



Nurturing Food Systems Research

Lessons from the Food Systems for Healthier Diets flagship of the A4NH program

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The Food Systems for Healthier Diets (FSHD) program is a flagship under the A4NH CGIAR research program. It seeks to contribute to healthier diets for poor and vulnerable populations through a better understanding of food system-diet dynamics and through identifying and enabling innovations in value chains and policies. The present study aimed to systematically and methodically document, analyze, and synthesize the FSHD program's key learnings that emerged over the course of its implementation (2017-2022). This "learning journey" captured lessons learned within and between FSHD Clusters of Activities and within and between four focal countries (Bangladesh, Ethiopia, Nigeria and Vietnam). A combination of document review, interviews (with program team members, key researchers and country coordinators), an online survey (among research partners in the focal countries) and consultative workshops was used to collect these lessons. This report presents the lessons learned across nine learning questions. It provides conclusions on food systems research for healthier and sustainable diets, as well as on programming for this type of research, to help nurture future food systems research.

Key words: food systems research, healthier diets, loop learning, lessons learned, FS research principles for action

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List of abbreviations and acronyms

A4NH	Agriculture for Nutrition and Health
CAS	CGIAR Advisory Services
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CGIAR	Consultative Group for International Agricultural Research
CoA	Clusters of Activities
CRP	CGIAR Research Program
CCU	Country Coordination Unit
DDS	Dietary Diversity Score
FC	Focal Country
FBDG	Food Based Dietary Guideline
FP	Flagship Program
FS	Food Systems
FSHD	Food Systems for Healthier Diets
FSRC	Food System Resource Center
HD	Healthier Diets
HLPE	High Level Panel of Experts on Food Security and Nutrition
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ISC	CGIAR Independent Steering Committee
LMIC	Low- and Middle-Income Country
LQ	Learning Question
SDGs	Sustainable Development Goals
ToC	Theory of Change
UNFSS	United Nations Food Systems Summit
WCDI	Wageningen Centre for Development Innovation, Wageningen University & Research
WUR	Wageningen University & Research

Executive summary

Introduction

The Food Systems for Healthier Diets Flagship (FSHD) is the first of the five Flagship Programs under the A4NH CGIAR Research Program (2017 – 2022)¹. It responds to concerns about global dietary trends and to demands from countries to support food system transformations for healthier diets to address persistent problems of undernutrition, micronutrient deficiencies and overnutrition. FSHD seeks to contribute to healthier diets for poor and vulnerable populations through a better understanding of food system-diet dynamics and through identifying and enabling innovations in value chains and policies. FSHD has a strong focus on building innovative partnerships between researchers inside and outside the CGIAR, as well as between private, public, and civil society actors in national and sub-national food systems in its four focal countries, i.e., Bangladesh, Ethiopia, Nigeria and Vietnam. This report presents the FSHD learning journey, and lessons learned based on the implementation of a learning framework. This learning framework allowed for systematic documentation, analysis and synthesis of the key findings that emerged from the different research activities implemented across the program and in the focal countries.

Objectives & approach of the study

The scope of the learning journey is a facilitated learning process at the level of the FSHD team, within and between the three Clusters of Activities (CoAs), to draw lessons relevant for similar, future research, and to facilitate a learning process within and between the four focal countries on key findings and results of the program. The objectives/ambitions of the FSHD learning journey were:

- To generate and document lessons learned on food system research with a view to gathering insights to transform food systems for healthier and sustainable diets;
- To generate key lessons about the approaches used in the FSHD program, inform future research on what works and what does not, and identify key elements for success.

Box 1: Learning dimensions defined by and for FSHD

1. Integration of consumer perspectives and healthier diets in food system discussions at (inter)national level
2. Major program achievements and learnings relevant in supporting food system transformation
3. Conceptual progression around food systems over the course of the FSHD program
4. Healthier diets as entry point and consideration for (environmental) synergies/trade-offs
5. Relationship between tradeoffs and healthier diets as main focus
6. Integration of equity and inclusion in research activities and approaches
7. Program contextualization through stakeholder engagement to make FSHD fit for purpose in the different country contexts
8. Influence of FSHD's evidence base and stakeholder engagement on policy makers and other stakeholders, nationally and internationally
9. Principles for action reflecting a systemic approach
10. Overall lessons learned on food systems research design and programming

Based on consultation rounds with the FSHD program team and key resource persons, learning questions were defined relating related to the learning dimensions as shown in Box 1. Drawing upon literature on single, double and triple loop learning, a data collection strategy was developed using a combination of methods, including a document review, interviews with the FSHD program team and

¹ IFPRI (2016): CGIAR Research program on Agriculture for Nutrition and Health: Proposal for phase II 2017–2022

the country coordinators, an online survey in each of the focal countries to reach out to key resource persons participating in FSHD, and reflection sessions with the program team and PhD candidates to jointly reflect and validate the findings to the learning questions.

Highlights of the findings

1. Integration of consumer perspectives and healthier diets

Key findings on the integration of consumer and HD perspectives were that FSHD has contributed to:

- Increasing attention for FS transformation for healthier diets at the country-level. This happened in some countries more concretely than in others. In Ethiopia and Vietnam it materialized in concrete actions, such as research in support of the development of food based dietary guidelines or the Healthy Eating Index. In Bangladesh and Nigeria it translated into more generalized actions aimed at raising awareness around FS for researchers and policy-makers.
- Mainstreaming FS and HD considerations in agricultural research and development, both in the domain of international agricultural research as well as at national levels. More awareness was observed to address consumer perspectives and diets, alongside considering production and/or processing issues.
- A wider recognition of food being more than just a commodity or product among researchers, also representing other human values. Adopting a dietary angle and appreciating the multiple ways people are impacted by what they eat contributed to a shift in perspectives of economists and agriculturalists alike.
- Shaping, as a catalyst, the global discourse on FS as part of a wider movement embracing the FS approach. This became most apparent in the 2021 UNFSS dialogues, currently considered the most important carrier of the FS discourse at both national and international levels.

2. Major achievements and learnings on FS transformation

Even though respondents were hesitant to directly attribute achievements to the program indications were that FSHD laid the ground for future food system research programs and practitioners by contributing to:

- Generating a resource base for FS researchers and practitioners which consolidated in the Food System Research Center (FSRC)², including a variety of FSHD outputs ranging FS diagnostic methodologies, tools and indicators for FS assessment and food environments, to intervention studies and FS governance studies.
- Consolidating FS concepts and popularizing FS thinking. Through thorough conceptual explorations FSHD was able to define the concept of FS innovations for FS transformation and to translate this into a typology supporting practical use.
- Highlighting important dynamics underpinning FS transformations. FSHD explored FS transformations and targeted innovations in support of desired transformations for healthier diets. A key learning was that FS transformations seem to be less complicated in low-income countries than in middle-income countries because the value chains are shorter, institutions are smaller and governments seem to have more leverage on nudging FS in a given direction.
- Building capacity and strengthening partnerships for FS research, which was considered an achievements in its own right. These included the FSHD program partnership, partnerships formed in the focal countries, with groups of researchers, and young scholars (MSc, PhD).

3. Conceptual progression around food systems

FSHD contributed to advance the conceptual thinking around FS over the course of the program. This translated in various conceptual shifts:

- From a linear to a multidimensional FS thinking. FS were initially conceptualized in a rather linear way building on value chain approaches adopted from previous programs. A more multidimensional perspective was developed while working with the HLPE framework as guiding framework throughout the program.

² A4NH Food System Resource Center; a service from A4NH's research flagship Food Systems for Healthier Diets, <https://a4nh.cgiar.org/food-systems-resource-center/>

- From a buzzword to an operational FS concept. One of the most significant contributions of the program was the adoption and/or refining of some of the FS concepts that now serve as a fundamental basis for the FS research community.
- From a static to an inherently dynamic FS perspective. FS were initially viewed as relatively static, calling for interventions to bring about change. Over the course of the program, the understanding shifted toward FS being inherently dynamic, and there were growing insights relating to the different components and how their interrelations were constantly transforming under the influence of multiple drivers. From this new perspective, the program logic became about identifying innovations to steer FS transformation in a desired direction.
- From general to more contextual FS approaches. A growing recognition emerged for the multiscale nature of FS (from global to regional, national, and local) and the need to not only diagnose issues but also to leverage solutions and associated transformations across the different scales of FS.

4. Healthier diets as entry point to address trade-offs and synergies in FS research

FSHD program considerations for the environment or other trade-offs in relation to healthier diets were relatively limited and not explicitly integrated in the program:

- The focus on healthier diets was an effective compass to navigate FS complexity. It was also reported to be an effective point of convergence between the different areas of expertise and, as such, a strategic opportunity for FS programming. But at the same time it was acknowledged that the healthier diets focus also carried the risk of simplification, and overlook other outcome areas (environmental, economic, social), and trade-offs or synergies.
- Environmental trade-offs remained an element of the FSHD narrative with little evidence on how this was operationalized in the program. FSHD was thus reflecting responsiveness to the international agenda on environmental and sustainability concerns without making major advances to concretely integrate and address these concerns through the program.
- The need to prioritize between the nutritional and the environmental outcomes in LMICs remained an ongoing debate, particularly from the perspective that nutritious food and healthier diets, requiring appropriate handling from farm to fork, are more resource-intensive, even in LMICs.

5. Integration of equity and inclusion

Considerations relating to equity and inclusion were not integrated in the FSHD program by default:

- Gender and youth considerations have not been addressed consistently across the program, mainly resulting from a limited available expertise around these within the program.
- Critical shortcomings were mentioned relating to how social outcomes were handled. Defining social inclusiveness in terms of gender, more particularly women, and youth considerations only was criticized by respondents for being too narrow as a focus, easily overlooking FS issues faced by men and even bearing a risk to reinforce existing gender roles in undesirable ways.
- Data gaps were observed when it comes to proper and responsible integration of social outcomes, due to the concealed nature of the equity and informal labor issues associated with FS in the focal countries, not translating well into accessible data. These important data gaps were often reported as the most significant barriers to apprehend equity issues.

