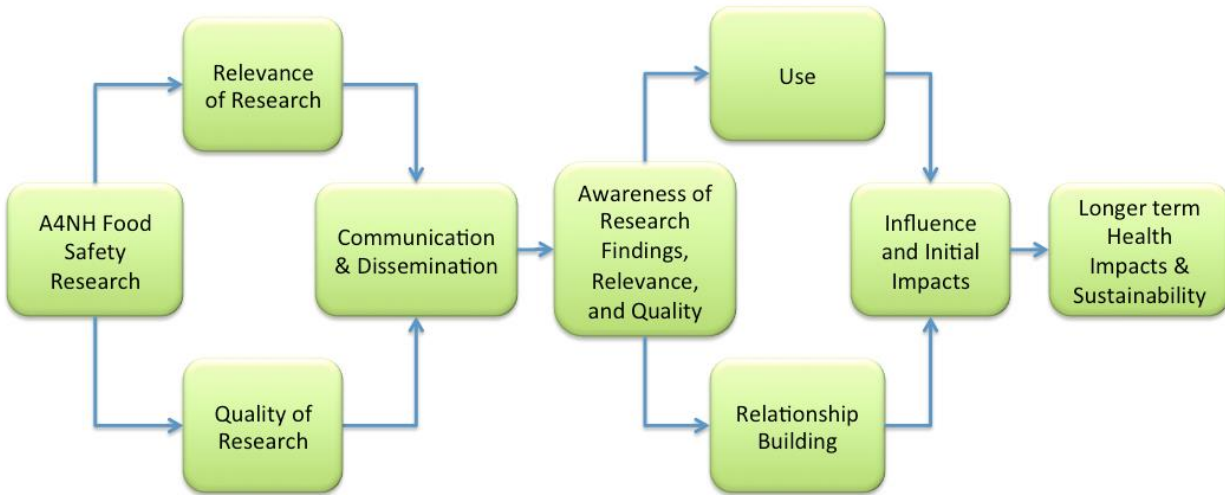


Table 1: Illustrative examples of assumptions and risks in the Theory of Change for research

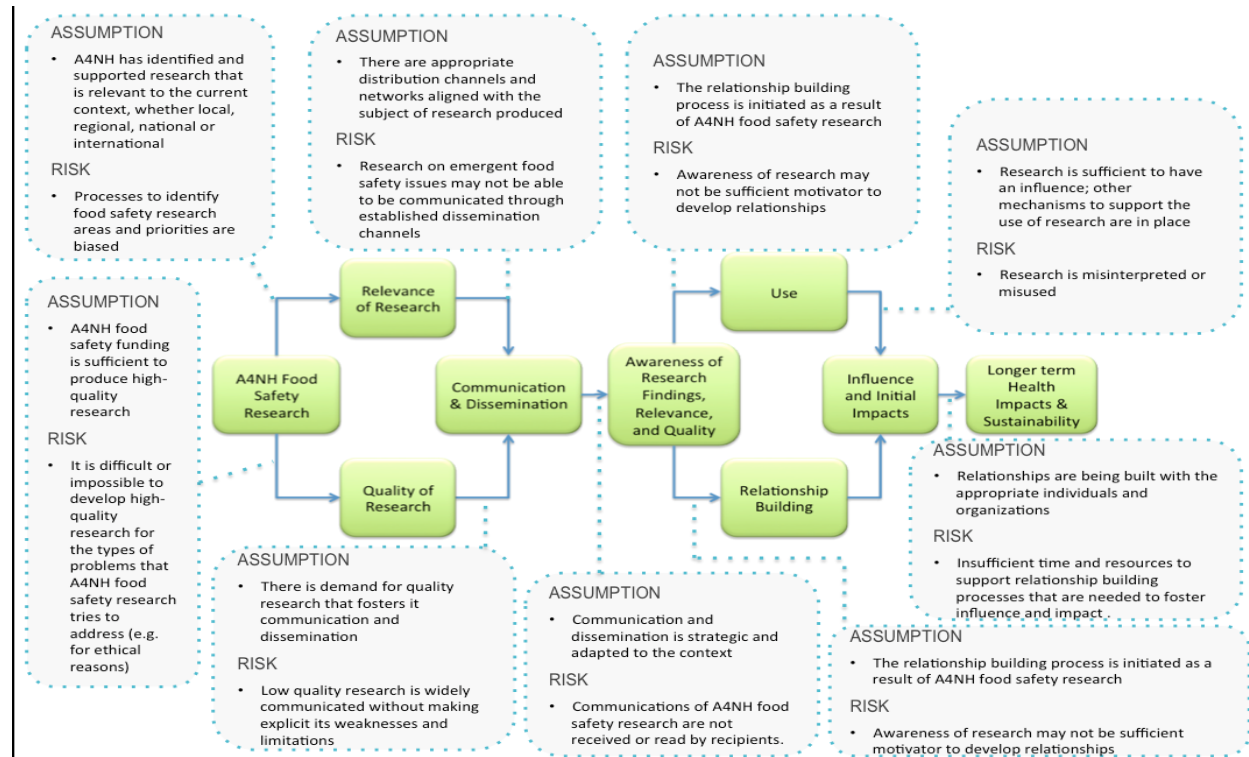
Linkages	Assumptions	Risks
A4NH Food Safety Research → Relevance of Research	A4NH has identified and supported research that is relevant to the current and evolving context, whether local, regional, national or international	Processes to identify food safety research areas and priorities are not based on a solid understanding of existing food systems and therefore lack relevance
Relevance of Research → Communication & Dissemination	There are appropriate distribution channels and networks aligned with the subject of research produced	Research on emergent food safety issues may not be able to be communicated through established dissemination channels
A4NH Food Safety Research → Quality of Research	A4NH food safety funding is not a binding constraint to	It is difficult or impossible to develop high-quality research

Linkages	Assumptions	Risks
	conducting high-quality research	for the types of problems that A4NH food safety research tries to address (e.g. for ethical reasons)
Quality of Research → Communication & Dissemination	There is demand for quality research that fosters its communication and dissemination	Low quality research is widely communicated without making explicit its weaknesses and limitations
Communication & Dissemination → Awareness of Research Findings, Relevance, and Quality	Communication and dissemination is strategic and adapted to the context	Communications of A4NH food safety research are not received or read by recipients.
Awareness of Research Findings, Relevance, and Quality → Use	Communications are received by the stakeholders who are in a position to use and/or have influence in the uptake of research findings by other stakeholders;	Key stakeholders do not assess the research as credible and relevant
Use → Influence and Initial Impacts	In addition to research, other mechanisms to support the use of research are in place	Research is misinterpreted or misused
Awareness of Research Findings, Relevance, and Quality → Relationship Building	The relationship building process is initiated as a result of A4NH food safety research	Awareness of research may not be sufficient motivator to develop relationships
Relationship Building → Influence and Initial Impacts	Relationships are being built with the appropriate individuals and organizations	Insufficient time and resources to support relationship building processes that are needed to foster influence and impact
Influence and Initial Impacts → Longer term Health Impacts & Sustainability	Actions taken based upon the research findings are deemed feasible and sustainable	Mechanisms to support ongoing impact are not in place

The ‘actual’ processes of change might be more complex than described in the figure above: as example, some of the linkages might flow in both directions or are reciprocal. For example, it perhaps can be assumed that as the research findings are put into practice, influence on other stakeholders will increase, and as more stakeholders are influenced by the new practices, there will be more use of the research findings; the more impacts are

shown by the changes due to implementation of research findings, the more influence the research will have, and the innovations will spread and have further impact. However, as noted earlier this evaluation does not focus on the complexities of causal relationships in the research process.

Figure 3:



3. EVALUATION PURPOSE

The Inception Report discussed four key evaluation criteria: relevance, potential impacts, effectiveness and quality of science.

Relevance – Is the scope and focus of the food safety work relevant and appropriate? Relevance is the foundation for any impact that the A4NH food safety research program hopes to have. As shown in Table 1, relevance needs to be ensured through the process for choosing research topic, needs to be communicated through the program’s dissemination strategy , and needs to be seen and agreed by users if those users are to be influenced by the research;

Potential Impacts – Evaluating this involves first an evaluation of all the earlier stages in the ToC and how they fit together, as shown in Figures 2 and 3 and Table 1. Questions include: Are the impact pathways well-articulated and plausible? Are they being used to guide research and related activities such as partnership development, capacity building, and learning, that can be expected to result in impact at field level?

Effectiveness – The report explores what A4NH food safety research has contributed to identified outcomes based on the theory of change. Is the CRP on track to deliver planned outputs and outcomes?.

Quality of Science – Together with relevance (Figure 2), quality of research is a fundamental building block for eventual impact. Questions can include: Has the CRP added new, potentially actionable knowledge to the global set of food safety knowledge and research? Has it upended incorrect conventional wisdom, or brought to light important new questions that need to be answered?

As the A4NH food safety research has only been operational for the last few years, any discussions of influence and impact need to consider the timelines of impact. Research impacts typically take multiple years, and the evaluation needs to explicitly consider that sufficient time may not have elapsed. The evaluation is intended to promote learning amongst stakeholders. It promotes learning by interrogating the multiple stakeholders along the above implementation chain on how future versions of the A4NH food safety research can be enhanced. For each of the key stages in the figure, including research (quality of research, ensuring that research is relevant and incorporates local context), communication, use, influence and early impacts, we obtained feedback from key stakeholders on how to improve the A4NH food safety research in the future.

The evaluation has multiple purposes:

- Inform the design phase 2 of food safety research by interrogating the program of research implemented in phase 1. This interrogation occurred along the four stated criteria of relevance, potential for impact, effectiveness and quality of science.
- Get formative feedback from key partners to enhance the program of work.
- Explore how food safety research is already beginning to have influence on policy, practice and the private sectors.

4. EVALUATION DATA

The data was collected using the following four key sources of information. (Each of these data sources were discussed in greater detail in the inception report)

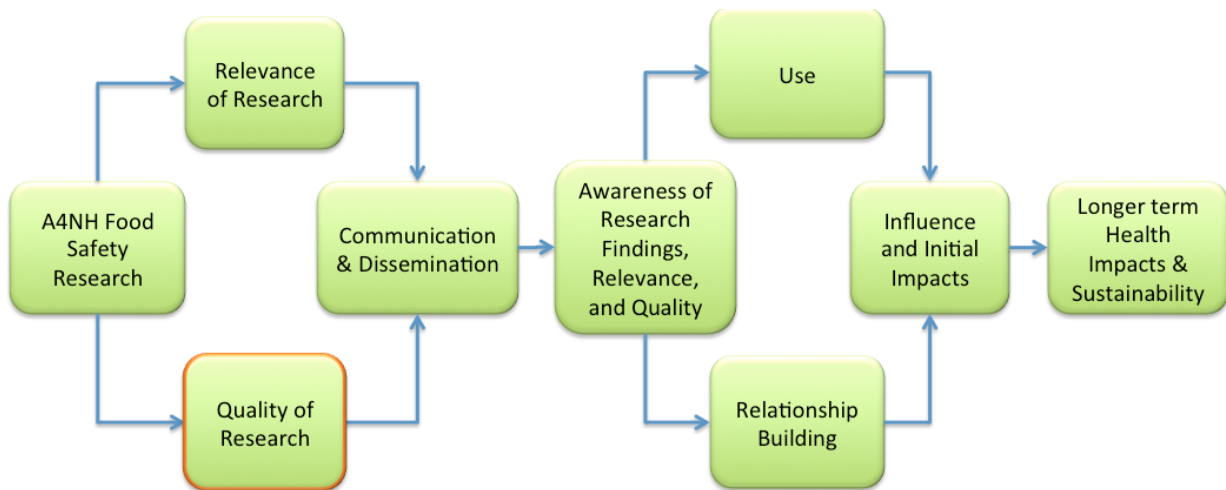
1. Telephone/Skype interviews with the **reference groups members**;
2. **Stakeholder** Surveys targeted at informed observers who had knowledge of A4NH programming and could question and challenge the A4NH theory of change; these stakeholders were primarily research partners.
3. Influence Surveys, both of **international partners** who had an understanding of the potential influence of A4NH research in international settings, and also of other potential “users” of A4NH in multiple practice and policy settings. These stakeholders worked in policy and practice settings.
4. **Document** reviews. As part of the A4NH program of research a large number of publications have been generated. The evaluation panel explored a sample of 9 papers for relevance, quality of science and potential impacts.

All key stakeholders were identified by A4NH staff.

- All 10 of the identified reference group members were interviewed;
- 21 out of the 28 stakeholders targeted responded to the Stakeholder Survey (a response rate of 75%);
- Only 7 of the 28 individuals targeted responded to the Influence Survey (a response rate of 25%); a number of the individuals responded that they were not sufficiently aware of the A4NH food safety research to respond to the survey.

Figures 4 to 11 list the key evaluation questions probed, and lists the relationship between the key concept in the theory of change discussed above to the evaluation questions raised as well as the source of information.