6. Program contextualization through stakeholder engagement

The FSHD program deployed working with local partners as an explicit strategy to contextualize its research and activities. Enabling factors for contextualization were:

- The small number of focal countries involved in FSHD. This programmatic decision allowed the FSHD program to dive deeper into building an understanding of (sub)national food systems, to establish relationships and be responsive to country needs and demands.
- Collaboration with anchor institutes well-aligned with A4NH. Building on the existing collaboration with CGIAR in each of the countries was critical in leveraging their networks to allow FSHD to better connect with the country contexts.
- Putting into place Country Coordination Units (CCUs) was vital. They helped establish active linkages with policy makers which contributed greatly to contextualization. On the other hand, the experiences showed that the CCU's actual mandates and performance indicators were not very strictly or clearly defined, making successful contextualization prone to individual task perceptions and competences.

- Having a shared understanding facilitates stakeholder collaboration. It can pertain to a shared understanding of a problem to be addressed, a shared understanding of the concept of “food systems”, a common research agenda, the collaborative design of the program, or of the needs of stakeholders.

Non enabling were:

- Having no defined stakeholder engagement process in place at the onset of the program, which led to different processes used in the different countries. These differences remained palpable throughout the program which led to the conclusion that timely stakeholder engagement in the program should be taken on board, including in the formulation stages of program development.
- The initial sequential structure of the CoAs constrained stakeholder engagement, and was one of the reasons to reconsider the program structure to allow for stronger stakeholder engagement across the CoAs and not only include technical aspects of FS innovations (and eventually transformation) but also the political and governance aspects as well as buy-in from societal actors.
- Externalities constituting barriers to stakeholder engagement related to the Covid-19 pandemic, and the conflict erupting in Ethiopia.

7. Influence of the program

FSHD has had a modest impact or influence on policy makers, nationally or internationally.

- Influence of the evidence base generated under FSHD was (still) barely visible. Partly because it takes time for results generated in an ongoing program to be embraced. And partly because some influence may never become visible when it comes to FSHD evidence indicating potentially harmful policy ideas and thus helped to prevent them from being implemented.
- Various mismatches were flagged between research and policy processes. Policy questions emerging from stakeholder consultations did not always touch upon academic interests, and researchers were not always aware of the realities faced by policymakers. A general acknowledgement was, though, that generating evidence by itself was insufficient to impact on policy, as policymaking is by definition a multifaceted process.
- Practically, the FSHD monitoring and evaluation system was not designed to capture research uptake and monitor its influence.

8. Principles for action for a systemic approach

FSHD has generated key insights on how to put food systems research into practice. Key principles for action which support the adoption and implementation of FS research were:

- Cultivate a learning attitude to understand and develop ownership of a FS approach, at the individual and program level, whereby research experiences go hand in hand with learning experiences, grounded in learning by doing and taking time to conceptualize and bring up the principles of systems thinking in program dialogues.
- Build on commonly accepted FS frameworks to remain focused. FSHD adopted a general FS framework and articulated theories of change which were found to give good guidance to the application of a systematic approach. It helped to create a shared language and allowed for making deliberate choices concerning studies and analyses. It also helped to define research scopes without losing sight of interlinked or adjacent food system areas and the potential trade-offs and/or synergies to be considered.
- Look at food systems across scales and levels. A FS approach brings different problems together allowing for research of different issues across scales, levels and disciplines. An important lesson was that one needs to invest in understanding how FS are understood at the different levels (local, national, regional, or global) in order to engage meaningfully with the stakeholders at each of these levels. It is by studying the different levels that FS connections – or disconnections - start to emerge.
- Contextualize FS research approaches. The FSHD program adopted a diets-oriented approach in different country contexts where collaboration was sought around problem definition, not only based on the disciplinary expert analysis, but also by engaging other stakeholders, and building on ongoing policy processes. In practice, this meant organizing interaction, requiring a lot of coordination skills. A key ingredient for success was the in-country boundary-spanning work by actors connecting groups of stakeholders. Working with in-country institutions with broad networks made this possible.

9. Lessons for FS research design and programming in brief

FSDH has led to a multitude of insights with a view to program planning and research design. Applying a loop learning lens, key lessons were:

- Paying attention to a researcher's individual development. Becoming a FS researcher was described as a process of learning by doing. Researchers need to balance between working from a holistic perspective, while they also need to define and address targeted research questions limiting their research scope. Collaboration between disciplines is required to adopt and ensure that different components of the FS are addressed, for which not every researcher is well equipped. Not only at the level of disciplines but also at the level of joint research techniques more collaboration and synergies are required, posing additional emphasis on the collaborative skills of the individual researcher, also with a view to contribute to impact for which researchers need to interact with stakeholders of various kinds.
- Facilitating interagency collaboration. FSDH, being part of a wider CGIAR program (A4NH), adopted a systemic approach to management and governance, assuming principles such as flexibility, adaptability, system based problem framing, and responsiveness, to facilitate interagency collaboration. Assigning this role to a party not embedded in CGIAR was considered helpful.
- Ensuring adaptive program planning and responsive implementation. Guided by the theories of change, FSDH managed to adjust its initial linear program design to the needs of adopting a FS approach, also in the focal countries, by involving national researchers, policy makers and other stakeholders as part of the process. Another illustration of adaptive management was the responsiveness to the Covid-19 pandemic, leading to new efforts to monitor the impact of the pandemic in the FS.
- Facilitating context specific FS research in-country. FSDH experiences across the four countries showed differences in how to best engage with key stakeholders and how to best contextualize approaches. A key lesson was that multi-stakeholder engagement and platform formation should start at the onset of the program, with a clear process to guide the work, while collaboration with an anchor institute in-country.
- Putting stronger emphasis on food environments rather than on food security or dietary intake. Embracing the concept of food environments and consumer concerns helped to advance the understanding of FS approaches across the different CGIAR institutes involved in FSDH and to rethink their work relating to food issues.
- Being forward looking and staying aware of the political economy in FS. Being forward-looking was considered critical for programming future FS research. Envisioning consequences of the dynamics of food system transformations, although complex, needs to be taken on board more explicitly, thereby anticipating wider issues in the FS, including aspects of equity, inclusiveness, power, and sustainability or other challenges. Also, more emphasis should go to ensuring a conducive policy environment allowing for changes and to systematically documenting evidence of what works in FS governance, including the role, position and power of the big actors currently dominating the FS.

Discussion and conclusion

Methodological considerations

There are implications to the methodological choice to capture individual experiences and insights from researchers and professionals engaged with FSDH and/or A4NH and to connect these at collective levels. The involvement of the FSDH program team in data collection, analyses, and drafting the lessons learned may not have been deep enough to trigger double or triple loop learning whereby people themselves are able to articulate their own actions for change and act upon it. It is also possible that findings do not resonate with an audience outside FSDH and/or A4NH to the reliance on insider, expert views. Further validation and dialogue with a wider audience at the international and national level is required to validate the findings and to distil an adequate set of guiding principles on FS research programming and practice.

Conclusions on FS research for healthier and sustainable diets

This learning journey demonstrates that the program has contributed substantially to mainstreaming FS and HD considerations in agricultural research and development, by a) keeping a clear focus on generating outputs of various kinds and opening a gateway to the international community to use and

expand on FSHD insights; b) contributing to increased attention for FS transformation; and c) building capacity and strengthening partnerships for FS research resulting in an expanding pool of experienced FS researchers. A second important conclusion is that there is still little evidence that FSHD contributed to FS transformations for healthier diets, although the program did lay some important groundwork on identifying FS innovations that could support FS transformation in desired directions. A third key conclusion relates to the little evidence on how FSHD managed to integrate trade-offs and synergies in regard to the environmental outcome. This can be partly explained by a) the fact that a focus on healthier diets, considered to be an effective compass to navigate FS complexity, also bears a risk of simplification; b) the fact that other major research programs already addressed the issue of sustainable diets in the light of planetary boundaries; and c) the newness of this research domain.

Conclusions on programming for FS research

FSHD successfully generated key insights on how to put FS research into practice, although this was not done in a premeditated or orchestrated way. Key principles for action to adopt FS research in program development relate to the use of generally agreed upon frameworks and development and use of theories of change that feed into an ongoing dialogue on what direction to take and where to adjust. This includes the integration of trade-offs and/or synergies in regard to environmental and social aspects. The learning journey also concludes that program management requires a) facilitating interagency collaboration and ensuring adaptive program planning; b) cultivating a learning attitude to understand and develop ownership of a FS approach; and c) attention for a researcher's individual development. Another important conclusion is that putting into practice contextualized FS diets-oriented approaches helps to look at FS at different levels and engage meaningfully with the stakeholders at each of these levels. A contextualized FS research benefits from working with a limited number of countries and coordinating with a local anchor institute which can support an effective stakeholder engagement process. A final conclusion relates to the influence of the program and the uptake of research outcomes of FSHD, which was found to be rather modest. It was acknowledged that additional actions are needed alongside generating a robust evidence-base to ensure use of FSHD research outcomes.

1 Introduction

1.1 Food Systems for Healthier Diets learning trajectory

The Food Systems for Healthier Diets Flagship (FSHD) is the first of the five Flagship Programs under the A4NH CGIAR Research Program (2017 – 2022)³. It responds to concerns about global dietary trends and to demands from countries to support food system transformations for healthier diets to address persistent problems of undernutrition, micronutrient deficiencies and overnutrition. FSHD seeks to contribute to the goal of healthier diets for poor and vulnerable populations through a better understanding of food system-diet dynamics and through identifying and enabling innovations in value chains and policies. FSHD has a strong focus on building innovative partnerships between researchers inside and outside the CGIAR, as well as between private, public, and civil society actors in national and sub-national food systems in its four focal countries, i.e., Bangladesh, Ethiopia, Nigeria and Vietnam.

FSHD is programmatically organized across three Clusters of Activities (CoAs):

- CoA 1: Focus on assessing regional and sub-regional drivers of food system transformation, and options and constraints for dietary change (diagnosis and foresight), and initially particularly addressing knowledge gaps on the dynamics of interactions between food systems and diet quality at national and subnational levels;
- CoA 2: Focus on testing concrete agri-food value chains innovations and interventions for improving diet quality and diversity (FS innovations);
- CoA 3: Focus on supporting the scaling up of successful actions through effective engagement of multi-stakeholder platforms and multi-sectoral mechanisms (scaling up and anchoring).