Figure 4:



QUESTIONS AND INFORMATION SOURCES

- Do you have any feedback on the quality of science of the research that has been conducted as part of A4NH food safety research? (**Interviews**)
- Review of multiple A4NH publications; Assessment of research quality (**Document review**)

Figure 5:

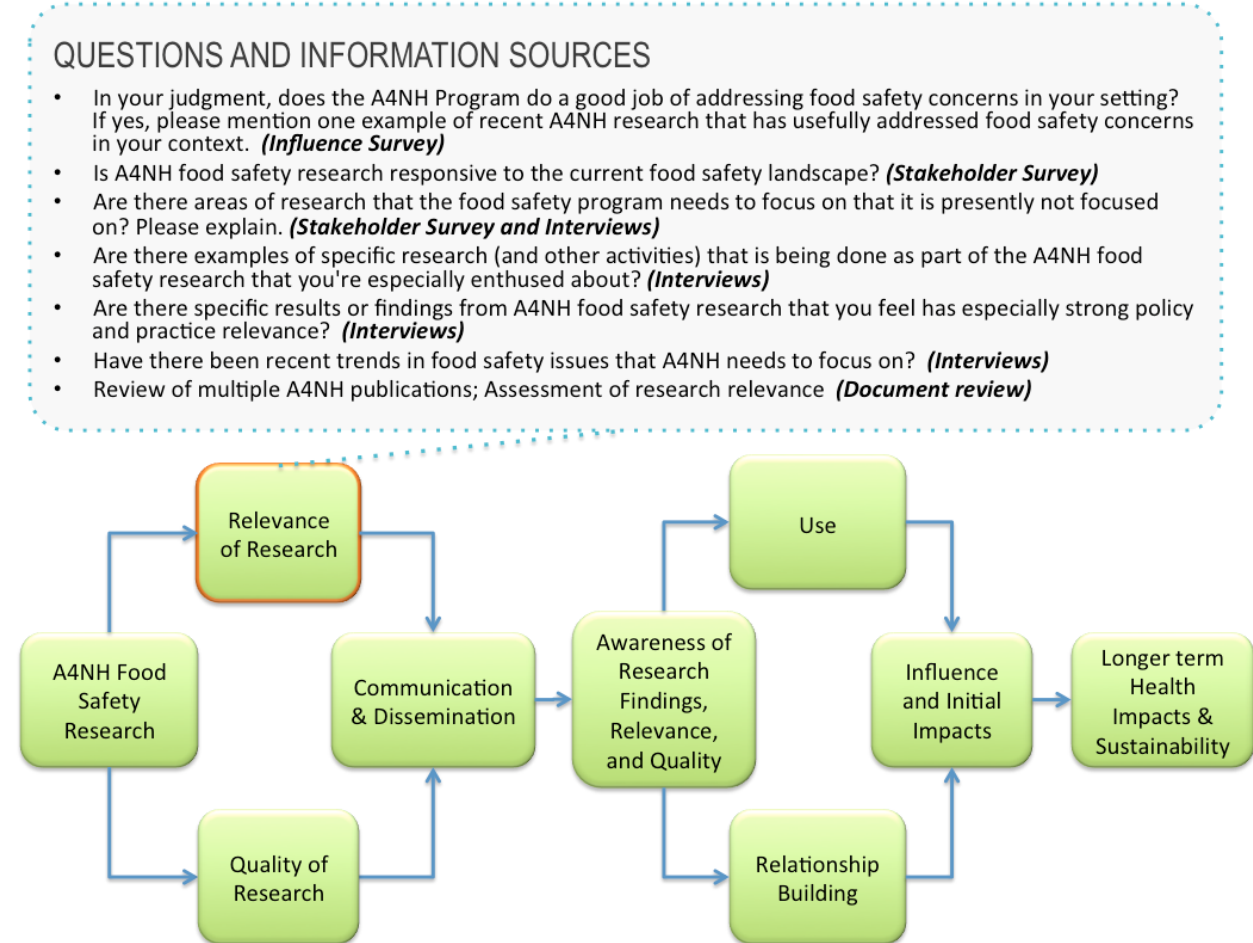


Figure 6:

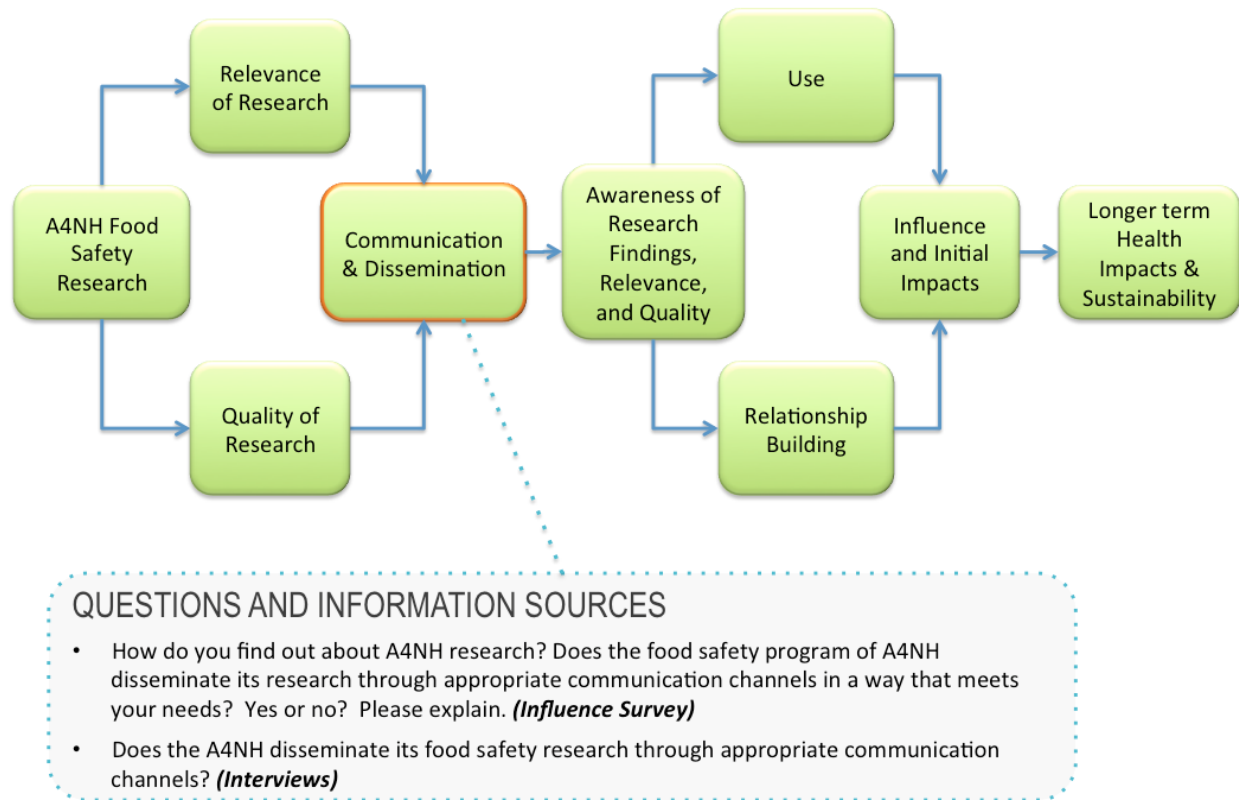


Figure 7:

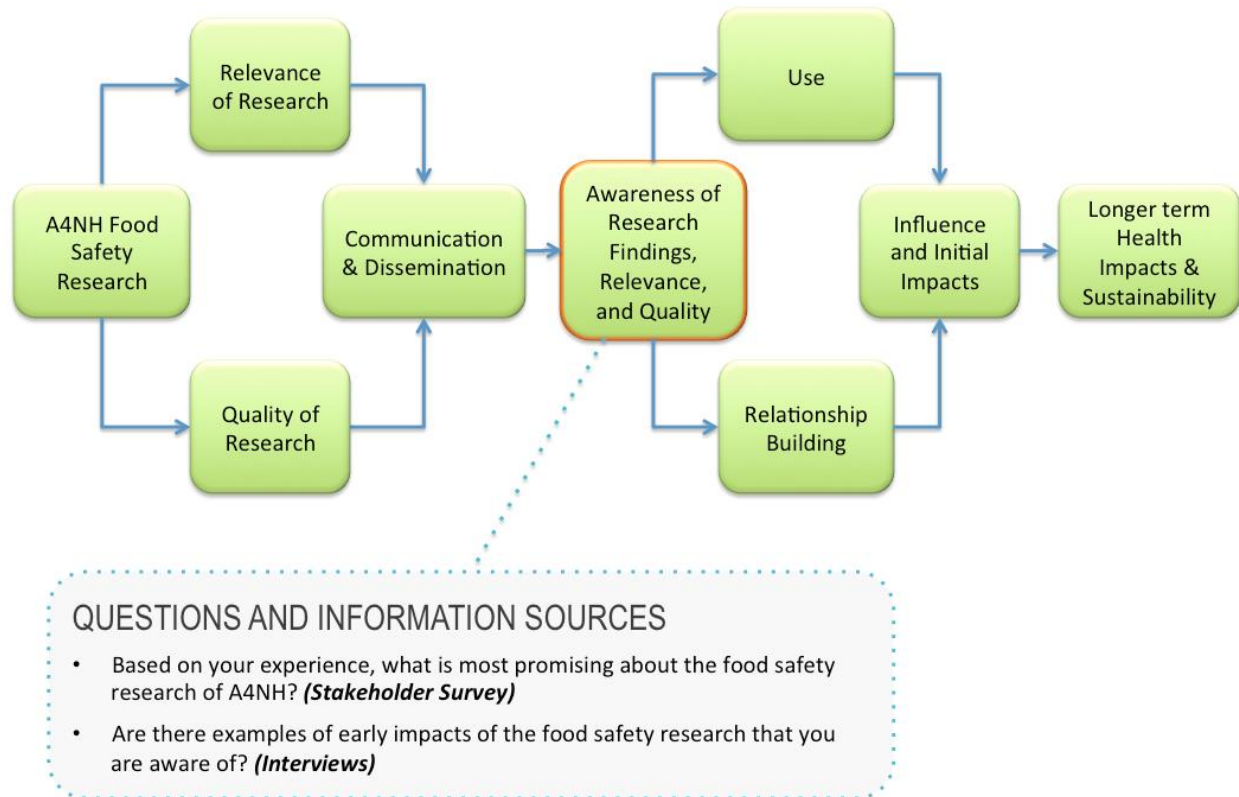


Figure 8:

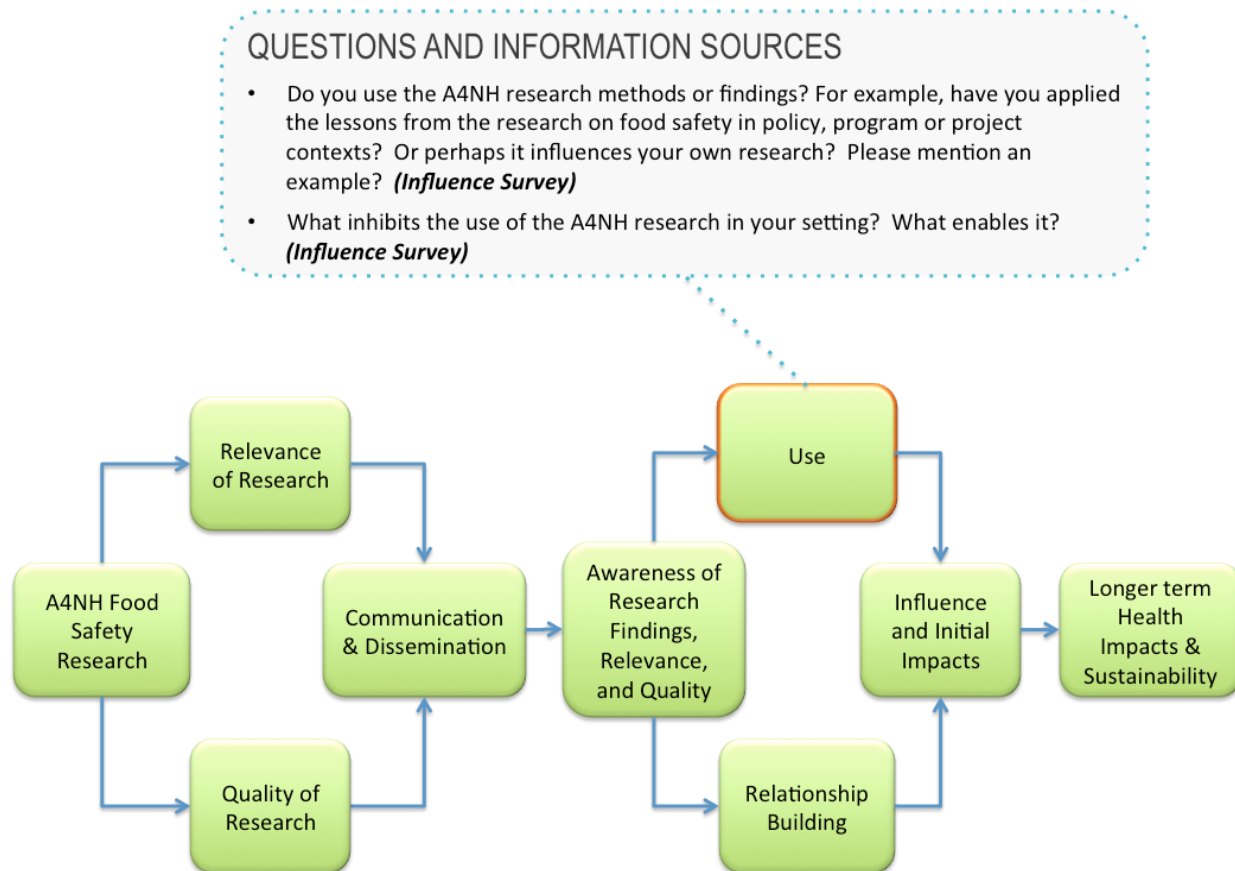
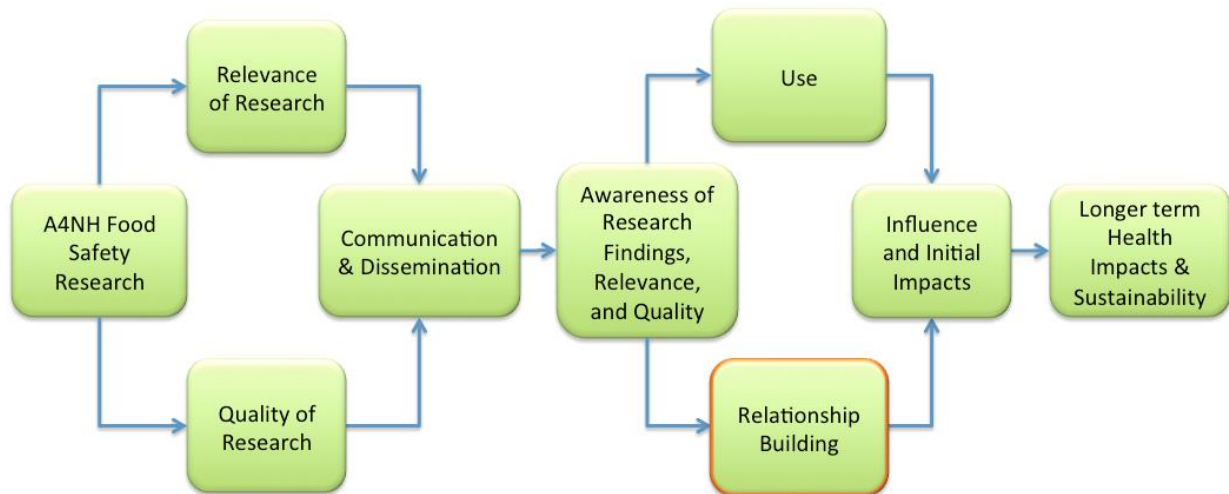