In addition to the CoAs, FSHD includes a series of bilateral projects. All these different activities and projects represent quite some diversity in the work done under the FSHD program.

From its onset in 2017, FSHD aimed to contribute to adjust the CGIAR's current and future research agenda and help to make it more responsive to the rapidly changing, increasingly urbanizing world while keeping a clear focus on people's diets. It is the first and only flagship which formally and explicitly embraced the "food system"-concept as the core element of its research and activities. FSHD also aims to play an important role in building capacity of researchers and policy-makers in food systems approaches by integrating diets, nutrition and equity concerns. Lastly, FSHD aimed to provide lessons and guidance for the national and international decision-makers engaged in food system policies and transformative change.

An inducement for the FSHD learning journey was a recommendation from a CGIAR Advisory Services (CAS) evaluation (2020) to 'prioritize the policy engagement and cross-country learning exercise (on processes and approaches) planned for FSHD for completion'⁴. FSHD took up this challenge to foster a learning journey across the flagship, at the level of the FSHD program team, across the three CoAs, between key researchers including PhD candidates, and within stakeholder groups from each of the focal countries. The present study aims to systematically and methodically document, analyze, and synthesize the program's key learnings that emerged.

³ IFPRI (2016): CGIAR Research program on Agriculture for Nutrition and Health: Proposal for phase II 2017–2022

⁴ Unnevehr, L., McHugh, K. (2020): CGIAR Research Program 2020 Reviews: Agriculture for Nutrition and Health (A4NH) <https://cas.cgiar.org/sites/default/files/images/news/A4NH%20CRP%20Review%202020.pdf>

1.2 Scope and objectives

The scope of the learning journey is a facilitated learning process at the level of the FSHD team, within and between the three CoAs, to draw lessons relevant for similar, future research, and to facilitate a learning process within and between focal countries on key findings and results of the program. The objectives/ambitions of the FSHD learning journey were:

- To generate and document key lessons learned on food system research providing insights into how to transform food systems for healthier and sustainable diets;
- To generate key lessons about the approach used in the FSHD program and inform similar or follow up research in the future relating to what works and what not, and what are key elements for success.

Based on the scope and objectives, the learning process primarily targeted:

- The FSHD programme leads;
- The core partners, cluster leads and the A4NH country leads;
- A selected group of key researchers;
- The national in-country researchers, research institutes and universities;
- The wider audience: lessons learned to be transformed into “higher-level” messages and knowledge for food system researchers and decision-makers working at national and international level.

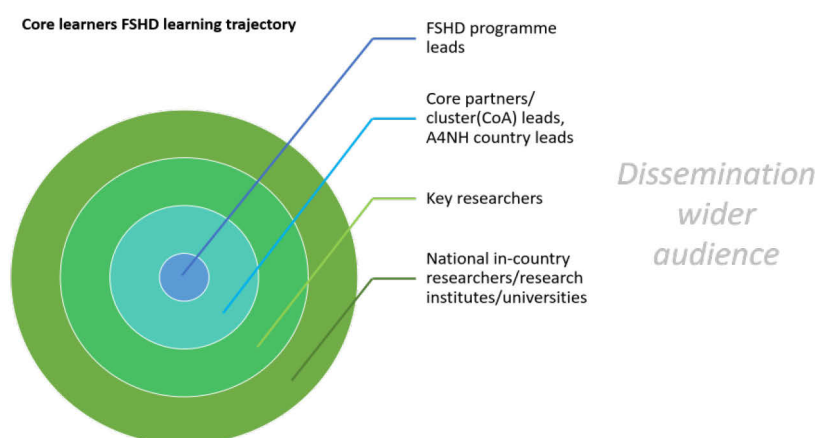


Figure 1.1 Whom to engage in the learning process

1.3 Outline of the report

The current chapter (chapter 1) introduces the background and aim of the FSHD learning journey. Chapter 2 offers an overview of the defined learning questions and outlines the methodological approach. The findings of each learning question are described in separate chapters, distilled from the analysis of a broad range of data, generated by the set of data collection strategies as described in chapter 2. Chapter 3 describes the findings on the integration of consumer perspectives and healthier diets. Chapter 4 describes the major program achievements and learnings on FS transformation. Chapter 5 presents findings in the conceptual progression around food systems. Chapter 6 describes the findings on the integration of the environmental outcome and trade-offs. Chapter 7 describes the findings on the integration of equity and inclusion. Chapter 8 describes the findings on program contextualization and stakeholder’s engagement. Chapter 9 describes the findings on the influence of the program on policy makers and other stakeholders (uptake). Chapter 10 offers a description of lessons learned around key principles for action relating to systemic research on food systems. Chapter 11 presents the overall lessons learned for food systems research and program design. Chapter 12 presents the conclusions and discussion.

2 Methodological approach

2.1 Theoretical grounding of capturing learnings

To capture the key lessons learned in FSHD, an integrated perspective on food system research was suggested for developing the learning framework, seeking to integrate dimensions like context, values, disciplinary orientation, and institutional priorities, intersect when researching food systems (Haysom et al., 2019). In addition, the objective of the learning exercise being driven by a feed forward perspective seeking to inform future food system based research, the learning framework included notions of single loop, double loop and triple loop learning. Argyris (1999, p.68) defines single loop learning as: “an error is detected and corrected without questioning or altering the underlying values of the system”. Fillion et al. (2015) refer to this as ‘adaptive learning’ where, observing from a single perspective, individuals adapt to the work to be performed by solving concrete problems or issues. Argyris (1999, p. 68) defines double loop learning as: “mismatches are corrected by first examining and altering the governing variables, and then reviewing the actions”. Fillion et al. (2015) refer to this as ‘generative learning’ where, observing from multiple perspectives at project or program level, continuous learning takes place involving review of existing processes and parameters to be adapted in order to reach the objectives. Double-loop learning operates at both project and organizational levels but is necessarily concurrent with single-loop learning. Learning within the double-loop operates at project level instead of personal, where learning is then embedded within organizational processes (McClory et al. (2017). There are several conceptualizations of triple loop learning, developed from Argyris and Schön’s work (1996) on double loop learning. Fillion et al. (2015) refer to triple-loop learning as ‘transforming and creative learning at organizational level’, including the organization’s cultural values and goals in terms of a learning organization, seeking to identify lessons learned across the project/program cycle from planning to delivery to closure around defined learning goals (Figure 2.1; McClory et al., 2017).

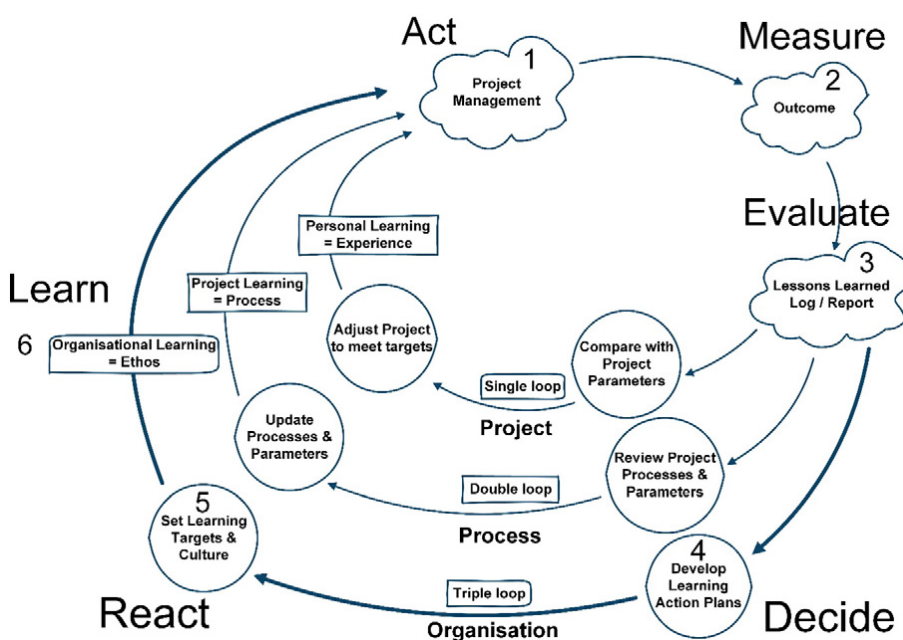


Figure 2.1 Triple-loop learning in projects (McClory 2017)

Double and triple loop learning processes resonate with documented experiences in institutionalizing participatory FS research approaches as also used by FSHD (Van Dyk et al., 2019).

2.2 Design learning framework

Following the FSHD program rationale, working in three CoAs and four focal countries, the learning trajectory worked from an exploratory perspective, seeking to capture lessons learned within and between CoAs and within and between focal countries (FCs). The learning trajectory was initiated during the last stages of FSHD as part of its closure and final wrap up meaning that lessons learned in the planning and delivery stage of the program were captured in retrospect.

The learning framework was co-designed with the FSHD program team. The first step consisted of defining the **Learning Questions (LQs)** that guided the learning trajectory. These LQs were developed through several rounds of consultation with the FSHD program team, including CoA leads, key researchers and country coordinators, as well as a few other key resource persons from the A4NH program team. The LQs that emerged from these consultations further served as the backbone structure for data collection. Building on a layering of lessons learned through loops and programmatic phases (McClory et al 2017), we defined different methods to capture lessons learned (table 2.1).

Table 2.1 Plotting FSHD LQs through a loop learning lens (after McClory et al 2017)

Management domain (where)	Project learning emphasis (who)	Project benefits management (what)		Business case goals (to what effect)	
		LQ		LQ	LQ
Single loop - "Project" → FP1 FSHD	Personal learning through experience	LQ1a/1b LQ3 LQ6b	Personal development through targets	LQ5	Project targets LQ2a/b LQ4 LQ9
Double loop - "Process" → FP1 FSHD	Project learning through process	LQ3 LQ6a	Technical / process improvements (improved research designs)	LQ5 LQ6a/b LQ9	Project management learning Team learning LQ4 LQ6 LQ7
Triple loop - "organisation" → A4NH / CGIAR	Organisational learning through ethos	LQ8	System development Appropriate governance	LQ8 LQ9	Organisational learning goals Corporate values Alignment with vision & mission statement LQ8 LQ9

An overview of the data sources and data collection strategies across learning questions is presented in table 2.2.