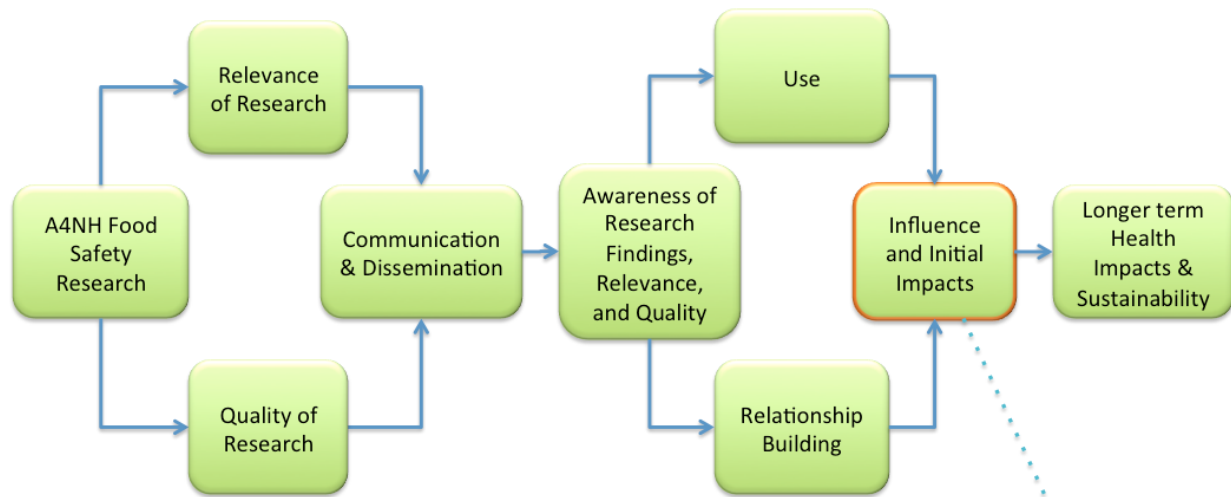
Figure 9:



QUESTIONS AND INFORMATION SOURCES

- What has been your experience interacting with the food safety program of A4NH? **(Interviews)**
- In your judgment, what are some challenges the food safety research program faces in influencing the appropriate stakeholders and decision-makers, and ultimately having impact? Please explain. **(Stakeholder Survey)**

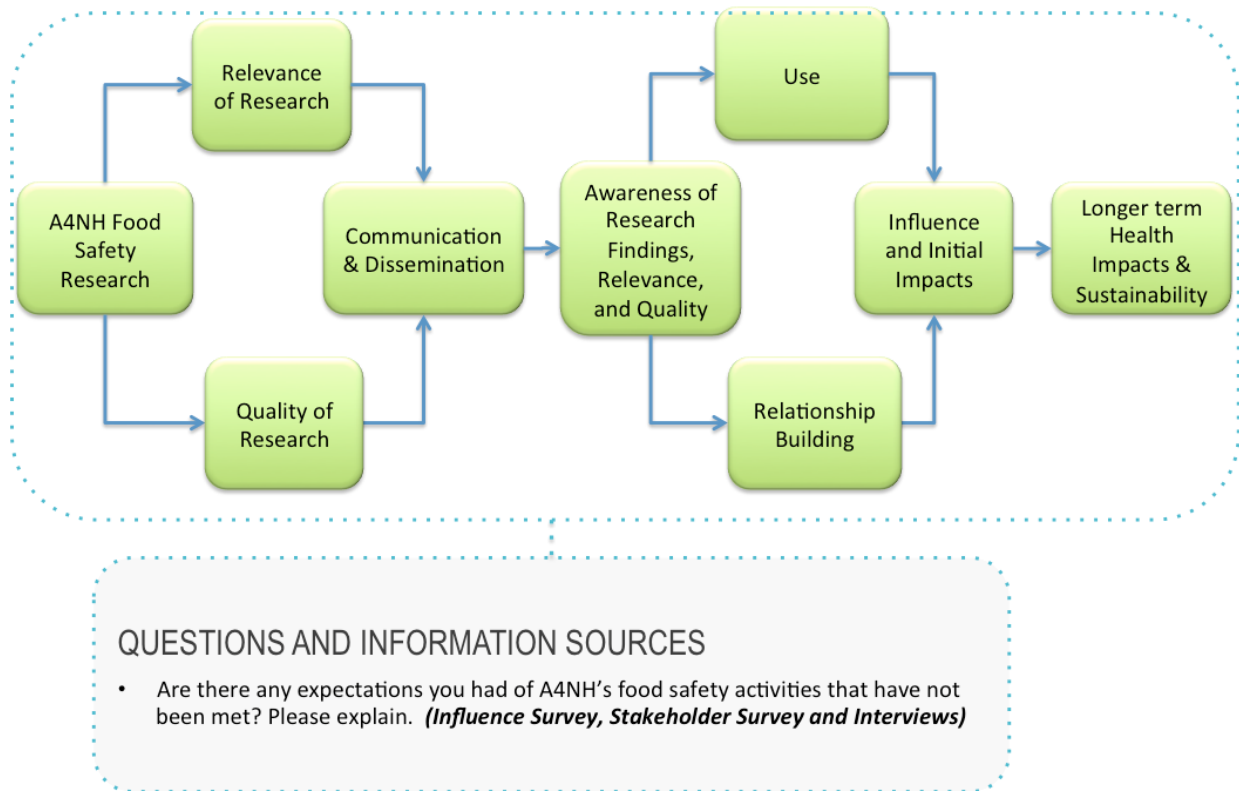
Figure 10:



QUESTIONS AND INFORMATION SOURCES

- In your judgment is the A4NH food safety research generating results that improve the knowledge base for effective programmatic action on food safety? (*Influence Survey*)
- Do decision-makers in the settings you work in discuss A4NH research findings and their implications? (*Influence Survey*)
- Has research from A4NH influenced your organization's activities? (*Influence Survey*)
- Has the A4NH research on food safety changed your perceptions about the importance of food safety in developing country settings? (*Influence Survey*)
- Has the A4NH research on food safety changed your views of how best to go about improving food safety in developing country settings? (*Influence Survey*)
- Are you aware of any interventions that have been piloted as part of the A4NH food safety research that in your view could be taken to scale in the settings you work in? (*Influence Survey*)
- Are there specific results or findings from the food safety research that you feel are significant? Are you aware of examples of early impacts of the food safety research? If yes, please explain. (*Stakeholder Survey*)

Figure 11:



5. METHODOLOGY

The analysis of A4NH data was organized into three categories, which are aligned with the three following chapters.

The first category (Chapter 6) sought to explore what A4NH food safety research has contributed to identified outcomes. This was approached with a summative focus in two main ways. Firstly, many stakeholders provided assessments of A4NH food safety research. While time did not permit a in-depth formal analysis, a theme is identified and reported when a clear ‘pattern’ emerged from a substantial number of respondents . Secondly, we feel it is important to also share where there was an absence of information in the hypothesised (or implied) mechanism in the theory of change. . These gaps may indicate that components of the theory of change or key considerations for A4NH food safety are absent which is also beneficial to identify. The logic of looking for ‘expected” patterns within pathways is described in Pawson and Sridharan (2009; emphasis added):

If the purpose of the evaluation is to discover ‘what works’, then attention is concentrated on the final outcomes of the theories-of-change sequence. A comparison of the expected and actual outcomes provides a measure of success. *But just as significantly, the empirical exploration of the earlier pathway will provide a detailed explanation of that relative success and failure.* Successful programmes will have established a strong activity base, generated quick wins, met intermediate outcomes, and so on; struggling programmes will have faced a rockier ride.

This analysis supports the accountability function of the evaluation.

The second category of analysis (Chapter 7) focused specifically on research quality, relevance and potential for impact. The analysis is based exclusively from the review of a sample of A4NH food safety articles identified by A4NH staff. It is distinct in that it does not rely on stakeholder’s perceptions of A4NH food safety research and draws from the evaluation panel’s review of the research articles and bibliometric data.

Finally, the third category of analysis (Chapter 8) provides formative feedback and learning that can help A4NH food safety research move along the theory of change. We recognize that complex interventions have incomplete theories of change. We seek to foster the development of A4NH food safety research by highlighting what has been learned through experience and implementation. In this chapter, data from stakeholders was considered important not if many people made the same comment, but if the feedback was novel and

useful, reflected on what had been learned, or helped us learn about the needs and contexts associated with food safety research. This analysis serves a developmental function that helps to explicate and further articulate the theory of change. It also uses a realist evaluation perspective, to support learnings about the context, mechanisms and outcomes of A4NH food safety research.

Formative approach to evaluation helps shed light on what else needs to be done to ensure that Food Safety research can achieve its long-term aspirations. Consider Pawson and Sridharan (2009):

The other usage of theories-of-change analysis is in programme planning or formative evaluation. Here the logic map provides the architectural diagram for the construction of the programme. Rather than building a programme with the broad ambition that it will generate the requisite behavioural change, the theories-of-change map demands justification for every step and decision along the way. Such planning should cover the feasibility, plausibility and testability of each component theory. The latter feature is particularly important for it allows for some trial and error in constructing the programme, correcting progressively for the looming leaks, emerging blockages and unintended consequences....

It is also important to note the limitations of the analyses. Much of the analysis relied heavily on stakeholder's perceptions of A4NH food safety research, both from the surveys and interviews. The majority of surveys received were from individuals more closely connected to A4NH, while the response rate from those targeted to use A4NH research was very low. This made it challenging to adjudicate among the different issues that were raised. The evaluation was also not funded to conduct certain data collection activities, such as site visits, that could have strengthened the analysis.

6. SUMMATIVE ASSESSMENT OF FOOD SAFETY RESEARCH

This chapter provides the evaluation panel's assessment of the overall performance of the food safety research initiative based on feedback from the multiple stakeholders; we also report on feedback received for improvement in a number of dimensions including: the need for an overall theory of change, research relevance, contributions to the evidence base, how research can impact inequities, scaling up and role of the private sector and the need for a communication and relationship strategy,

Overall strengths are described first; followed by discussions on performance related feedback on specific key aspects of food safety research.

6.1. Overall assessment of Food Safety Research is positive

The feedback from most respondents was in consensus that the A4NH research was on the right track. The overall sense by most stakeholders was that the food safety research had met expectations, including in its choice of research areas although there were many suggestions for additional areas of research. There was awareness that the budgets were limited; yet, within the budget, food safety research had done a good job of responding to existing needs on food safety. Further, most feedback suggested very high ratings of the relevance of the research. However, the research quality as discussed both by stakeholders and in Chapter 7 was mixed and needed greater quality assurance processes.

While a majority of stakeholders were happy with food safety research at A4NH, a substantial minority of the stakeholders had critical comments on its direction of travel.