Table 2.2 Overview of data sources and data collection strategies across learning questions

LEARNING QUESTIONS (LQs)	DOCUMENT REVIEW	INTERVIEWS	ONLINE SURVEY	WORKSHOP (Team)	WORKSHOP (PhDs)
LQ 1: Where and how have the perspectives on consumers, healthier diets and food environment been integrated in food system discussions around this program at (inter)national level? Where not and why not? What changes can be observed as a result of this integration?					
LQ 2a: What are the major achievements – defined as 'signature' products/outputs - generated by each cluster which are relevant in supporting food system transformation in different contexts?					
LQ 2b: What have we learned about food system transformation or sustainability?					
LQ 3: Did our understanding of food systems change over time? If so, why and how did this influence our work, approach, activities and results?					
LQ 4: Is a focus on healthier diets as the main outcome a good entry point for a program on food systems for healthier and sustainable diets? How have you considered other outcomes in terms of synergies and/or trade-offs?					
LQ 5: How and to what extent have equity and inclusion been purposely integrated in the research questions, activities and approaches and results?					
LQ 6a: How have the cluster activities and approaches been adjusted to the specificities of the country contexts? What were barriers and enablers?					
LQ6b: How did we engage with national and international stakeholders and what did this lead to? What were the barriers and enablers to stakeholder engagement?					
LQ 7: Has the evidence base generated and the engagement with stakeholders influenced policy makers and other stakeholders, nationally and internationally? If so, what are enablers and barriers to uptake/use?					
LQ 9: How has activities been integrated, reflecting a systemic approach? E.g. interactions, feedback loops with other parts of the food system.					
LQ 8: What lessons can be learned from FSHD for research to contribute to food system transformation? Lessons in terms of design, implementation, approach.					

2.3 Data collection

The **document review** was conducted to capitalize on the learnings that had already been documented by the program. A selection of secondary FSHD sources (publications, progress reports, papers, other program related outputs) was reviewed. More particularly, the internal annual reports to ISC (n=2), annual meeting minutes (n=3), and the CCE Evaluation (n=3) were reviewed. Furthermore, a selection of FSHD outputs were reviewed: Food system country assessments (n=3), other technical reports (n=5), and academic publications (n=5). A detailed list of the document reviewed is provided in the References.

The semi-structured **interviews** with the FSHD Program team members, key researchers, and country coordinators were guided by the LQs. Two interview guidelines were developed, one for the program team researchers, and another one for the country coordinators (see Appendix 1). In total 21 people were interviewed (i.e. 19 program team researchers and 4 country coordinators) out of the targeted 23 individuals.

Online survey techniques were used to capture views on lessons learned among the research partners in the four focal countries. A survey tool was designed using *Qualtrics*, building on the selected LQs for key resource persons in each country. Selection of these respondents was done in close collaboration with the A4NH Country Coordinators, aiming for 10-15 respondents in each country. The online survey tool was designed in English and geared towards direct use by respondents. For Vietnam, it was decided to adjust the tool to facilitate data collection by translating the survey in Vietnamese and interviewing some of the respondents over the phone. Table 2.3 shows the targets set and completion rates of the online survey by FC.

Table 2.3 *Targets and completion rates of the online survey across each FC*

Country	# Targeted respondents	# Completed	Rate (%)
Bangladesh	13	10	77
Ethiopia	20	16	80
Nigeria	5	3	60
Vietnam	11	11	100
Total	49	40	82

Two **consultative workshops** were organized (online) to reflect on initial findings from document review, interviews and the online surveys. The first of these workshops was organized with the FSHD program team and country coordinators, with a total number of 14 participants. The workshop was organized around two sessions. During the first session, initial findings were presented, based on individual perspectives and learnings of respondents throughout the program (single loop learnings). A second session subsequently aimed to capture program-level learnings through discussions and jointly defined collective learnings (double loop learnings; detailed workshop program in Appendix 2).

The second workshop was organized with the PhD candidates affiliated to FSHD, with a total number of 10 participants. This workshop zoomed in on the day-to-day FS research practice of the PhD candidates and aimed at discussing challenges and opportunities from the perspective of their research trajectories in order to identify key recommendations for better fostering FS research (detailed workshop program in Appendix 3).

2.4 Data analysis and sensemaking

Both the document review and the interviews were analyzed using qualitative data analysis software (NVivo 12). For both analyses, coding structures were developed primarily based on the learning questions. The initial coding structures were drawn from the learning questions, while also coding for practices, barriers and enablers. All data were also country-coded to enable cross-country comparison. The coding structures can be found in Appendix 4. Based on the information coded under each learning question, bottom-up (inductive) coding was carried out to identify emerging patterns. These patterns were subsequently described as initial findings.

The data from the online survey were analyzed using Qualtrics built-in analytical tools.

The consultative workshops were used to validate and adjust the initial findings from the document review, the interviews and the online survey.

For each of the methodological steps described above, the FSHD program team was informed regularly to ensure ongoing team engagement as well as effective ownership of the learnings emerging from this study. The remainder of the report goes on to describe these learnings along each of the LQ that guided the learning journey. Box 2 summarizes the definition of some of the key terminology used.

Box 2: Defining some of the key terms used in this report

A **food system** gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socio-economic and environmental outcomes (HLPE 2017).

A **healthy diet** is one that is human health promoting and disease preventing, and safeguarding of planetary health by providing adequacy without excess, of nutrients from foods that are nutritious and healthy; and by avoiding the introduction of health-harming substances, through all stages of the value chain. Healthy diets must be affordable, culturally acceptable. They must progressively change towards originating from sustainable production and processing systems that do not adversely affect local and regional ecologies (Neufeld et al., 2021).

For any given individual, a **healthier diet** is then defined as a diet that is better than the individual's current diet. Importantly, one cannot define a diet as over a day, but over a longer time period such as a month, a quarter, or a year (IFPRI 2019a).

From a dietary perspective, a **food system innovation** is defined as a policy or regulation, an institutional process, a change in knowledge, a technology, or combination thereof that is either not used or not widely used within a food system, with the potential to change diets on a wider scale (e.g. Hekkert et al., 2007). **Interventions**, then, are a subset of innovations that take place largely through public investment rather than by the private sector alone, or through public-private partnerships (IFPRI 2019a).

Food environment refers to the physical, economic, political and socio-cultural context in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food (HLPE 2017).

3 Integration of consumer perspectives and healthier diets

This chapter presents the key findings on learning question 1: “Where and how have the perspectives on consumers, healthier diets and food environment been integrated in food system discussions around this program at (inter)national level?” This question was addressed through interviews and reflection sessions with the Food Systems for Healthier Diets (FSHD) program team. Our analysis suggests that overall, the FSHD program contributed to a firmer anchoring of consumer perspectives and healthier diets (HD) as part of the wider food systems (FS) discourse. This integration is reported along four main tendencies, which are outlined in the following paragraphs.

3.1 Increased attention for FS transformation for healthier diets at country-level

An increasing tendency to consider FS and their transformations from a consumer and HD perspective was observed at the country-level, as opposed to the more traditional production perspective to FS. Embracing the notion of HD was notably visible through the development of tools that drew from a combination of health, environmental and social sustainability aspects, such as the food based dietary guidelines (FBDGs) in Ethiopia or the Healthy Eating Index in the case of Vietnam. Yet, the integration of a HD perspective was also reported as relatively limited in some instances because of few dietary data being available and the rather limited research scope in focal countries. As voiced by a researcher from the program team:

“We did some small evaluations, starting from the dietary gaps and then exploring how we could address these at scale [...] These were quite successful, but I think it is very difficult in the end to trace the effect of such pilot innovations on the system, because they are only pilots.”

Yet, both the program team and external partners highlighted that the FS country profiles represented an important milestone in taking stock of available FS information in each country and identifying entry points towards the adoption of FS approaches. In most focal countries, these efforts effectively laid the ground for the UNFSS dialogues.

3.2 Mainstreaming FS and HD in agricultural research and development

During the five years of the program, there appeared to be a shift of focus from food production to a progressive consideration and integration of consumption and diets in national and international agricultural research and development, to which the program contributed. This resulted in a raised awareness among researchers, policy makers, and development practitioners who seem to pay more systematically attention to consumers’ perspectives and diets, alongside considering production and/or processing issues. Within CGIAR, FS and ‘food environments’ are now being increasingly considered as umbrellas under which the centers can do relevant work. Yet, there were also indications that, beyond the integration of consumer perspectives, the mainstreaming of FS and HD should consider more systematically the interrelations across the FS between different levels, scales, and actors. As expressed by one of the program team members:

“Healthier diets are just an entry point. It is about acknowledging that things are all connected in a way”. S/he further explained how this was achieved in practice: “When we talk to stakeholders, I simplify the food system framework and also simplify the information

[...] to select some main indicators [...] to show the linkage of agriculture and nutrition [...] It is difficult for them to imagine the linkage so using the system framework we can map the agriculture, we can map the health and we can start emphasizing interlinkages."

3.3 Shaping of a global FS discourse

Our data suggest that FSHD contributed to shape the global discourses on FS, but also, that the program served more as a catalyst as there was already a broader movement in that direction. Whether the integration of consumer and HD perspectives have effectively extended beyond academic circles seemed still subject to debate. Yet, its influence was noted as perceptible through the UNFSS dialogues, which is currently the most important carrier of the FS discourse at both national and international levels. In most countries, FSHD has actively engaged with and influenced national UNFSS, notably by facilitating some of the dialogues. Yet, it was less evident whether the program itself made direct contributions to policy change. Respondents also flagged a note of caution relating to the food system changes being promoted by UNFSS because of the particular orientation of the summit, which made the outcomes of this global initiative difficult to foresee. This is how a researcher from the program team described the emerging global FS discourse:

"It is a global movement at the moment, spurred by climate change and the fact that humans as a species need to produce and consume food differently to save the planet and then secondarily by the health issue of the triple burden of malnutrition in all its forms."