6.2. The need for a 'program' level theory of change for Food Safety Research

While specific theories at the research cluster level were already in existence, an overall 'program' level theory of change for food safety research is missing. We recommend more explicit efforts to clarify the pathways by which food safety research can impact health outcomes. While we appreciate that many of the research areas have different pathways of influence, having a "program" level of theory of change has a number of advantages, including providing a clearer identity for A4NH food safety research and also obtain greater buy-in from key supporters and stakeholders of the research. The 'program' level theory of change needs to:

- Clarify the relationships between the various research components/clusters of food safety research;

- Identify the specific ‘boundary partners’ that will be involved in ensuring that the food safety research will be disseminated, put into practice, and influence policy;
- Delineate the specific role(s) of key partners and attempts being made to target such stakeholders, especially those at the policy and practice end of the implementation chain;
- Explicate the relationships between the various activities including research, participatory activities, rapid assessments and capacity building;
- Describe how food safety research seeks to build synergies with other components of the value chain; There needs to be greater clarity and articulation of the mechanisms and processes of creating synergies and the places where synergies can occur. This goes beyond simply including value chain actors.
- Outline an explicit process of spread and scaling up and how research can impact health and health equity outcomes;

Two examples of feedback that provided support for a more strategic theory of change both for the A4NH and the Food Safety research are:

- *“I still feel that there is an insufficient link between research on food safety and the value chain. This gap is evident in the presentations made by the A4NH research teams to the _____. Thus, there is a need for the research teams to collaborate in their activities to ensure food safety from production all the way to consumption.” (S14)*
- *“In areas where there are both quantity and quality constraints, the quality side faces challenges for targeting resources. There should be more established linkages between food safety and overall health and nutrition so that it is clear that health is just as dependent on the quality of food and not merely on the quantity available.” (S19)*

(Please note: The first of the comments above is interpreted as the actual value chain and not the A4NH organization structure; the second comment suggests a need for more empirical evidence and not simply the articulation of the theory of change).

6.3. Research conducted on food safety is highly relevant

A majority of the reference group members and some research stakeholders spoke about the “pioneering work” of the food safety research by A4NH. The relevance of the research topics for developing countries was also noted. A few stakeholders shared that the food safety research at A4NH occupies a special niche in building an evidence base for food safety that is not being served by other organizations.

We stress that these comments were primarily from research partners and reference group members; policy and practice stakeholders were for the most part not clearly aware of the work of the food safety research.

Examples of representative comments from stakeholders include:

- *Pioneering work on the safety of animal-source foods marketed through informal and wet markets. Early impacts: creating awareness of the importance of food safety based on initial findings and stakeholder engagements to begin to test options for use in risk management. (S01)*
- *I think, research on food safety (especially food of livestock origin) is the critical need for developing countries like ____ and ____ where, consumption of livestock products are growing rapidly with the increased in income and employment. Historically, there has been inadequate research on the quality of livestock products in these countries, where the focus was on quantity. I think, the national research system is still not doing enough research on food borne and zoonotic diseases. A4NH is trying to generate awareness and interest among the national research institutes and universities to do more and more research on food borne and zoonotic diseases. This role has already been recognized by the national researchers and decision makers. (S18)*

6.4. The research has helped contribute to a growing evidence base.

A4NH food safety research has contributed to building an evidence base for food safety. Specific examples of research projects that were especially noted by a majority of research stakeholders and reference group members were the work on Aflatoxins and informal markets. Both these research areas were considered extremely salient. An example of a representative feedback is:

“The evidence showing that food in African informal market is not that bad and represents good trade-off for livelihood generation for the poor and nutrition and food security. Aflatoxin research to reduce diseases burden of the poor eating maize.” (S09)

Many respondents spoke about some of the multiple conceptual advances, including the risk-based approaches that the food safety research provided. The potential for large-scale impacts was also noted.:

“Similarly, the newer program on food safety in perishable products should have big impacts on consumer health in the program countries. It is planning to implement a risk-based approach for assessing and managing food safety in selected countries. Such a risk-based approach if successfully implemented in the developing countries would make a tremendous impact on public health outcomes. It is appropriately

planning to engage partners who can help bring about the necessary changes in regulatory and policy processes along with engaging in research. (S02)”

A few research stakeholders also noted that the strength of this program was its participatory assessments. A representative comment was:

“The most promising aspect is a willingness to engage a broad group of stakeholders across sub-Saharan Africa and to have logistic support in many nations. Developing strategies to engage and actually engaging and performing research with the farmers, industries, and governments is a difficult proposition that require patience and willingness to progress a centimeter at a time.” (S17)

It is worth noting that most respondents who were aware of the evidence base that was being developed were the research stakeholders and the reference group members: few policy and practice stakeholders were aware of the evidence base on food safety in development.

6.5. The leadership of the Food Safety Program and A4NH was lauded

A number of the reference group members and a few research stakeholders also applauded the leadership of A4NH. An example of a response was: *“Finally, I felt that the CRP was led by a dedicated and capable team, as was this program on food safety. This is very essential in ensuring the success of the program. (S02)*

6.6. There is a lack of clarity on how food safety research can impact inequities

Equity was an important focus of food safety research at A4NH. For example, consider the following quote from the 2013 A4NH Annual Report “Our approach is multifold. We conduct risk assessments of food safety and disease, develop solutions that can work in informal markets and marginal areas that are incentive-based, and undertake policy engagement to build enabling, pro-poor regulatory environments. We also conduct research on the implications of agricultural intensification for human health; disease drivers such as climate change, urbanization, and changing land use; and gender and equity aspects of agricultural disease assessment and management.”

The evaluation panel was unclear how the research could be implemented to make a difference to issues of equity. While it was clear that there were examples of research that would address the “problem space” of equities, the panel was less convinced about how

such research could be implemented to make a difference to the “solution space “of inequities (Tannahill and Sridharan, 2012).²

While the evaluation panel was appreciative of the focus of the research on pro-poor outcomes, it is critical that there is a well thought out *explicit* strategy that ensures that the research actually benefits the poor. In our experience, the intention of focussing on pro-poor outcomes is not enough. Examples of evidence that are needed are empirical research that positive incentives and a focus on differential exposure to risk have led to benefits to the poor. Further gender impacts of implementing food safety research also need to be demonstrated. Perhaps what is needed at this stage is an explicit clarity perhaps in the form of a theory of change of the conditions and mechanisms by which the utilization of the research could lead to impacts on equity.

Our concern in this section was driven by the absence of any clear document that indicates how the food safety research can impact equity outcomes.

This lack of focus on the solution space also mirrors work in other fields—as example, consider this quote from Starfield (2006, p. 14) on health inequities: “Despite the very large research literature on social determinants of health, relatively little is written that would inform the choice of policy alternatives to address inequities.”

To summarize, future work within food safety research needs to clarify, perhaps using a theory of change, how the research can be translated to impact equity. Additionally, evaluations can help in clarifying how scaling up the research can achieve the longer-term goals of reduced inequities in the impacts of food safety.

6.7. There is a lack of clarity on the process of scaling up and the role of the private sector in the scaling-up process:

There was enthusiasm among some reference group members and research stakeholders about the potential of scaling up of the food safety research. Examples of feedback that points to the enthusiasm that stakeholders have for the potential of ‘scaling up’ of the research are described below:

² It is useful to make a distinction between the problem space and the solution space of inequities. The problem space provides theory and evidence that enable us “to describe the characteristics of the issue of interest (‘problem’), how it changes over time, how it is distributed within the population, and what factors are associated with it (Tannahill and Sridharan, 2012, 157-158). The solution space seeks to answer: what works to address such inequities. It promises to offer ‘off the shelf’ answers, though currently more often the chosen solution is that which is seen as an acceptable fit to the problem. Such knowledge is often ‘incomplete’ for the successful implementation in specific settings – for example, implementation of established interventions will require the incorporation of knowledge about local conditions for the intervention to work optimally (Tannahill and Sridharan, 2012, p. 158).

- *The most promising aspect of this program is that the research provides answers which can really make a huge impact, by preventing illnesses and saving lives and livelihoods. For example, mycotoxin research has led to solutions which make a big difference in improving food safety. The challenge remains to make these solutions be adopted and widely disseminated. It is exciting to see a suite of complementary activities being designed, along with the core biological science research. These include developing predictive tools for risk assessment, farmer participatory programs for adoption and dissemination, and engagement of boundary partners such as the private sector to create a market demand for the innovation through the AgResults Initiative for Aflasafe in Nigeria. (S02)*
- *The food safety research of A4NH will have a profound and positive impact on the well-being of households, communities, and countries as it is scaled out from the research phase to “real life” applications. (S07)*

However, despite this enthusiasm, there was a lack of clarity among many of the reference group members and research stakeholders on how this research could be scaled up: How would large scale impacts emanate from the food safety research? As noted earlier, a more expansive theory of change is needed that includes more explicitly thinking on the process of scaling up, the roles of different actors in the scaling up process, and how different research findings apply in different settings.

It is probably worth remembering that the process of translating research innovations to scaled up impacts can be both convoluted, non-linear and lengthy. Consider the following insight on scaling up (Hartmann and Linn, 2008, p. 1): “More than anything else, scaling up is about political and organizational leadership, about vision, values and mindset, and about incentives and accountability—all oriented to make scaling up a central element of individual, institutional, national and international development efforts.” As A4NH transitions to the next phase, it is important to reflect on the explicit incentives that the food safety research offers to key individual, institutional, national and international actors.

On the point of incentives, the evaluation panel felt that the role of the private sector in the spread and adoption of specific research needs to be more clearly identified. This was a view that was also mentioned by a few. As example, consider this feedback:

Yes I think that A4NH food safety research is responsive to the food safety landscape. However I think that A4NH should focus more on how to bring private sectors in food safety and gradually work beyond the context of smallholder by moving more to

medium sized food production that represent a more important contribution to the general food safety situation. (S09)³

6.8. A more explicit communication and relationship strategy is needed to raise the awareness of food safety research

The critical challenge that the food safety research faces is how to traverse the “know-do” gap (Bennett and Jessani, 2011). An example of the challenge of the “know-do” gap that the Food Safety research faces is exemplified in the following statement (Bennett and Jessani, 2011, p. 3): “In an age where we know much, why are we applying so little of it?”

Some stakeholders including a majority of the reference group members felt that more could be done to raise awareness of the potential utility of the food safety research and to communicate the results in a more targeted manner. Further, some felt there needed to be greater clarity on how the findings of the emerging body of food safety research is contextualized and presented as it relates to specific settings.

Put differently, a knowledge translation (KT) (Lavis et al, 2006) strategy is needed to be developed on food safety by A4NH. Key aspects of a KT strategy include a focus on knowledge, dialogue and capacity (see Table 2 below)

Table 2. Key Aspects of a Knowledge Translation Strategy (Bennett and Jessani, 2011, p. 4)

- | |
|--|
| <ol style="list-style-type: none">1. Knowledge: KT efforts at any level depend upon a robust, accessible, and contextualized knowledge base.2. Dialogue: The relationships at the heart of KT can only be sustained through regular dialogue and exchange.3. Capacity: Researchers, decision-makers, and other research users require a strengthened skill-base to create and respond to KT opportunities. |
|--|

³ We received feedback from A4NH that disagreed with this finding, however relatively recent work by Jayne and colleagues shows a very sharp rise in the number of farms in the 5-100 ha category, i.e. not smallholders. See: (Antony Chapoto, Chewie Nkonde, Jordan Chamberlin, Milu Muyanga, Nicholas Sitko, Thomas S. Jayne (2014). “Is the Scramble for Land in Africa Foreclosing a Smallholder Agricultural Expansion Strategy?” *Journal of International Affairs*, Vol 67, No 2; and T.S. Jayne, Jordan Chamberlin, Derek D. Headey (2014). “Land pressures, the evolution of farming systems, and development strategies in Africa: A synthesis”. *Food Policy*, Volume 48, October 2014, Pages 1–17.

We think that the food safety research at A4NH needs more of an explicit strategy around each of the above KT points: specifically, more could be done to ensure that knowledge is communicated, more structuring of events to promote dialogue around the implications of food safety research are needed and a more explicit capacity building strategy to promote use of research/evidence is warranted.

Examples of feedback from stakeholders that could help develop a KT strategy include:

- “The relevant implementing and policy making institutions, be they at continental, regional or national levels do not demand research. This is partly because the structures for mutual accountability are either weak or non-existent in these institutions. Where there is no demand, there is often no supply. The other factor is inadequate platforms for dissemination of research products” (I05).
- “Lack of information, lack of network contacts, lack of coming together to share approaches and think through processes” (I02)
- Institutional fragmentation and overlapping responsibilities as far as food safety is concerned. Multilevel stakeholders seminars could help from bottom to top. It is important to introduce the tools in school and universities” (I01)

The feedback from most policy and practice stakeholders indicates that an explicit KT strategy is lacking. Further, there was a view that the packaging of food safety research needed to be presented in a way that was more likely to influence food and nutrition in multiple countries. Much more could be done to explore the mechanisms by which food safety research could have individual, interpersonal, and collective influence.

It is critical that the research on food safety is packaged and presented in a manner that influences food and nutrition in the countries of operation. (S14)

Many of the 8 influence stakeholders respondents were not explicit on how research from A4NH is being used. When asked in the Influence Survey whether decision-makers in the settings they work in discuss A4NH research findings and their implications, 37.5 percent of respondents (3 of 8) said yes and 62.5 percent said no. Two of the three who responded yes noted that this was limited to either a specific project or research area (I01, I05). Five of eight Influence Survey respondents indicated that A4NH research influences their organization’s activities.

Influence survey respondents were equally split on whether A4NH research on food safety changed their perceptions about the importance of food safety in developing country settings. Four of eight respondents indicated yes, and four indicated no. As described by one respondent: This is my domain and the project help to introduce the knowledge but did not change a lot (I01). When asked in the Influence Survey whether A4NH research on food

safety changed their views of how best to go about improving food safety in developing country settings, 37.5 percent of respondents (3 of 8) said yes and 62.5 percent said no.