3.4 Recognizing food being more than a product, and central to human existence

The program contributed to the realization that food was more than just a commodity or a product. Adopting a dietary angle and appreciating the many ways people are impacted by what they eat contributed to a change in the work and perspectives of economists and agriculturalists alike. As explained by one of the team members, the universal nature of food makes HD a particularly effective entry point when it comes to addressing FS-related issues:

"I believe climate change can be denied because you do not really see it. When it comes to healthier diets, it is something that you can clearly see everywhere. The way people are impacted by what they eat is somehow an evidence for everybody. I believe that this makes it a really effective entry point, compared to climate change, to address issues in our food system."

Building on this shared understanding, FSHD looked at connecting the dots and exploring interlinkages with broader development agendas such as the SDGs. Limitations were flagged relating to the focus on HD. FSHD emphasized the FS issues leading to unhealthy food but missed out on including the social and economic dimension, targeting inequity and inclusiveness. The tangled part of the social and economic aspects, with its many interconnections, for instance food-related activities creating more livelihood than any other industry in the world, was not well integrated in the program (see also findings in chapters 6 and 7).

3.5 Cross-country comparison

Looking across the four focal countries, the integration of consumer perspectives and healthier diets as an entry point in food systems research took various shapes. In Ethiopia and Vietnam, it materialized in concrete actions, such as research in support of the development of food based dietary guidelines, or the Healthy Eating Index, embracing dietary outcomes as relevant FS outcomes. In Bangladesh and Nigeria, it translated into more generalized actions aimed at raising awareness around FS in the

research and policy spheres. In the survey, respondents were asked about the extent to which they thought that the approach taken by FSHD addressed all the FS components and their interrelations. In Ethiopia and Vietnam, respondents scored the program “relative well” on both accounts. In Bangladesh and Nigeria, respondents felt that the components were balanced less well (table 3.1).

Table 3.1 Country-specific findings Integration of consumers perspectives and healthier diets

	Ethiopia	Bangladesh	Vietnam	Nigeria
Interviews	<ul style="list-style-type: none"> Contribution to looking at diets as an outcome of the FS FBDGs developed 	<ul style="list-style-type: none"> FSHD was able to raise awareness with policy makers, but dialogue at policy level still focused on food security rather than FS Absence of clear entry points to guide and support the adoption of an integrated FS approach Challenge in integrating HD in FS through evidence on consumer behavior 	<ul style="list-style-type: none"> Healthy Eating Index developed Nutrition outcomes mainly owned by Ministry of Health, but more involvement of other ministries (also due to Hunger National Action Program) 	<ul style="list-style-type: none"> There has been more awareness of FSHD at the national level
Survey	<ul style="list-style-type: none"> Relatively balanced focus on all components of the FS (in particular consumers, food environment, and agriculture.) Relatively good consideration for the interrelations (feedback loops) between components 	<ul style="list-style-type: none"> Strong focus on agricultural production, food transformation, consumption, and food environment Far less attention on food storage, transport and trade as well as food retail and provisioning Relatively good consideration for the interrelations (feedback loops) between components 	<ul style="list-style-type: none"> Relatively balanced focus on all components of the food system Relatively good consideration for the interrelations (feedback loops) between components. 	<ul style="list-style-type: none"> Focus mostly on ‘food environments’ Little consideration for the interrelations (feedback loops) between components

3.6 Integration of consumer perspectives and healthier diets in brief

Key findings on the integration of consumer and HD perspectives were that FSHD has contributed to:

- Increasing attention for FS transformation for healthier diets at the country-level. This happened in some countries more concretely than in others. In Ethiopia and Vietnam it materialized in concrete actions, such as research in support of the development of food based dietary guidelines or the Healthy Eating Index. In Bangladesh and Nigeria it translated into more generalized actions aimed at raising awareness around FS for researchers and policy-makers.
- Mainstreaming FS and HD considerations in agricultural research and development, both in the domain of international agricultural research as well as at national levels. More awareness was observed to address consumer perspectives and diets, alongside considering production and/or processing issues.
- A wider recognition of food being more than just a commodity or product among researchers, also representing other human values. Adopting a dietary angle and appreciating the multiple ways people are impacted by what they eat contributed to a shift in perspectives of economists and agriculturalists alike.

-
- Shaping, as a catalyst, the global discourse on FS as part of a wider movement embracing the FS approach. This became most apparent in the 2021 UNFSS dialogues, currently considered the most important carrier of the FS discourse at both national and international levels.

4 Major program achievements and learnings on FS transformation

This chapter presents the key findings of learning question 2: *"What are the major achievements generated by each cluster which are relevant in supporting food system transformation in different contexts? And what have we learned about food system transformation or sustainability?"* This question was addressed through interviews with the program team and the online survey for key partners in the four focal countries. Even though people were hesitant to directly attribute achievements to the program, the major accomplishments attributed to FSHD can be synthesized under four key points, described in the following sections.

4.1 Generating a resource base for FS researchers and practitioners

FSHD generated quite a lot of publications and other documented outputs which eventually had a wider reach than just the academic peer group (see References), notably in defining what food systems entail, and how they can be governed. This has resulted in the Food System Resource Center (FSRC)⁵, opening a gateway to the international community to use and expand on FSHD insights. The program adopted an action-oriented research approach and implemented many in-country studies with engagement of local partners. This was reported as a contribution to advancing the thinking about FS research and practice. Outputs capturing the developments in conceptual thinking about FS research and FS transformation for healthier diets also found their way to the FSRC⁶. FSHD introduced key FS diagnostic methodologies, starting with the FS country profiles that laid the ground for FS research in each of the focal countries. As a program team member explained:

"The first step is to get the key actors to agree on what the food system transformation looks like, who's involved, who's doing what and what are the issues".

Furthermore, the program also advanced FS research by developing tools such as the Dietary Diversity Score (DDS) or the compendium of indicators for FS assessment. Finally, FSHD helped advancing intervention studies such as the food environment assessments. Altogether, these efforts laid the groundwork for local capacity building around FS research and policy and for the formulation of national FS research agendas, representing important steps towards the adoption of a FS approach across the different focal countries.

4.2 Advancing and popularizing FS thinking among policy makers

FSHD went through rounds of deep consultative processes to define the concept of FS innovations for FS transformation and propose a typology for these. FS innovation was an important concept advanced by the program. As explained by a researcher from the program team:

"(about food system innovation) I think we ended up much further beyond having a definition. In a way it's a "baby step", but it was a very important baby step [...] With hindsight, I do think now that it did really change the way we think about food systems and see what we are actually trying to do with this program. It helped us define what actually is a genuine food systems research."

⁵ A4NH Food System Resource Center; a service from A4NH's research flagship Food Systems for Healthier Diets, <https://a4nh.cgiar.org/food-systems-resource-center/>

⁶ <https://a4nh.cgiar.org/category/fsrc/food-systems-idea-exchange/>

Furthermore, by exploring linkages between individual consumers' food choice and the wider FS, the program recognized the importance of studying food environments and turn it into a strategic entry point for research and action relating to FS transformation. In doing so, FSHD paved the way for the adoption and operationalizing of FS approaches by researchers and policy makers (see also finding 5.2). The extent to which these FS approaches have been embraced and adopted in each country showed a mixed picture, with three identifiable gradual transformation pathways used, namely: 'push down by governments' (i.e. taxing, vouchers, social safety nets), 'coalition building' (i.e. bringing people together to discuss specific FS issues), and 'innovations' (i.e. piloting a technological or social change around FS to build up evidence).

4.3 Highlighting important dynamics underpinning FS transformations

Whereas the duration of FSHD was typically considered too short to claim any tangible transformation of FS, the program was still reported to have contributed to the understanding of some key dynamics underpinning FS transformations by pilot-testing and documenting a series of innovations. In doing so, FSHD laid some important groundwork for exploring FS transformations and identifying food system innovations that could support desired transformations for healthier diets. Results from the online survey showed that two-thirds of the in-country respondents felt that the program had somehow contributed to transforming the FS through these pilots and related stakeholder engagement processes.

FSHD was notably reported to have contributed to some important changes in the international research agenda (i.e. CGIAR), incorporating complex (food) systems approaches including notions on transformative pathways. Even though such an influence is not really documented yet, it is perceptible and non-negligible (see also finding 3.2). This contribution was deemed even more important given the political economy of food systems and the strong and lasting influence that agro-industrial food corporations continue to have in controlling decision-making, rendering food systems change very difficult. A respondent put some of the program achievements into perspective by saying:

"Being able to identify the problems doesn't mean that you have the solutions at hand [...] We can listen to that record [note authors: of the interview] in 20 years and we'll see if the system has changed. I can bet you my salary that we will still be struggling with bad guys who put on the market some unhealthy food because the different actors will not have managed to align their interest in one direction."

Nevertheless, a key learning from the program was that FS transformations seem to be less complicated in low-income countries than in middle-income countries because supply chains are shorter, institutions are smaller and governments effectively have more leverage on nudging FS in a given direction.

4.4 Building capacity in and strengthening partnerships for FS research

The interagency partnership formed between WUR, IFPRI, IITA, and the Alliance, to manage the program was, by itself, considered as an achievement. The engagement of an external partner (i.e. non-CGIAR) was reported to have contributed to strengthen partnerships between the different CGIAR centers. In addition, the many partnerships formed in the focal countries with local institutions enabled and fostered intersectoral dialogues and collaborations around FS, and, as such, were considered effective strategies to embed the program across the different contexts (see also findings in chapter 8). In each country, FSHD engaged with existing platforms and relevant stakeholders to integrate HD into national political agendas (e.g. ministries, national institutes, technical working groups). Furthermore, the interdisciplinary collaboration at the research level was also considered as

an important achievement. Finally, the online survey of external partners confirmed that the pool of young scholars (MSc, PhD) and researchers trained by the program represented a major contribution to the national FS research capacity across all focal countries. In a way, FSHD effectively served as a catalyst for facilitating research collaboration around FS. As it was expressed by a researcher from the program team:

"(About FS research) I always say you need grazers and moles. Moles go deep with robust methodology to find an answer to your question. But then you also need grazers who are embedding it into a broader context. People in FSHD [program team] are all grazers, but they use people in their organizations who are more moles."