One important decision that will confronts the leaders of food safety research with A4NH is which model of KT strategy to adopt. Lavis et al (2006) differentiate between the push, pull, exchange, and integrated models (Table 3). There was a concern from a few research stakeholders that the existing KT strategy within A4NH falls into the push model of KT. More needs to happen to make it closer to a pull or linkage and exchange models of KT.

Table 3. Models of Knowledge Translation (Bennett and Jessani, 2011, p. 4; adapted from Lavis et al, 2006)

“In the push model, the researcher’s knowledge is the principal catalyst for change, through attractively-packaged tools (e.g., syntheses, policy briefs, videos) that make findings more accessible. These techniques recognize policy contexts and pressures, but decision-makers are receivers of information. “Push” efforts provide decision-makers with information on a particular topic.

The pull model makes research-users the main driver of action. Decision-makers ask for the information, evidence, and research appraisal skills they think they need.

The (linkage and) exchange model rests on partnerships, with researchers and research-users collaborating for mutual benefit. Such partnerships may be short- or long-term, may occur at any point in the research or policy process, and may include priority-setting exercises, collaborative research projects, and create knowledge systems (e.g., databases). Knowledge brokers can play a crucial role in establishing these strategies.

The integrated model adopts the emerging Knowledge Translation Platform (KTP), a national- or regional-level institution which fosters linkage and exchange across a (health) system. KTP is the institutional equivalent of a knowledge broker, working to connect the needs of the policy process with the tools of research, and to infuse public dialogue with an understanding of research processes and evidence. KTPs may contribute to the creation of a user-friendly knowledge base, convene dialogues and meetings, and offer routine capacity building courses”

Perhaps the most consistent critical comment from a number of reference group members, and some policy and practice stakeholders was the lack of an explicit strategy for updating stakeholders on ongoing research. Examples of feedback received from policy and practice stakeholders included (similar feedback was received from the reference group members and the research stakeholders):

Through email posts only. It seems some included my name in the A4NH list serve. I don't think that this method is effective enough as people like me who receive scores of work-related emails a day might find a challenge in reading the email communication. Other dissemination avenues should be explored as well. (I05)

Often through my scientist contacts. Not particularly.....I would welcome receiving PDFs of suitable journal articles and reports. (I03)

If we get any research reports, it is because we actively sought it out. We are not getting this information through any dissemination channel we are part of. (I would suggest disseminating through food security and nutrition channels.) (102)

No. My institution has never received formal report or publications related to Food Safety program of A4NH. We use the information from__. But communication needs to be improved not only through media of electronic tools but face to face interaction with stakeholders.

(101)

7. ASSESSMENT OF PUBLISHED A4NH FOOD SAFETY RESEARCH

This brief write-up is based on a review of nine peer review journal articles generated by researchers associated in various ways with A4NH food safety research. A4NH recommended 12 articles from an original list of 54 publications,. Of the 12 articles, 9 were selected for review based on the substantive expertise of the panel. The twelve articles were selected by A4NH management to provide a strong sense of the range of food quality research carried out under A4NH and its potential for impact on food safety practice. The evaluation team chose to focus in depth on these articles to provide a strong evaluation of research quality, rather than more briefly review a wider range of publications. However, we use a broader list of 54 articles (examining titles and abstracts) when we evaluate gaps in the A4NH work.

The evaluation criteria agreed in the inception report were relevance, potential of impacts, effectiveness and quality of science. For this review of journal articles, we focus on relevance, quality of science, and potential of impacts. We use our own review of each article together with data on the journal impact factor, citations from Google Scholar, and views from ResearchGate to classify the strength of each dimension in one of three levels – high, medium, and low. Google Scholar is the accepted benchmark for assessing influence of an article on other scholarly work. We complement this with data from ResearchGate because the latter captures the use and influence of an article across a broader array of professionals and of indicators. This broader focus is important because practitioners are a key target audience for A4Nh work but are likely to publish at far lower rates than researchers. We close with a brief consideration of research gaps.

Table 4 groups the papers by topical category, brings together the complementary data for each paper from Google Scholar and ResearchGate, and presents our summary evaluation of each topical set of papers. Note that months since publication, citations on Google Scholar, and views on ResearchGate are sums across all papers in the topical category.

7.1. Relevance

We rated all the papers in the group as having high relevance, based on their focus on the so-called informal marketing systems that currently dominate African food systems and that will continue to play major roles in food provision for several decades. Until the present time, the balance in food safety work, and in funding for food safety improvements, has been disproportionately tilted towards either (a) food safety standards in importing countries and their impact on African exporting countries, or (b) large food companies operating in the African markets. The former is of direct importance only for a very small set of better-off farmers and companies. The latter are growing and will continue to grow

in importance over time; yet today they probably provide a minority of the food reaching consumers through markets. The work in A4NH helps to move the center of the debate towards African food systems as they currently exist and as most Africans actually obtain their food. Many articles show a strong understanding of how these systems operate and the possibilities and challenges for effecting positive change in them.

Beyond this, the papers cover foods (maize, groundnut, meat, milk) that are widely consumed and subject to important food safety problems; meat and milk are the least widely consumed of the set but will see their consumption grow the most rapidly and in so doing will pose new food safety challenges for these food systems. The papers also cover a range of important food safety agents: two on mycotoxins, and one each on zoonoses, bacterial infection, and brucellosis.

7.2. Quality of Science

The quality of the science in the nine papers was evaluated by the team primarily on the basis of its in-depth reading; the team approached this task as if they were reviewers for articles submitted to a journal. The team also considered the paper's citation record in Google Scholar. In assessing the papers' quality, the team did not focus on the research question *per se*, but rather on the methods used, the care with which those methods were applied, the extent to which authors noticed and provided explanations for anomalous findings (or simply indicated the need for additional research), and the extent to which the papers were rooted in previous literature.

The team's conclusions is that the quality of the research in the nine papers is uneven. At least two are quite strong and should influence anyone doing research in this area. Others occupy the broad middle ground of solid research that contributes to the knowledge base without being highly innovative or necessarily definitive in findings. Still others may achieve only limited influence.

More rigorous research would have been particularly valuable in one particular area: evaluation of the impacts of food safety interventions. This concern is heightened by the fact that the interventions discussed in the two papers were well-conceived by people clearly knowledgeable about African food marketing systems and show great promise for meaningful and important effects. Yet there was no rigorous impact evaluation in either paper. This is a major missed opportunity. It raises the question of how decisions are made within A4NH about research design and whether changes are needed in this internal process to overcome disciplinary and center boundaries.

7.3. Potential for Impact

For research to impact the behavior of relevant practitioners requires high quality research that is made visible to the right people and institutions. Typically to achieve such impact, a piece of research will need to influence other researchers, driving some critical mass of good research on and orientation to an issue, before impacts will begin to be seen in the behavior of, for example, food safety regulators or government or donor funding agencies. Too little time has passed to evaluate this kind of practical impact of the A4NH research. We therefore evaluate available evidence on the influence of the research on other scholars (in Google Scholar) and on a broader research- and practitioner community reflected in ResearchGate.

The consistency of research quality in A4NH needs to be improved. Yet there is enough quality in the reviewed research to achieve impact if that research becomes sufficiently visible. Google Scholar is the accepted standard for scholarly visibility. ResearchGate is a broader measure that is especially relevant for this set of applied papers largely targeted at practitioners. Not all practitioners participate in ResearchGate, of course, and their opinions about and use of the A4NH research are thus not fully visible to this portion of the evaluation. These are, however, the best available tools, and we suspect that the more influential practitioners do increasingly make use at least of ResearchGate.

Table 4. Summary assessment of nine peer-review publications supported by the A4NH food safety program, by chosen indicators and complementary visibility data

Topical Area	# of papers	Journal Impact Factors (Feb 2015)	Total accumulated months since publication (Feb 2015)	Total citations on Google Scholar	Total views on Research Gate	Potential Of Impacts		Summary assessment of topical set
						Level	Immediacy	
Contamination / prevalence of risk factors	3	1.50, 1.49, 2.75	55	13	161	M, M, H	L, L, L	An uneven set of papers. One of the three makes important contributions to new knowledge that could materially improve practice. Scholarly visibility and journal quality of this group is highest among the 3, but all seem low compared to broader literature. How to improve visibility?
Consumer valuations / preferences	2	None listed	34	1	Papers not listed	L, L	L, L	Two papers that need more presence in research community to assess usefulness.
Assessment of interventions	2	0.97, 0.97	66	3	208	H, H	H, H	Very interesting and potentially important papers. May have meaningful impact on practice. Rigorous impact evaluation would have added great value.
Other (1 broad review paper; 1 focused, technical socioeconomic research)	2	2.13, 0.69	39	15	126	H, M	L, L	Two very different articles: one high-end academic with little explicit attention to policy, another heavily focused on policy and not limiting itself to specific research results in reaching policy conclusions. Both papers likely to be useful.

Notes: H=high, M=medium, L=low. Journal Impact Factor from <http://www.impactfactorsearch.com/>. Views on ResearchGate from its site. Relevance and quality of science based on evaluators' review of each paper. Potential of Impacts based on those reviews and data from Google Scholar and ResearchGate. The immediacy of potential impact was classified high if the paper was based on some kind of programmatic intervention, low otherwise.

Visibility on Google Scholar: Scholarly visibility of the research so far is limited. The highest rate of citations of an individual article on Google Scholar is 12 over 25 months. Some papers have zero citations. It's not clear why this is so. One reason may be that the papers are nearly all relatively new – the oldest has been out for only three years and most came out one- or two years ago. Citation rate may be set to pick-up substantially over the next year or two as work by other researchers that was in course and is now in the submission phase comes out, potentially with citations of these pieces.

Proper contextualization is important in searching for reasonable benchmark expectations; work on European food safety and its impact on African producers, for example, achieves citation rates that cannot be expected in this group of literature focused solely on informal African food systems. Some potentially useful references are:

- Felicia Wu and colleagues, with nearly 800 citations since 2004 on six papers related to mycotoxin. One of these (Wu and Khlangwiset, 2010a) is focused entirely on Africa and has 61 Google Scholar citations and 63 views on ResearchGate. The latter is actually low compared to the set of A4NH papers, while the academic citations in Google Scholar are far higher. Liu and Wu (2010) has a global focus with substantial content on Africa; it has garnered 225 GS citations and 129 RG views. Wu and Khlangwiset (2010b) has 36 GS citations and 107 RG views.
- Wagacha and Muthomi (2008), with 191 GS citations and 149 RG views.
- Bankole. S.A. and A. Adebajo (2004), with 177 GS citations and 80 RG views.

Of the three papers in the A4NH set that treat the topic of mycotoxins, only one cites any of the above articles – Mutiga et al cite Wagacha and Muthomi. Should more of these articles have been cited?

Visibility on ResearchGate: Visibility on this platform is higher than on Google Scholar. In fact, as noted above, some of the papers in the A4NH set have higher ResearchGate views than the comparators above, despite having much lower Google Scholar citation numbers. Relevant comparators on ResearchGate include:

- James W. Oguttu, Cheryl M.E. McCrindle, Kohei Makita, Delia Grace (2014). "Investigation of the food value chain of ready-to-eat chicken and the associated risk for staphylococcal food poisoning in Tshwane Metropole, South Africa." *Food Control* (Impact Factor: 2.82). 11/2014; 45:87–94. 157 views.
- Courage Kosi Setsoafia Saba, Bruno Gonzalez-Zorn (2012). "Microbial food safety in Ghana: a meta-analysis." *The Journal of Infection in Developing Countries* (Impact Factor: 1.27). 12/2012; 6(12):828-35. 111 views.
- Enoch Owusu-Sekyere, Victor Owusu, Henry Jordaan (2014). "Consumer preferences and willingness to pay for beef food safety assurance labels in the

Kumasi Metropolis and Sunyani Municipality of Ghana". Food Control 12/2014; 46:152–159. [83 views](#).

- Oguntinyinbo (2014). "Safety Challenges Associated with Traditional Foods of West Africa." Food Reviews International (Impact Factor: 2.54). 10/2014; 30(4). [63 views](#).
- Limbikani Matumba, Christof Van Poucke, Emmanuel Njumbe Ediage, Sarah De Saeger (2014). "Keeping mycotoxins away from the food: Does the existence of regulations have any impact in Africa?" Critical reviews in food science and nutrition (Impact Factor: 3.73). 12/2014. [31 views](#).

Ogutto et al. was supported by A4NH; with its high number of views since only 2014, it is perhaps not coincidental that it focuses on South Africa, where capacity for food safety research and implementation is far higher than in other Sub-Saharan African countries and more food safety professionals are thus likely to be looking at new research. The reviewed A4NH papers lie about in the middle of these comparators in terms of views on ResearchGate, suggesting that this research is about as visible as other peer-review research in this area.

Our final judgements on the potential for impact were broken into judgements regarding potential *level* of impact and the likely *immediacy* of impact. Level was set in two steps: first based on a judgment about the quality of research, then adjusted by level of visibility to date (and taking into account for how many months a paper has been available).

We judged immediacy of impact as either high (if level was judged not lower than medium) and if the paper was focused on an actual intervention that could be replicated by others. Thus only the two papers that evaluated interventions received high ratings in this area.

7.4. Gaps

No set of nine papers will cover all relevant topics. To make up for these, we reviewed the titles and abstracts of the full set of 54 articles originally provided to the evaluation team in list form. In so doing, we note that the 54 (which include the nine that were reviewed in detail) show a good mix of micro research in particular country- and market settings, and broader comparative pieces that synthesize across various countries. This is an important observation, as there is no other set of institutions better positioned to carry out such comparative work.

Noting the gaps below does not necessarily imply a recommendation that they be filled by this program, as resources are limited and focus is important. We return to this issue in the final chapter.

1. None of the nine articles deal with fresh produce, and only one of the larger set of 54 does so (Keserue, et al., 2012, deals with bacterial contamination). Yet rapid urbanization and income growth means that demand for these items through markets is already growing rapidly and will continue to do so for some decades. Weak regulatory structures and farmer poverty lead to use of highly toxic chemicals, and of irrigation water contaminated with fecal bacteria and potentially other health threats such as heavy metals. The team would be interested in the thoughts of A4NH leadership as to why this product group has not received more any attention.
2. There is no treatment of the larger-scale formal sector. The literature's great strength – a strong focus on and understanding of the informal sector – will become a weakness over time as the systems are already formalizing, driven by continued rapid urbanization, strong income growth over the past 15 years, and more open economies. The rate of change at retail and further upstream is startling in some places. An example where ignoring the large-scale formal sector is a liability is Mutiga, et al. While this is an excellent article, it avoids the importance of large-scale maize milling. Even if the posho milling sector holds a 60% share, this means that nearly half (possibly over half in urban areas) goes through large-scale mills. In other countries, e.g. Mozambique, the large-scale sector clearly dominated at least as of the mid-2000s (Tschirley and Abdula, 2007)⁴. **Note that placing the A4NH food safety work in the context of these still largely informal but rapidly modernizing food systems may be a way to substantially increase its professional visibility while protecting its continued relevance.** We return to this observation in the final chapter.
3. It would be good to see a summative piece come out of this program: what is known, and not known, about the relative burden of various food safety problems across Africa, and what does this imply about research priorities? Again, a multi-center program such as A4NH should be well placed to generate such a piece, which could be vastly influential in the types of research that get funded in future. We note that Delia Grace and colleagues have now come out with a book on food safety in meat in informal African markets, which responds to some extent to previous points.

⁴ Tschirley, D. and D. Abdula (2007). "Toward Improved Marketing and Trade Policies to Promote Household Food Security in Central and Southern Mozambique: 2007 Update". Research Report No 62E, Ministry of Agriculture and Rural Development (Directorate of Economics), Mozambique. <http://fsg.afre.msu.edu/mozambique/wps62e.pdf>.

8. LEARNINGS ABOUT THE A4NH FOOD SAFETY RESEARCH: FEEDBACK FROM STAKEHOLDERS

In this chapter we outline key areas of learning from the evaluation. A critical question raised is: what are the learnings on the mechanism of influence of A4NH? The evaluation can help to refine the theory of change, identify new activities and outcomes that the evaluation panel was not aware of, and allow for formative feedback on A4NH food safety research.

Some of the themes discussed in this chapter intersects with themes in the summative evaluation chapter. *We describe ideas we have received from stakeholders that can help sharpen the theory of change rather than “average” or “consensus” views of the stakeholders. The summative evaluation chapter provides an assessment about a specific theme: this chapter discusses specific ideas that can help with an improved implementation of food safety research in the future.*

This section is organized to highlight learnings as one moves across the theory of change. The goal is to update the theory of change based on the findings from the evaluation—the updated theory of change is presented in the final chapter. Additionally this chapter touches on issues related to the prioritization of research and options for future research. This is followed by discussions on two dimensions of research projects, the type of studies being conducted and their size, and then a discussion of capacity building in A4NH. There are two sets of learnings related to spread and influence activities presented, including the dissemination of research and engagement with key stakeholders, and then a discussion of two ways in which A4NH research is being used. The final set of learnings relate to scaling up research, including the collective action and the inter-sector coordination needed, including with the private sector.

8.1. Prioritization of food safety research

One survey respondent identified the need for prioritization of food safety research (S05). The respondent noted there should be a specific process that has some independence from participating research centres. It was expected that this would be one way to bring a collective approach to the food safety research at A4NH instead of centers working independently. This comment brought to light that the research prioritization process is currently not well defined or well communicated at A4NH. There may be value in considering more systematic, transparent, inclusive and widely communicated processes to develop research priorities, and the need to make this process transparent so partners and stakeholders can understand the drivers behind A4NH research.

An example of why a more formalized prioritization process is needed comes from the following list of explicitly mentioned desired research areas (not all of which may be relevant or major problems), gleaned from the surveys:

- Arsenic in the food chain, the concentration of heavy metals in food and other health risks associates with intensive agriculture (S02)
- Pesticides, and their appropriate use (S06)
- Sanitation practices in wet markets of perishable products (S06)
- Vegetable production and consumption (S06)
- Connection of food safety research and bioscience, particularly related to practical low cost diagnostic solutions (S08)
- Small processors and their role in storage and transportation mechanisms for animal-source foods, fruits and vegetables (S09)
- Environmental contamination related to food production (S09)
- Antimicrobial resistances and chemical hazards (i.e. drug residues, pesticides) (S11)
- Urbanization, particularly in developing countries (S14)
- Focus on the extreme ends of the chain, e.g. pastoralists, landless urban livestock producers, slum markets, tourist places and high-end locations (for PR purposes and visibility) (S15)
- Meat safety, vector borne zoonosis, and emerging zoonoses (S18)
- The connection between water quality and food safety (S19)
- Interface of health, agricultural intensification and climate change (S20)
- The overuse of antimicrobial drugs (S21)
- Village poultry health and production (I08)

Of course this long list of potential topics cannot possibly be covered within the A4NH program; demand will always exceed potential supply so systematic prioritization is crucial.

8.3. Types of studies for A4NH research

A couple of survey respondents identified the need for specific types of research, including impact and scoping studies. One Stakeholder Survey respondent commented that impact studies were needed to provide convincing evidence to influence key decision-makers (S20). Another stakeholder noted that research on food safety interventions needs to understand not only their effectiveness but also how they are effective in different contexts (S12). Both of these comments reinforce our own conclusions from the document reviews, that the kinds of interventions being done are too potentially important *not* to have good impact evaluation. A third respondent identified the need for scoping studies to build an understanding of the evidence base for different risks to inform future intervention (S06). What these comments brought to light is the need to understand the different types of

studies that should be within the A4NH food safety portfolio, the appropriate mix and balance of studies to build a comprehensive set of food safety research programming.

8.4. The challenge of small research projects

One area of learning was related to the impact of smaller projects on the quality and influence of research. One Stakeholder Survey respondent discussed that small projects with limited funding meant they could not conduct their research comprehensively (S18). This comment is clearly reflected in the relatively low quality of some of the research that was reviewed in the previous chapter.⁵ One Influence Survey respondent echoed how limited funding impacts sample sizes and thus their ability to produce results that were sufficiently robust to influence key decision makers (I08). As above, this signals the need to consider the mix of A4NH food safety research grants, including the minimum amount of funding provided, the range of funding available, and how to leverage large and small projects to have maximum impact. These comments, and the research quality review, also again highlight the need for more careful prioritization and planning of research topics.

8.5. Capacity building that supports A4NH food safety research

Another area of learning was how A4NH's work on food safety is building capacities of multiple individuals and groups. The contribution to the food safety capacity at universities was noted above. Another example came from one Stakeholder Survey respondent who listed all the actors across the value chain that had been involved in capacity building, including primary producers, harvesters, processors, sellers/traders, graduate students and senior scientific staff (S15). One survey respondent noted that lab capacity for food contamination inspection was a specific need for their stakeholders (S09).

8.6. Dissemination of A4NH food safety research

Both Influence and Stakeholder Survey respondents provided information related to how research is disseminated. Feedback from the Influence Surveys provided insight into how those who are not direct stakeholders of A4NH receive information about A4NH research. This occurs in multiple ways, including through contacts and networks (I03, I08), A4NH's email list (I04, I05), being invited to an A4NH workshop (I06), and by actively seeking out the research, including through the website (I02, I07). There was also a lot of feedback on how research dissemination could be improved.

⁵ Important feedback to this report was received from A4NH about the nature of small projects: "The challenge of small projects is very real. Bringing food safety research from across the CG together in A4NH was supposed to improve coordination and help to address this problem, either by having more funding and larger projects or by aligning the small ones so that they add up to something bigger."

There were mixed opinions on online dissemination and some noted the value of face-to-face encounters. Two respondents recommended linking with public health nutrition networks (I08) and food security networks (I02) to expand distribution channels. These comments gave the evaluation panel a sense of how research dissemination currently occurs, and raised questions of how intentional and strategic current research dissemination approaches are at the A4NH level. Furthermore, there was feedback on the limited visibility of A4NH food safety research, with one Influence Survey respondent noting that not many agriculture and related organizations know about A4NH.

8.7. Engagement with in-country and regional stakeholders and policy makers

There was a prominent theme in multiple data sources about engaging and connecting with others about food safety research. It reinforced to the evaluation panel the breadth and scope of engagement that may be needed for A4NH food safety research to have an impact. A couple Stakeholder Survey respondents noted the need for A4NH to connect with in-country and regional stakeholders to understand their need and priorities, and ensure that A4NH recognizes regional variation within a country (S04, S08). Policy makers were another key stakeholder group that was identified. A couple of survey respondents felt that more could be done to connect with appropriate policy stakeholders, with one recommending increasing public discourse on food safety and the value of research findings as a specific mechanism for gaining focused attention of policy makers (S10). This indirect approach to engaging with policy makers indicates that more traditional, direct means of trying to influence policy makers may be insufficient on its own. Another Stakeholder Survey respondent suggested high-level policy events⁶ as a mechanism for showcasing research and its connection to nutrition and health outcomes for policy makers, among others (S12). An Influence Survey respondent noted that policy makers often do not demand research (I05). This is an important consideration when determining approaches to reach this group.

8.8. The use of A4NH research to disrupt and challenge “received wisdom”

One key area where significant learning occurred is related to how A4NH food safety research is being used. We expected multiple different types of uses for the research produced. However, the feedback from stakeholders allowed us to think about the use of research in new ways. For example, one Stakeholder Survey respondent discussed how the research they conducted challenged the existing understandings or “received wisdom” of a

⁶ It has been noted as part of the A4NH feedback to this report that the food safety research has been involved with a number of these meetings, including FERG, WHO IDP, OIE, HPAI meetings. This may point to a communications challenge. In any case, there should be an explicit strategy to ‘high-level’ policy engagement related to food safety research specifically.

problem (S13). In this case, the research conducted was able to demonstrate that a risk that the public was widely concerned about was actually negligible, while drawing attention to other parts of the value chain where there are greater risks for human safety. While it was expected that A4NH research would produce findings related to food safety, this comment demonstrates that in some cases, the findings are unexpected, disruptive, and can challenge widely held beliefs. This is a classic function of good research.

8.9. The use of A4NH food safety research to contribute to broader advocacy efforts

Another learning on the use of A4NH food safety research came from one Influence Survey respondent who self defined as an “interested observer” of A4NH food safety work (as opposed to an active participant or active user of A4NH research). The respondent noted he/she uses A4NH food safety research for advocacy purposes to inform consumer groups and policy makers of the importance of food safety and the associated hazards (I05). This demonstrates that one mechanism for A4NH food safety research to have influence is by feeding into bigger processes to create a change in perception and action related to food safety. Another use of A4NH food safety research that the evaluation panel learned about was how it is being used to contribute to academic development, including contributing to university curricula (S10) and engagement of specific universities in food safety research topics (S08).

8.10. Collaboration and collective action to drive impact

A few survey respondents noted the expectation and need for collective action around their research. One respondent noted that the collaboration of multiple A4NH research centers has build a collective research wisdom around agriculture practice, and this collaboration is a key driver of their success (S07). Some examples of synergistic connections across the A4NH program were also shared in the surveys. One respondent described that the focus on zoonoses complements other work that is being done in A4NH and that strong links exist within A4NH to foster this work (S03). Another respondent noted that research on aflatoxin has been a mechanism for connecting different CG centres to focus on scaling up technologies (S05). However, one respondent emphasized that centers (and the funding they receive) often work in isolation, and that collective action is needed, specifically around pushing a given technology (S05). These responses provide different perspectives on how well collective action is occurring within A4NH. Understanding what is driving collective action in one circumstance, and not in another could help A4NH, and its researchers, to learn how to better facilitate collective action. One survey responded recommended biannual program meetings that would bring together different research groups to share their work and identify potential opportunities an synergies (S11).

8.11. Coordination of Multiple Sectors

Another systemic issue that was raised by a few stakeholders was the fact that food safety is affected by and lies within multiple sectors. Connecting with and coordinating these multiple sectors is a significant challenge. The sectors include agriculture, animal industry and fisheries, health, commerce, policy, water and sanitation, and others (S02, S03). One stakeholder also noted decentralization in government means often having to work with multiple jurisdictions and districts (S03). When the connections and coordination is weak, it limits the impact of A4NH food safety research. Another stakeholder noted that the range of actors involved in food safety makes the development of food safety regulations and standards complex (S02). As with the challenge of private sector and trade interests above, the coordination of multiple sectors is a broader systemic problem. Similarly, A4NH may want to consider reflecting on their role in fostering coordination, and understanding what is within their sphere of control and what is beyond. As well, learning what has worked well to coordinate multiple sectors across complex problems may be insightful.