4.5 Cross-country comparison

Based on the interviews, major achievements across the four focal countries were the dietary gap assessments carried out in two out of the four countries (Ethiopia and Nigeria). In the other two countries achievements related to stakeholder engagement. The online survey revealed that across all countries the ground work was done for building local capacity for FS research and policy making, and generating evidence to define a national FS research agenda. In Ethiopia additional achievements were: the FBDGs, and the grounding of the UNFSS dialogues at national and international level. For Vietnam additional achievements also related to the UNFSS dialogues, but also to synergies/strengthening of other programs such as Zero Hunger (table 3.2).

Table 3.2 Major program achievements and learnings on FS transformation

	Ethiopia	Bangladesh	Vietnam	Nigeria
Interviews	<ul style="list-style-type: none"> Dietary gap assessment carried out. Development of national FBDGs 	<ul style="list-style-type: none"> A4NH contributed to address nutrition issues, women empowerment and FS. 	<ul style="list-style-type: none"> Engagement with different platforms is seen as a major achievement, as well as the employment of different impact pathways. 	<ul style="list-style-type: none"> Dietary gap assessment carried out.
Survey	<ul style="list-style-type: none"> FS background paper offering entry points for a FS research agenda (roadmap) Development of national FBDGs Laid the ground for UNFSS preparations (i.e. tools and processes) Building local capacity around FS research and policy Intersectoral dialogue between Health and Agriculture 	<ul style="list-style-type: none"> Generating necessary evidence base laying the grounds for national FS research agendas Building local capacity around FS research and policy 	<ul style="list-style-type: none"> Generating necessary evidence base for articulating a national FS research agenda Complementarity and synergies with Zero Hunger program Effectively and timely laid the ground for UNFSS preparations Building local capacity around FS research and policy Fostering intersectoral dialogues and collaborations around FS (health and agriculture in particular) 	<ul style="list-style-type: none"> Articulation of a national FS research agenda

4.6 Major achievements and learnings on FS transformation in brief

Even though people were hesitant to directly attribute achievements to the program, key findings on the major achievements and learnings on FS transformation indicate that FSHD laid the ground for future food system research programs and practitioners. FSHD contributed by:

- Generating a resource base for FS researchers and practitioners which consolidated in the Food System Research Center (FSRC). This included outputs defining what food systems entail, and how they can be governed, but also key FS diagnostic methodologies, tools and indicators for FS assessment and food environments, and intervention studies exploring FS transformations.
- Consolidating FS concepts and popularizing FS thinking. Through thorough conceptual explorations FSHD was able to define the concept of FS innovations for FS transformation and to translate this into a typology supporting practical use.
- Highlighting important dynamics underpinning FS transformations. FSHD explored FS transformations and targeted innovations in support of desired transformations. In the different focal countries respondents felt that the program has contributed to transforming the FS. A key learning was that FS transformations seem to be less complicated in low-income countries than in middle-income countries because the value chains are shorter, institutions are smaller and governments seem to have more leverage on nudging FS in a given direction.
- Building capacity and strengthening partnerships for FS research. Partnerships were built at different levels and were considered achievements in their own right. These included the FSHD program partnership, the partnerships formed in the focal countries with local institutions, the interdisciplinary collaboration between groups of researchers, and the pool of young scholars (MSc, PhD) formed, all working on FS research.

5 Conceptual progression around food systems

This chapter presents the key findings of the learning question: *"Did our understanding of food systems change over time? If so, why and how did this influence our work, approach, activities and results?"* This question was addressed through the document review, interviews and consultative sessions. The document review indicated that the conceptual thinking around FS has experienced substantial progress over the course of the program. Our analysis highlighted four theoretical progressions that have characterized the work of FSHD over the years. These are described below.

5.1 From a linear to a multidimensional FS thinking

Our document review indicated that in the early stage of the program, FS were still conceptualized in a linear fashion. This was further confirmed by our interviews where the program team attributed such tendency to the value chain angle of the program that preceded but also, to some extent, to the lasting importance of the supply chain component within the HLPE framework⁷ that guided the FS thinking through the program. As explained by a respondent:

"With hindsight, the proposal now looks a bit obsolete because the thinking at the time was very different, it was more linear than where we are now."

This linearity was reflected in the initial program proposal, in its design as well as the wording of the Theories of Change (ToC) (i.e. on agri-food value chain and policies), supply-side and demand-side innovations, etc.). Such linear thinking was also perceptible in the original logframe where the three clusters of activities (CoAs) were seen as logical steps successively building on one another (i.e. first diagnosis, then innovations, and finally scaling). In the early stage of the program, there was a sense that FS thinking was more 'explanatory' in nature with analysis typically focused on a single FS component. The document review and interviews suggest that, over the course of the program, there has been a growing realization of the interrelations across CoAs, and even more importantly, between FS components. This line of thinking was accompanied by the adoption of more 'exploratory' approaches that looked into unpacking and leveraging broader FS interrelations. As explained by a researcher from the program team:

"I now take all the aspects into account that could influence it from a food systems perspective. Before, I was working much more in my own silo, in my mind and in my field. And now other areas of research influence my area, and my area influences theirs."

5.2 From a buzzword to an operational FS concept

From the document review and interviews with the program team it emerged that one of the most significant contributions of the program over the years has been the adoption and/or refining of some of the FS concepts that now serves as a fundamental basis for FS research (see also chapter 4). That in itself was a challenge. As one of the FSHD team members expressed:

"Initially I think for me, but I also think for most of the people in the team, food system was a new concept so owning the concept in the beginning was the challenge."

⁷ HLPE framework ref

This contribution to FS concepts was perceptible through the advancement of key notions over the course of the program. As such, 'food environment' was embraced early on as a key concept to reconcile perspectives from both production and consumption studies. A respondent explained:

"The notion of food environment does really help to connect all the work that happens downstream [I.e. production, supply] and upstream [I.e. dietary outcomes, etc.] It is acting as a critical interface and an eye-opener to help re-understanding a number of things better around what we are doing."

Similarly, the notion of FS 'innovation' reportedly evolved over the course of the program. At first conceptualized more as an intervention, the concept ended up being broadened to a 'policy, regulation, institutional process, change in knowledge, technology, or combination thereof'. As one respondent put it:

"We did a pretty nice job in defining what is meant by a FS Innovation. And I think it ended up being one of our biggest accomplishments. It helped us define what actually is a genuine food systems research."

Advancing these key notions and thereby contributing to the elaboration of a shared language seemingly helped making the concepts of FS more tangible for researchers.

5.3 From static to inherently dynamic FS perspectives

Our analysis further suggested that there had been a major shift in the way FS and associated transformations were conceptualized. One program team member explained:

"Five or six years ago, while trying to write up the proposal of the first flagship, we had no clue what we were talking about. If we were to compare the proposal for the flagship which we are assessing now with the proposal of the next phase, it would be a good way to actually illustrate the improvement in our own understanding."

It further appeared from the review of the program proposal that FS were originally conceived as being relatively static, with given innovation (i.e. intervention) as an enabler of desired positive change in the FS. In contrast, over the course of the program, the perspective on FS ended up being conceived as inherently dynamic, that is, their different components and their interrelations were constantly transforming under the influence of multiple drivers. As one researcher from the program team explained:

"[...] the more and more we started to get interested in transformation processes, moving from a sort of a static view of the system toward the view of a system in transition and also about interacting with the system to steer it into a certain direction."

From this new perspective, the program logic became about identifying leverage points (i.e. innovations) to steer FS transformation in a desired direction. Acknowledging such inherent dynamics as well as the existence of multiple drivers also meant recognizing that a given innovation could eventually affect other drivers and thereby dampen some of the desired effects.

5.4 From generic to contextual FS approaches

The interviews with the program team indicated that there has been a shift in thinking about FS approaches from very generic towards more contextual terms. This trend was confirmed by the document review, which suggested there has been a growing recognition for the multi-scale nature of FS (from global to regional, national, and local). This progression in FS thinking translated in a need not only to diagnose issues but also to lever solutions and associated transformations across the

different scales of FS. Adopting HD as the target outcome, this realization meant that more attention needed to be paid to the actual consumer demand and health recommendations in specific contexts. As one respondent put it:

"It is really important to look at food systems across scales and to apply different frames in doing that [...] It's really something that helps you start seeing connections [...] in order to work with stakeholders at local level you also need to invest in understanding how food systems are understood, like at the national, local and at the federal level."

To some extent, the increased enthusiasm for contextual approaches was accompanied by the realization that there remained very important dietary gaps in LMICs and that important research efforts should be deployed in order to successfully engage with such perspective in the future.

5.5 Conceptual progression around food systems in brief

FSHD contributed to advance the conceptual thinking around FS over the course of the program. This translated in various conceptual shifts:

- From a linear to a multidimensional FS thinking. FS were initially conceptualized in a rather linear way building on value chain approaches adopted from previous programs. A more multidimensional perspective was developed while working with the HLPE framework as guiding framework throughout the program.
- From a buzzword to an operational FS concept. One of the most significant contributions of the program was the adoption and/or refining of some of the FS concepts that now serve as a fundamental basis for the FS research community.
- From a static to an inherently dynamic FS perspective. FS were initially viewed as relatively static, calling for interventions to bring about change. Over the course of the program, the understanding shifted toward FS being inherently dynamic, and there were growing insights relating to the different components and how their interrelations were constantly transforming under the influence of multiple drivers. From this new perspective, the program logic became about identifying innovations to steer FS transformation in a desired direction.
- From general to more contextual FS approaches. A growing recognition emerged for the multiscale nature of FS (from global to regional, national, and local) and the need to not only diagnose issues but also to lever solutions and associated transformations across the different scales of FS.

The learning question on conceptual progression did not allow for cross-country comparison as the findings drawing upon the document review and interviews were all phrased in very conceptual terms across the countries and could not be made country-specific.