8.12. Managing private sector interests

A couple of survey respondents brought to light issues related to engagement with the private sector. One respondent noted that A4NH should be more focused on engaging with the private sector on food safety (S09). Another respondent noted the tension between food safety research findings and the interests of trade and business (S10). In particular, the respondent was identifying a significant challenge in the use of research – that many stakeholders that are able to act on research findings have to balance food safety and public health concerns with other concerns related to trade and business, and that food safety research often only becomes relevant when it poses a risk to commercial interests. While greater engagement of the private sector appears to be one option to address the concern of the second respondent, these comments prompted the evaluation panel to consider to what extent trade and business interests are a fixed reality within which food safety research must exist, or whether this can be influenced in specific ways by actors such as A4NH. If so, what are the mechanisms by which this can occur? Who does A4NH need to engage with to do so? And are there examples where food safety and public health interests, driven by research and evidence, have prevailed over commercial interests?⁷ If this is considered a significant barrier to the use and uptake of A4NH food safety research, there should be a dedicated focus to find creative mechanisms of shift the balance.

⁷ It was noted as part of the feedback from A4NH that the Kenya dairy story motivates such an approach to food safety. There is greater need to highlight examples of where this has occurred.

8.13. Scaling up based on A4NH food safety research

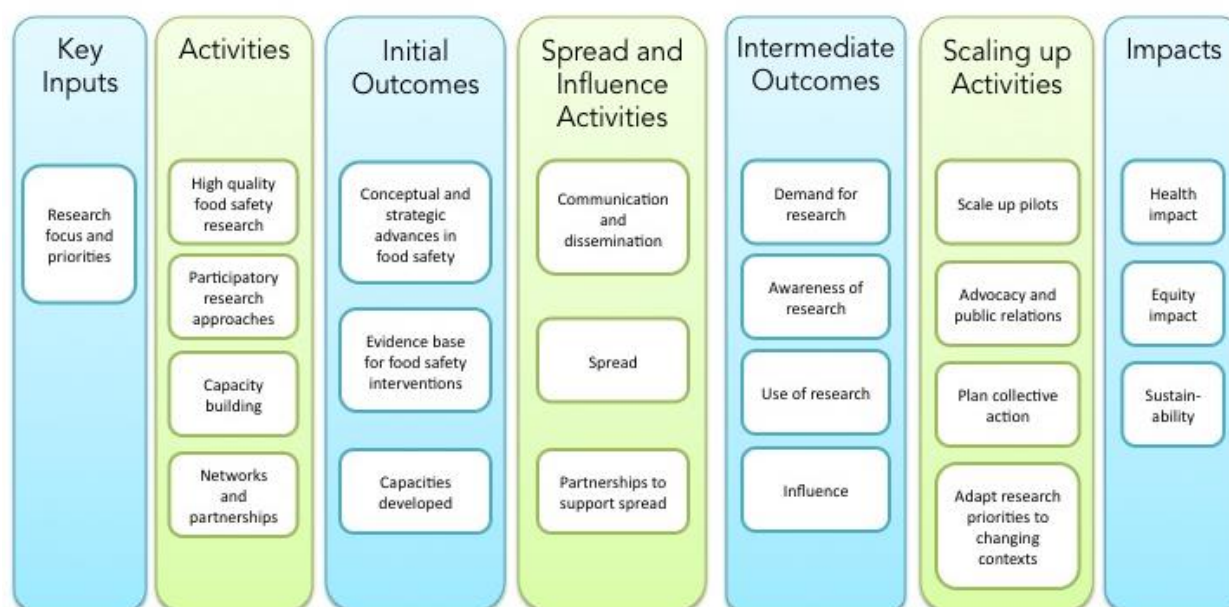
While there was much enthusiasm about the potential of scaling up of specific research projects, there was also a concern about the lack of vision and dialogue about resources needed to scale up (S07). One Stakeholder Survey respondent noted that because scaling out hasn't yet occurred, it is not possible to see the ultimate impact of the investment to date (S08). Another respondent was more critical, stating that there should be a clear plan for how research results will be scaled up and that to date, the involvement of partners needed to scale up results has been insufficient (S16). The panel recognizes that there is a process greater priority could be given to good quality evaluations of these experiences as well as to evaluation of pilots focused on testing the approach outside of dairy.

9. RECOMMENDATIONS

The evaluation panel's overall assessment is that A4NH food safety research is yielding important and scalable results, despite the limited resources. There is a strong sense that food safety research is very relevant; however, the quality of research was mixed. Program leads at A4NH need to develop a more explicit framework for scaling up, spreading awareness and increasing the salience of food safety research. A more explicit focus on spread, influence, scaling up and equity impacts is required.

Figure 12 below describes the Evaluation Panel's synthesis of the results described in Chapters 6 to 8 and a 'program logic' (Sridharan and Nakaima, 2011) that can help build a more refined theory of change for food safety research at A4NH

Figure 12: A synthesis of key themes



Key recommendations include:

- 1) **Develop a ‘program’ level theory of change:** While there are theories of change at the level of a research cluster (e.g. Aflatoxin, perishables), the theory of change for food safety research “program” is not clear. There needs to be a comprehensive theory of change at the level of the overall food safety ‘program’ that describes how it can have impact. Even though there are very different research projects within A4NH, a program level TOC that incorporates multiple research pathways has the potential of providing greater clarity on the identity of the food safety program and how the various research projects ‘synergize’. The relationships among core food safety research activities (including high quality food safety research, capacity building, participatory research, diagnostics and rapid assessment) and outreach and engagement activities that can effect change, need to be made more explicit. There is also need for clarity on how best to build the synergies across the activities, the organizations that need to act on the findings of food safety research and also the processes to reach target audiences.
- 2) **Improve the consistency of research quality.** The evaluation panel reviewed multiple published papers on food safety research conducted as part of A4NH. Some of the research is of very high quality, while other research is poor quality. Improving the consistency of research quality may require a combination of stronger incentives for senior researchers to mentor more junior researchers, stronger evaluation of the research quality of junior researchers, and difficult questions about research prioritization so that quality is not compromised by limited budgets.
- 3) **Build rigorous impact evaluation into food safety interventions.** Based on a review of the food safety documents, the evaluation panel found that there is a lack of well-designed impact evaluation studies. The panel felt that the interventions are too interesting and potentially important to lack credible evidence on impact. Currently, evidence related to the effect sizes of interventions and what works under what contexts for A4NH food safety interventions is not available. This is a major gap that the program must rectify.

Spread and Influence

- 4) **Strategically target communications:** One consistent message across the data is the need for more targeted communication, specifically, a series of special targeted communications that clearly identify the results of A4NH food safety research. Such communication should also have a clear branding as A4NH food safety research. A review of existing communications and outreach activities to assess whether the right people are being reached with the right messages would be valuable, and the communication strategy should be revised based on the findings.

- 5) **Develop a framework of use and influence:** The use and influence of A4NH food safety could be enhanced with a clear framework that identifies the key stakeholders who can help ‘spread’ research results and the explicit mechanisms through which such stakeholders could be influenced. There needs to be a more explicit understanding of the steps being taken to reach specific stakeholders and target key messages. The evaluation contacted a number of policy and practice partners identified by A4NH. A key challenge the evaluation encountered was the low response rate of these Influence Survey participants. A number of the targeted Influence Survey stakeholders noted that they were not in a position to comment on A4NH food safety research as they were not aware or did not feel connected to it. As A4NH food safety research continues to evolve, it would help to target potential influence stakeholders more specifically. Raising the salience of food safety research might not only require building evidence but also paying attention to influence mechanisms.
- 6) **Organize spread events to raise the salience of research:** There needs to be well considered “spread” events to help bring together researchers from outside and inside of A4NH, policy makers and practitioners, including NGOs, private companies and local and national governments. Such an event could highlight the knowledge translation challenges of food safety research, emerging knowledge on best practices, impact evaluation results and translating results into practice. It would also allow for the development of multiple, compelling narratives about the potential transformational and development pathways of A4NH food safety research.

Scaling up and adaptations of research

- 7) **Plan for scaling up of research:** Connected to the feedback on the ‘program’ level theory of change, the evaluation panel thinks the potential impact of food safety research at A4NH can be enhanced with greater clarity on the pathways of scaling up. This includes identifying the key actors who need to be involved, the resources required, and the key assumptions and risks in scaling up. In addition, relevant contextual features in the settings where interventions are to be scaled up need to be considered. Scaling up should be informed by the heterogeneous needs in different settings.
- 8) **Define the roles of the private and public sectors in taking research findings to scale.** The evaluation panel thinks that plans for spread and scaling up could be enhanced by outlining the various and distinct roles of the key private and public partners in taking research findings to scale. Key reference group members felt that one key action step is clarifying the role of the private sector in scaling up the findings from food safety research.

- 9) **Adapt research priorities to changing contexts:** A4NH food safety research is taking place in contexts that are continuously evolving. For example, while African food systems are still highly informal these systems are also modernizing, quite rapidly in some cases. Currently, a strength of A4NH food safety research is that it explicitly addresses informal food systems. However, the modern is increasingly mixing with the traditional/informal. The program risks being marginalized if it does not recognize this. We also suspect that more readers and practitioners will “tune-in” to the A4NH work if it is explicitly conceived as addressing food safety in Africa’s *rapidly transforming food systems*, rather than just its informal food systems. Done properly, such an orientation will both be true to the evolving situation and will capture the interest of a broader range of potential partners.
- 10) **There needs to be greater clarity on how food safety research can impact inequities:** Food safety research at A4NH aspires to impact equities. As an example, the Terms of Reference of the evaluation states: “To achieve improvements in food safety at scale, our hypothesis is that solutions will be part of sustainable private food markets. The role of public sector research will be to look at pre-competitive market issues, market performance, and equity issues such as current health burdens on poor people and the potential distribution of benefits and costs for the poor and women of interventions based not only on regulation but also on improved knowledge and capacity and changing incentives.” The evaluation panel feels there needs to be clarity on how food safety research that is taken to scale could impact equities. *There is a lack of documentation that describes an explicit pathway about how equity can be impacted.* As far as the evaluation panel is aware, the distributional impacts of food safety interventions still need to be explored. Some questions that need additional exploration include: What are the mechanisms through which improved knowledge and capacity and changing incentives impact equities? What incentives are there for the private sector to address problems of equities?

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APPENDIX

Terms of Reference for CRP-commissioned external evaluation of the food safety research in A4NH (Initial version - June 16, 2014⁸)

I. External evaluation in the CGIAR and A4NH

As part the reform of the CGIAR, an Independent Evaluation Arrangement (IEA) Office was established, located in FAO under the Fund Use Agreement between FAO and the CGIAR Fund. The mandate of the IEA is to lead the implementation of the CGIAR Policy for Independent External Evaluation, through the conduct of strategic evaluations of major research programs of the CGIAR and the development of a coordinated, harmonized, and cost-effective evaluation system in the CGIAR. A key element of the evaluation system is the CRP-commissioned external evaluation (CCEE) of major research areas of CRPs. While the number, theme, and scope of CCEEs are agreed jointly between the CRP and the IEA, it is recommended that the majority of programming (by budget) be covered by an external evaluation during each 6-year CRP evaluation cycle.

From its beginning in 2012, A4NH has been organized around 4 research themes or flagships” (Table 1). Three of the themes have been identified for evaluation during the first phase of the CRP due to their size and stage of research. HarvestPlus, the program that implements the biofortification agenda, had a donor-supported external review of its entire program in 2012. Within the Agriculture-associated diseases (AAD) theme, the “Food Safety” sub-component will be assessed in 2014 and the “Integrated programs” subcomponent of the Integrated Programs and policies theme will be evaluated in 2015.

The results of the evaluations are intended to inform decisions by CRP managers and stakeholders (including funders) as well as serve as building blocks for the external evaluation of the overall CRP. We recently learned, however, that A4NH, is one of five CRPs that will undergo a CRP-commissioned Review and Validation Study (RVS) rather than a full IEA-commissioned external evaluation during the first phase of the CRP. The RVS will be conducted in late 2014 and early 2015, concurrently with the Food Safety and Integrated Programs CCEEs. The [TORs](#) are still being finalized, however we expect that the A4NH RVS will complement the more technical focus of the CCEEs by looking specifically at organizational and partnership issues, especially as they relate to contributing to outcomes and impacts at scale.

The present terms of reference relate to the evaluation of food safety research in A4NH.

2. Purpose of the evaluation of food safety

⁸ This TOR is based on guidelines from the CGIAR IEA. It was written by Nancy Johnson and includes comments from John McDermott, Delia Grace, Mahendra Dev (chair of the evaluation reference group), Rachel Bedouin (head of IEA), and other members of the evaluation reference group.

2.1 Evaluation rationale and objectives

A4NH contributes to the CGIAR system-level outcome (SLO) of improved nutrition and health. This is a new goal for agricultural research, which has mainly focused on productivity and more recently poverty and environmental sustainability. The amount of research that is intended to contribute to the goal of nutrition and health is small compared to other goals, but growing fast. One of the key areas where agricultural research has the potential to make an important contribution to improving human health outcomes, especially in developing countries, is food safety.

The objective of this evaluation would be to provide evidence-based guidance to CRP management for the remainder of Phase 1 (through 2016) and for the design of the second phase of the CRP. A4NH is currently planning to expand research on food safety, so an important role for the evaluation will be to assess the extent to which the current food safety research in A4NH has the key elements in place—e.g., a relevant, demand-driven agenda; productive research teams; appropriate and effective partnerships; plausible impact pathways and theories of change—to utilize additional resources to expand its capacity to deliver high quality research and related outputs that will contribute to development outcomes.