6 Healthier diets as entry point to address trade-offs and synergies in FS research

This chapter describes the findings on the learning question: *"Is a focus on healthier diets as the main outcome a good entry point for a program on food systems for healthier and sustainable diets? How have you considered other outcomes in terms of synergies and/or trade-offs?"* This question was addressed through the document review, interviews and consultative sessions. Overall, when it comes to considering other outcomes alongside healthier diets, e.g., environmental concerns relating to FS impacts, limited efforts seemed to be deployed by the program. One respondent expressed it like this:

"At the start of the program, we did not include sustainability as we assumed this was the mandate of CCAFS8. We expected to be able to incorporate more sustainability considerations through collaboration with CCAFS. That did not work out as such ..."

Our analysis points to three findings that can serve as a basis for reflecting on how to better integrate environmental outcomes and deal with tradeoffs between healthier diets and environmental sustainability in future programs.

6.1 Healthier diets as an effective compass to navigate FS complexity

Although FSHD strategically adopted HD as an entry point for studying FS, indications expressed by the program team were that a 'genuine' FS approach is actually one that has multiple entry points but that the simplification was somewhat necessary. One FSHD researcher explained:

"We should widen the framework beyond just nutrition but it's a bit scary for a lot of people because it would ask them to embrace too many issues."

As such, the focus on healthier diets was generally reported as a practical simplification to navigate the inherent complexity of the FS. Other program team members justified the focus on HD on the basis that it was easier to quantify and monitor than other FS outcomes:

"You want to improve the health of people but researching the hardcore nutritional indicators for health would be too specific [...] you would need huge sample sizes to actually research that. So, if I know I'm improving diet quality, that's already a nice outcome, it is a nice intermediate."

Overall, healthier diets was also reported as an effective point of convergence between the different areas of expertise and, as such, a strategic opportunity for the OneCGIAR initiative. As voiced by a respondent:

"(About healthier diets) I think it's a powerful entry point. It can be a tunnel also of course so you need to keep your connections open to other perspectives and particularly environmental sustainability and equity in those things but I think there's a lot of inequities in health as well, so I really think it's a good entry point."

⁸ CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

6.2 Environmental trade-offs part of the narrative

The document review showed that 'Healthier and more sustainable diets' was only referred to relatively late in the program. In addition, there was little documented evidence on whether and how environmental trade-offs were operationalized by the program. This observation was further confirmed by the program team during the interviews, with respondents suggesting that consideration for the environmental trade-offs had only been rhetorical. As one respondent put it:

"There was a bit of a discussion about the extent to which (environmental) sustainability was to be included in the diet. It was not a focus in the program, but it always stuck around in the discussion more or less prominently ... I don't think initially the designers of the program have taken sufficient reflection on whether or not to include sustainability."

Another respondent expressed that the growing reference to 'environmental sustainability' was effectively driven more by a will to show alignment with the international policy agenda (i.e. SDG and UNFSS) than by a genuine concern for the environmental impact of changing diets embedded in FSHD. For some of the team members who were pushing for a better integration of environmental concerns, there was sometimes a clear sense of frustration:

"I can recall one conversation in a program meeting in which I was making the point about environmental sustainability and I faced a complete shut down in listening ... Imagine you have 14 million poor in one country and they need to increase the vegetables consumption ... Do you know what that means in terms of water consumption? Or in the possible increasing use of pesticides and fertilizers? I'm not saying that is bad or good, but if you don't even consider that ... I felt environment sustainability was not really embedded in the program."

6.3 Prioritization of environmental outcome in LMICs is debated

Even though most respondents agreed that the environmental outcome had not been really addressed by the program, there seemed to have been a realization by many that nutritious food and HD were often more resource-intensive, even in LMICs. This is how one respondent voiced such concern:

"Ok, what you need for a healthy diet is also animal-sourced food, but now there maybe five billion people not eating animal-sourced food daily. If they are starting to do that how will we sustain?"

Some researchers clearly looked at this (even though minimal) integration with a favorable eye, considering that only acknowledging it represented a good first step in the right direction:

"So for environmental impact, all the papers that you see are based on tables from Europe or US, which is totally ridiculous. Getting that discussion started is also something that came out of our flagship, which is very good."

Yet, for others, the integration of the environmental outcome was considered less of a priority in LMICs:

"That's a hierarchy of needs. In LMICs, because people are poor, that gets to be a more immediate priority than environmental degradation, unless it's so extreme that it stops livelihoods from happening. Climate change is wreaking havoc in a lot of these poor countries, so there's adaptation to that. But it tends to be a second-stage problem."

In short, there remained an important debate within the program team around the need to prioritize between the nutritional and the environmental outcome in LMICs.

6.4 Cross-country comparison

The interviews did not reveal many country-specific findings under this learning question. In Vietnam, a respondent commented on the usefulness of the food systems assessment that was carried out as part of the A4NH benchmark study, which provided data on the greenhouse gas emissions of diets. Relating to Bangladesh, respondents mentioned challenges in integrating an outcome other than the environmental outcome, i.e. integrating food safety concerns.

Table 3.3 *Healthier to address the environmental outcome*

	Ethiopia	Bangladesh	Vietnam	Nigeria
Interviews	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Food safety concerns in Dhaka slums (and how they are dealt with) should be included. 	<ul style="list-style-type: none"> The FS assessment from the A4NH benchmark provided data on the greenhouse emission of diets. 	<ul style="list-style-type: none"> -

6.5 Healthier diets as entry point to address trade-offs and synergies in brief

FSDH program considerations for the environment or other trade-offs in relation to healthier diets were relatively limited and not explicitly integrated in the program:

- The focus on healthier diets was an effective compass to navigate FS complexity. It was also reported to be an effective point of convergence between the different areas of expertise and, as such, a strategic opportunity for FS programming. But at the same time it was acknowledged that the healthier diets focus also carried the risk of simplification, and overlook other outcome areas (environmental, economic, social), and trade-offs or synergies.
- Environmental trade-offs remained an element of the FSDH narrative with little evidence on how this was operationalized in the program. FSDH was thus reflecting responsiveness to the international agenda on environmental and sustainability concerns without making major advances to concretely integrate and address these concerns through the program.
- The need to prioritize between the nutritional and the environmental outcomes in LMICs remained an ongoing debate, particularly from the perspective that nutritious food and healthier diets, requiring appropriate handling from farm to fork, are more resource-intensive, even in LMICs.

7 Integration of equity and inclusion

This chapter presents the findings of the learning question: *How and to what extent have equity and inclusion been purposely integrated in the research questions, activities and approaches and results?* This question was addressed through the document review, the interviews and in the consultative workshops with the FSHD team and PhD researchers. Even though there has been comparatively more attention given to equity and inclusion than the environmental outcome, integration of social considerations by FSHD has also been very limited. As one respondents put it:

"I would say that equity and inclusion wouldn't come to the forefront of my mind of what we were trying to really work on."

The analysis highlighted three key findings described below.

7.1 Gender not addressed consistently across the program

There was a shared sense from the interviews that there could have been more efforts invested earlier in the program in mainstreaming gender better and more consistently throughout the program. As one respondent put it:

"At the program level, we wrote it in our proposal, but it was a secondary objective. We struggled much more with the concept of food systems and how to operationalize that. Mainstreaming gender and inclusion was a secondary thought [...] Efforts have been made to improve on gender, but the conclusion is: we haven't done it sufficiently, and we can take steps to improve it."

The most common reason given by FSHD researchers as regard to their relatively poor mainstreaming of gender was their limited gender expertise. This justification came several times across our interviews. The document review indicated that very often, researchers attached to the program were not even collecting gender disaggregated data. This was confirmed by a respondent:

"If you look at studies [...] - I'm referring to our inventory now again - about 10% does a gender disaggregated analysis. But then you're not going to find out whether things worked for women and men."

7.2 Inclusiveness as a concept should be broadened beyond gender

Beyond the criticism surrounding the consistency of the program in integrating gender, respondents also criticized the way in which social inclusivity was being approached by the program and more generally by CGIAR. The most recurrent criticism had to do with the narrow focus on gender and youth. A FSHD researcher explained:

"FS approach aims to be an integrated approach so it's sort of contradictory to say we take the FS approach and then we single out particular categories that we want to focus on."

Here, some respondents even argued that the traditional focus on women paradoxically risked overlooking dietary issues faced by men:

"One of the things that I realized while working on the program is that we often do not include the men ... We're always saying women are prone to deficiencies, but maybe the men are too, let's find out. It's interesting to see that there is almost no data available of low-income countries about dietary intake of men."

Other respondents went even further suggesting that such a focus could contribute to reinforce traditional gender roles:

"I have serious concerns about the fact that women are always targeted to make sure children are well nourished. It could be a burden for women, and it could also be again an assumption we make that women are the ones who have final decision making there."

Finally, our interviews suggested that there were many other groups and areas that would deserve further attention under the theme of equity and inclusion, notably the elderly but also issues such as child and forced labor which are pervasive in FS but have received very little attention.

7.3 Important data gaps to properly integrate the social outcome

Another key finding emerging from the analysis had to do with the concealed nature of the equity issues in FS, creating challenges for FS research to make it more inclusive. By nature, the informal and even illegal labor in the food sector happens largely under the radar, and is not captured well into data. As illustrated by one of the respondents:

"The fact that 40 percent of the people who worked in restaurants in Amsterdam are immigrants which are paid peanuts, if they are even paid at all [...] if you go to London or Paris or Montpellier this is everywhere in the restaurant industry [...] because they're informal they are invisible to policy makers."

The review of the FS country profiles and the interviews with the program team confirmed that there was a lot of informality associated with FS across the focal countries. A FSHD researcher further explained:

"I can already see that [for] the types of data that we were able to work with, we looked at the highest segments [and] socioeconomic classes simply because most employment in Nigeria is informal. I think that it might be relevant to say then that, in our diagnosis and foresight work, we were not able to work as much with informal institutions, informal markets, people engaged in those informal markets."

These important data gaps were often reported as the most significant barriers to apprehend equity issues in focal countries. FSHD researchers indicated that while the program had really been a precursor in getting some important discussions started, it also drew attention to the critical data gaps prevailing there, particularly around the marginalized groups.