Research theme	Average Annual Budget 2012-14 (% W1 & 2)	Percentage	Research areas	Average Annual Budget 2015-16 (% W1 & 2)	Percentage
Bio-fortification	\$41.0M (20.9%)	52.3	Bio-fortification	48 (20%)	46.1%
Value chains for enhanced nutrition	\$6.6M (57.6%)	8.4	Value chains and healthy diets	8 (50%)	7.7%
			Nutrition sensitive-landscapes	5 (50%)	4.8%
			Food safety	15 (50%)	14.4%
Agriculture-associated diseases	\$11.6M (43.5%)	14.8	Agricultural disease risk	5 (50%)	4.8%
			Integrated programs	18 (25%)	17.3%
Integrated programs and policies	\$13.8M (22.8%)	17.6	Cross-sectoral processes	5 (35%)	4.8%
Total A4NH	\$78.4			\$104M	

2.2 Evaluation stakeholders

⁹ Based on CRP extension proposal (Apr 25, 2014). 2015-2016 estimates based on basic rather than expanded budget scenarios.

The primary stakeholders are A4NH management and the CRP's governance bodies (IFPRI BOT and Independent Advisory Committee). Since the results have implication for the size of investment in food safety research, potential funders will also have an interest in the findings. GiZ, a longtime funder of food safety research in the CGIAR, has agreed to participate in the evaluation.

As laid out in the CGIAR evaluation policy, the IEA is also an important stakeholder in the evaluation. We expect there will be considerable opportunities for learning about the CCEE process and the value of evaluation findings within A4NH, IFPRI and other CRPs.

Because of the formative nature of the evaluation, we are particularly interested in involving external stakeholders in the process. On May 13 a stakeholder consultation was held in Addis Ababa, Ethiopia as a side event to the IFPRI 2020 conference. Outputs from the event will feed into the evaluation matrix during the Inception Phase.

3. Scope of the evaluation

3.1 Program content

3.1.1 Overview of A4NH

A4NH, led by IFPRI, has 11 participating centers: Bioversity, CIAT, CIMMYT, CIP, ICARDA, ICRAF, ICRISAT, IITA, ILRI, IRRI, WorldFish

As described above, the CRP has four components:

- Value Chains for Enhanced Nutrition which focuses on opportunities to improve nutrition along value chains to increase the poor's access to and demand for nutritious foods
- Biofortification which aims to improve the availability, access, and intake of nutrient-rich staple crops
- Agriculture associated diseases which addresses food safety issues along the value chain, as well as control of zoonotic diseases and the better management of agricultural systems to reduce the risk of human diseases
- Integrated Agriculture, Nutrition and Health Programs and Policies which addresses integration among the agriculture, nutrition, and health sectors, at both the program and policy levels.

The small program management unit provides overall leadership, administrative and financial management, and support for cross-cutting issues such as evaluation and gender. A4NH is managed by the [planning and management committee](#) and governed by the [independent advisory committee](#). Table 2 contains information on the composition of the A4NH governance and management bodies.

Table 2. Participation in A4NH governance and management (source: A4NH extension proposal)

	% women	% from developing counties
Independent Advisory Committee, 6 members	33%	33%
Planning and Management Committee, 8 members*	50%	13%
Center Focal Points, 9 members**	78%	44%
Program Management Unit, 7 members	86%	29%

**one position currently vacant; total includes the CRP director*

*** 9 members rather than 11 since CIMMYT and IRRI are represented by Harvestplus*

3.1.2 Overview of food safety research

The most risky food chains in terms of food safety are for some of the most nutritious foods – animal-source foods and fresh fruits and vegetables. Among staple crops (maize, groundnuts, sorghum), the most serious food safety problem is aflatoxin contamination. Food safety research in A4NH focuses on assessing and managing food safety risks along the value chain, generating targeted solutions in specific value chains as well as better understanding of food safety and risk assessment in food systems in order to improve the design and targeting of public sector food safety investment.

To achieve improvements in food safety at scale, our hypothesis is that solutions will be part of sustainable private food markets. The role of public sector research will be to look at pre-competitive market issues, market performance, and equity issues such as current health burdens on poor people and the potential distribution of benefits and costs for the poor and women of interventions based not only on regulation but also on improved knowledge and capacity and changing incentives.

A4NH works in formal and informal markets. For perishable, nutritious foods, informal value chains will continue to be important at least in the near term. For staple grains, formal markets may be an important pathway for stimulating uptake of technologies and practices that mitigate aflatoxins, however even in these markets government systems to support food safety are often still emerging and consumers' choices may be limited by income and information which means that the most important incentives to safe production – private demand and effective government regulation – are lacking. New approaches to food safety that support and are supported by a range of incentives – social-, market-, or farm-based – need to be developed and tested to encourage farmers and other value chain actors to produce quality and safe products (both in formal and informal value chains). New institutional arrangements, including public private partnerships, will be important in delivering food safety that meets multiple health and economic goals. These arrangements may fill the key challenge of credible food safety assurance. New technologies and business innovations for detecting and managing hazards on-farm and post-harvest will also be developed, tested, and scaled up.

Notwithstanding the focus on market-based solutions, it is likely that specific, well-targeted interventions will be required to support poor consumers and other value chain actors, and A4NH research will contribute to their design and validation. The targeting should consider opportunities for groups of poor people to benefit (including comparative advantage for certain

foods such as dairy or vegetables) as well as the need to prevent the poor from being exposed to increased risk of harm from unintended consequences of an intervention (for example segregated markets arising from improved ability to detect aflatoxin contamination).

The main centers involved in food safety research in A4NH are IITA, ILRI, IFPRI and ICRISAT. A4NH also coordinates aflatoxin-related research with the Grain Legumes and Maize CRPS. Prior to the establishment of A4NH, the main areas of work in the CGIAR on food safety were around identification and testing of aflatoxin control technologies (bio-control, storage, breeding, diagnostics and integrated control in value chains) and improving food safety in informal and formal dairy value chains (East Africa and South Asia). Table 3 describes work carried out under Phase 1 of the CRP and what is planned for the extension phase¹⁰.

Table 3. Food safety research in A4NH, by phase of program (source: A4NH extension proposal)

Research Clusters	Phase 1 2012-14	Extension phase 2015-16	Partner CRPs
Aflatoxin	Efficacy testing in 2 countries; production facility for scaling out aflasafe™; testing of pull mechanisms for aflatoxin control in maize feed and food chains; scoping studies of aflatoxin risk and control in India; studies on aflatoxin risks, mitigation for animal feeds, and consumer WTP; diagnostics (e.g., rapid field tests)	Expand bio-control product development and testing across 8 African countries and 2 South Asian countries; support policy makers and value chain actors at regional and national levels on risks and mitigation options; stronger evidence on links between aflatoxins and stunting; pilot test control options for aflatoxins in animal feed; test rapid field diagnostics and pilot test control programs in high-risk areas	Grain Legumes, MAIZE, LaF
Perishables, mainly animal source food value chains	Rapid assessments of food safety in ASF value chains (with nutritional quality ¹¹); synthesis of PRA cases; evaluation of past food safety interventions and plans for scaling out; pilot testing of food safety interventions in ASF value chains	Expand food safety research (fish in Bangladesh and Zambia; vegetables associated with wastewater); engage private sector on arrangements for food safety supporting participation of poor; strengthen burden and cost-benefit analyses	LaF

3.2 Evaluation coverage

¹⁰ Comment from a member of the reference group: I think quite an important aspect of the food safety work in animal source food value chains is that there are a lot of connections with nutrition research, which was also captured by the rapid assessments mentioned below. As the agrihealth community is steering towards more and more integration and addressing complexity, I would recommend mentioning this aspect of the work.

¹¹ In LaF value chains: dairy (Tanzania), pigs (Vietnam, Uganda), fish (Egypt), small ruminants (Ethiopia, Senegal).

The evaluation will cover all food safety research and related activities such as capacity building, communications and partnerships in A4NH. The evaluation period is from 2012 to mid-2014. Since the program contains major research activities initiated prior to the launch of A4NH, they will need to form part of what is to be evaluated, especially since they are most likely to be moving towards achievement of outcomes and impacts through uptake and use of outputs by partners. Specific projects to be included will be identified during the evaluation preparatory period, based on an inventory of project maintained by A4NH. Results from past research projects will also be considered to the extent that they form part of the evidence base supporting the theories of change for food safety research in A4NH.

4. Evaluation criteria and specific questions

The evaluation will address the following criteria: relevance, efficiency, effectiveness, impact, sustainability and quality of science. Given the specific objectives of the evaluation, relevance, effectiveness, impact and quality of science will receive particular attention. Some key issues around each of the priority evaluation criteria and potential evaluation questions are:

Relevance - Is the research program suitably designed to address key food safety challenges facing target beneficiaries¹²? This could be reflected in the relative emphasis placed on, for example, value chains for export or for domestic consumption; producer practices or consumer awareness; technical issues or socio-economic aspects. Does the research program have a high or low priority in partner countries and how is this apparent? Was the process and justification for the choice of priority research areas clearly articulated and sufficiently evidence-based?

Impact– Since A4NH is a new program, this evaluation will focus more on the potential for impact than on impact achieved to date, though that will be assessed where evidence is available. The panel will assess A4NH's approach to food safety as described in program documents and articulated in the theories of change. Questions for the panel could include: Is the A4NH approach to food safety convincing and well supported by evidence (including results from past programs)? Has the program undertaken or planned ex-ante impact assessment to help validate its chosen focus? Are the impact pathways and theories of change that have been developed to date appropriate, well-constructed and realistic in terms of the potential of the research to make a measurable contribution to A4NH's intermediate development outcomes (IDOs¹³), especially the IDO on reduced exposure to causes of food borne diseases? Is there a strategy in place, supported by adequate resources and mechanisms, for promoting uptake and use of research outputs? To what extent have research outputs been taken up by different target groups (producers, food industry, consumers) and what have been the key drivers for this? Are all potential impacts on target beneficiaries, both positive and negative, adequately

¹² According to the results framework, the target beneficiaries are consumers currently facing high levels of exposure to food borne disease. Other actors such as producers, traders, policymakers etc are expected to see and benefit from the outputs of the research, towards the goal of reaching the target beneficiaries.

¹³ A4NH's IDOs are improved diet quality; reduced exposure to causes of agriculture-associated diseases; empowerment of women and marginalized communities; and improved cross-sector policies, programs and investments. Food safety research is specifically targeted at reduced exposure to food borne disease and women's empowerment. Policies are expected to play an important role in achieving that outcome.

considered? Is gender adequately integrated into the theories of change and into monitoring and evaluation frameworks?

Effectiveness – The evaluation will assess the extent to which food safety research in A4NH is organized to deliver the research results and related outputs that contribute to planned outcomes and impacts. Some potential question for the panel include: What have been the major research results and other outputs produced to date? To what extent have targets been reached and why (or why not)? Is research adequately disseminated through partnerships and appropriate communication mechanisms? What is the strategy for capacity building and how well is it working? Has the CRP added value in terms producing research outputs or in getting them disseminated and used? Is A4NH's strategy of delivering outputs through other CRPs such as LaF, MAIZE and Grain Legumes likely to be effective?

Quality of science - The evaluation will assess both the rigor and the innovativeness of food safety research in A4NH. Specific question could include: Are research approaches and questions clearly framed and informed by existing body of knowledge? How well is the food safety research integrating different disciplines (biology, economics, public health, epidemiology) throughout the research cycle, from defining research questions and hypotheses to analysis and interpretation of findings? How well is the food safety research connected to research and development interventions in the areas of agriculture, health, nutrition and trade? Are small and medium producers integrated in the programs? Is there a system in place for *ex ante* and interim peer review of research? Are the researchers well qualified to undertake the work, and would expansion of the size of the team put at risk the quality of researchers or of the research?

5. Evaluation approach and methodology

Specific questions will be defined with the evaluators during the inception phase of the evaluation, taking into consideration the issues that will likely be addressed by the RVS. The evaluation team will produce an inception report that defines, for each evaluation question, the indicators, data sources and methodologies to be used. This report will be the basis of the work plan for the team, specifying the responsibilities and timelines for the panel and the contributions of individual panelists.

6. Organization and timing of the evaluation

The evaluation is currently planned for mid to late 2014. This would allow the evaluation panel to benefit from the results of ongoing work on developing theories of change, as well as the outputs of a stakeholder consultation on food safety planned for May 2014 in conjunction with the IFPRI 2020 conference in Addis Ababa.

The members of the evaluation panel are:

Dr. Sanjeev Sridharan (leader), an evaluator from University of Toronto specializing in global health systems; link to [bio](#).

Dr. Katharina Staerk, a professor of veterinary public health policy and director of science and quality at Safe Food Solutions, Inc.; link to [bio](#).

Dr. David Tschirley, professor of International development and Agricultural, food, and resource Economics at Michigan State University, with expertise on informal markets in developing countries; link to [bio](#).

Following the guidelines of the IEA with regard to governance of external evaluations, we have formed evaluation reference group that will be chaired by a representative of the A4NH governing body, and consist of representatives of the CRP, partners and other stakeholders (Table 4). The role of this group is to engage and provide comments at key stages of the evaluation process.

Table 4. Reference group for the CCEE on food safety

Name	Organization
Mahendra Dev, Chair	A4NH IAC and IFPRI BOT
John McDermott	Director A4NH
Delia Grace	ILRI, leader of A4NH theme on agriculture-associated diseases
Alan de Brauw	IFPRI, leader of A4NH theme of value chains for nutrition
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