7.4 Cross-country comparison

The interviews showed that equity concerns were studied in relation to Covid-19 in Ethiopia and in Bangladesh. The online survey added other methods of strategies used to include the social outcome, such as targeting vulnerable groups (e.g. women and children) by the program activities. Participatory approaches and other forms of engagement were also mentioned. In all four countries, respondents provided recommendations to better integrate equity and inclusion into the program. In Ethiopia,

Bangladesh and Vietnam, youth were mentioned as a group to be more involved. Using research to fill data gaps is mentioned in Ethiopia and Bangladesh.

Table 3.4 *Integration of equity and inclusion*

	Ethiopia	Bangladesh	Vietnam	Nigeria
Interviews	<ul style="list-style-type: none"> Analysis conducted to identify how the Covid-19 pandemic impacted differently poorer and vulnerable people. 	<ul style="list-style-type: none"> Survey conducted to study women's empowerment and women's dietary diversity during the Covid-19 pandemic. 	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> -
Survey Examples of strategies	<ul style="list-style-type: none"> Targeting of vulnerable groups by program activities Integration of equity and inclusion in the Ethiopian FS background paper (roadmap) Use of participatory approaches to integrate needs of vulnerable groups 	<ul style="list-style-type: none"> Intersectoral consultations Research engagement with vulnerable groups (e.g. women, slum dwellers, etc.) 	<ul style="list-style-type: none"> Targeting of vulnerable groups by program activities Advocacy for a better integration of these vulnerable groups in national databases 	<ul style="list-style-type: none"> Capitalizing on available evidence (literature review) Systematic engagement with vulnerable groups
Survey Recommendations	<ul style="list-style-type: none"> Better diagnosis and documentation of inequalities across Ethiopia (i.e. filling data gaps) Better engagement with youth (e.g. through schools, universities, and youth groups) Better use of mass media outlets for targeting vulnerable groups 	<ul style="list-style-type: none"> Foster more engagement with university students around social issues Support research efforts towards a better contextualization of Bangladesh FS 	<ul style="list-style-type: none"> Scale-up existing strategies at the country level (limited scale of the program) Increasing engagement with other sectors to capitalize on the program's uptake (e.g. Planning and investment, Natural resources, Trade, Committee of Ethnic Minority Affairs, etc.) Stronger focus on youth with a view to encourage their participation to agriculture 	<ul style="list-style-type: none"> Better integration of the informal sector

7.5 Integration of equity and inclusion in brief

Considerations relating to equity and inclusion were not integrated in the FSHD program by default:

- Gender and youth considerations have not been addressed consistently across the program, mainly resulting from a limited available expertise around these within the program.
- Critical shortcomings were mentioned relating to how social outcomes were handled. Defining social inclusiveness in terms of gender, more particularly women, and youth considerations only was criticized by respondents for being too narrow as a focus, easily overlooking FS issues faced by men and even bearing a risk to reinforce existing gender roles in undesirable ways.
- Data gaps were observed when it comes to proper and responsible integration of social outcomes, due to the concealed nature of the equity and informal labor issues associated with FS in the focal countries, not translating well into accessible data. These important data gaps were often reported as the most significant barriers to apprehend equity issues.

8 Program contextualization through stakeholder engagement

This chapter presents the findings on the learning questions: *How have the cluster activities and approaches been adjusted to the specificities of the country contexts? An how did we engage with national and international stakeholders and what did this lead to?* These questions were addressed through the interview, online survey and reflection sessions. Working with local partners was repeatedly highlighted as the main way to contextualize activities, providing easy access to people from different disciplines, who all benefit from working together. As phrased by a FSHD team member:

"Early on, [stakeholder facilitation] is about good skills at listening, pulling together and synthesizing concerns and issues that arise. And being able to test them with stakeholders in the country to see what resonates [...] The way they see it, and what they want is what matters."

Our analysis pointed at various enablers and barriers of program contextualization and engaging with local stakeholders.

8.1 The small number of countries enabled contextualization

The choice from the beginning to have FSHD focusing efforts on a small number of countries was evaluated positively by the interviewees. It meant that there was only a limited number of national food systems that needed to be understood. It gave the program a good grounding and an ability to dig deep, establish relationships and be present. A drawback that was mentioned by one of the interviewees was that the intensive focus on a handful of countries could also become a barrier towards future scaling-up of FSHD innovations.

8.2 Collaboration with anchor institutes well-aligned with A4NH was critical

Working with a country team that was well-aligned with A4NH was an important enabler for program contextualization. This alignment usually resulted from existing collaboration with CGIAR through an anchor institute. Anchor institutes proved to be critical in leveraging their networks to allow the program to better connect with the country context. As emphasized by a respondent from the program team:

"In the country what was really important was having an anchor institute embedded in all the policy work and what happens in-country. That really facilitated our entry into the country, because WUR doesn't have those anchor points [...] To have a process in place with continuous stakeholder engagement where you can fit in your results and learn together, this is an important thing."

8.3 CCUs were vital, but there was unclarity on what was expected of them

Respondents brought up the importance of Country Coordination Units (CCUs) in relation to the success of contextualization. Specifically, the CCU's ability to actively link FSHD to policy makers was reported as an enabler of contextualization. Policy makers provided insight into what was needed in the country and were part of the program's audience in terms of experience, knowledge and insights. The view that the country coordinator's performance was crucial for contextualization was contrasted by a view that there was too much emphasis on this in the program discourse, and that successful embedding in a country should not depend exclusively on the qualities of a few individuals. There was also a perceived mismatch between what was expected of the CCUs and the resources they had. Finally, respondents indicated that there was also some unclarity about the CCUs' actual mandates and their performance indicators, making successful contextualization prone to individual task perceptions and competences.

8.4 No clear stakeholder engagement process at the onset

At the beginning of the program, there was no clear stakeholder engagement process. In Vietnam and Ethiopia, this was picked up organically thanks to their respective country coordinators and strong roles of the key institutes. In Ethiopia, a systematic approach to stakeholder engagement was developed in 2019-2020. Building on that experience, systematic approaches were developed to engage with key stakeholders in other countries too, but this happened relatively late into the program (e.g. only last year in Bangladesh). In addition, it was reported that the writing of the FS country profiles entailed a strong engagement with key stakeholders across all four countries. Yet, it was reported that while such engagement further developed in the cases of Vietnam and Ethiopia, it remained comparatively limited in Bangladesh and Nigeria. Overall, respondents from the program team reported that this realization about the critical importance of timely stakeholder engagement has been taken on board in the formulation of a follow up-program (i.e. SHiFT⁹).

8.5 The sequential structure of the program constrained stakeholder engagement

"Bringing the stakeholders together, sharing information and devising strategies for scaling up successful options" was formulated in the program as part of the CoA-3. The sequential program design laid down in different CoAs meant that activities associated with CoA3 could only take place after CoAs 1 and 2, but this structure was dropped after about a year. It was reported that such a linear way of working was not ideal for stakeholder engagement. Respondents indicated that the feasibility of FS innovation (and eventually transformation) not only depends on technical factors, but also on the political contexts and the buy-in from societal actors. These factors should be planned for from the beginning. As it was put by one respondent:

"Actors are not just sitting there waiting for you to come up with possible innovations."

Hence, in addition to the need for a more integrated program structure (see also section 5.1), a key recommendation for future programming here has to do with the importance of engaging with stakeholders from the onset in the program (see also section 8.4).

⁹ The SHiFT proposal is currently under review

8.6 Having a shared understanding facilitates stakeholder collaboration

Having or building a shared understanding with stakeholders – in a broad sense of the word – was an enabler to stakeholder collaboration. It can pertain to a shared understanding of a problem to be addressed, a shared understanding of the concept of “food systems”, a common research agenda or the collaborative design of the program. For example, a respondent reported that collaboration with the Bangladeshi Ministry of Health was facilitated by their buy-in into the concept of FS. Another respondent mentioned the usefulness of the research agenda papers that were made based on consultations. Respondents also mentioned the importance of understanding the needs of stakeholders. Specifically, a respondent reported that the understanding of the needs and mandates of different government stakeholders should have been more thorough in order to be able to do better policy advocacy.

8.7 Externalities constituted barriers to stakeholder engagement

It might be stating the obvious, but it is still important to mention: Covid-19 constituted a barrier to stakeholder engagement over the last 2 years of the program by constraining physical meetings and field work. In addition, the war in Ethiopia represented an additional burden to the work there.

8.8 Cross-country comparison

Based on interviews and online surveys, it is apparent that contextualization efforts in Nigeria were limited to non-existent. It was reported that most of the actors engaged with the FSHD program in Nigeria were non-Nigerians, and that they had difficulty connecting to stakeholders directly. In Ethiopia and Vietnam, an organic stakeholder engagement process was in place. Both these countries were strongly engaged in the program of the UNFSS process. Ethiopia’s stakeholder engagement process eventually became the example to systematic stakeholder engagement approaches in the other focal countries. The online survey provided additional examples of program contextualization through stakeholder engagement, including capacity building of government officials (Ethiopia and Bangladesh), facilitation of intersectoral collaboration (Bangladesh and Vietnam) and linking with existing policies and research priorities (Ethiopia, Bangladesh and Vietnam).

Table 8.1 Program contextualization through stakeholder engagement

	Ethiopia	Bangladesh	Vietnam	Nigeria
Interviews	<ul style="list-style-type: none">Organic stakeholder engagement process in place from the beginning.The war in Tigray affected stakeholder engagement there.Strong engagement of the program in the UNFSS process.	<ul style="list-style-type: none">Few research projects for FSHD, so low need for stakeholder collaboration for contextualization, and little evidence to share with stakeholders.Systematic stakeholder engagement approach (following Ethiopia’s example) rolled out last year.	<ul style="list-style-type: none">Organic stakeholder engagement process in place.Systematic stakeholder engagement approach (following Ethiopia’s example) rolled out.Strong engagement in the UN food system summit process.	<ul style="list-style-type: none">Systematic stakeholder engagement approach (following Ethiopia’s example) rolled out.Limited engagement with Nigerian partners.

Survey	<ul style="list-style-type: none"> • FSHD integrated national policies and research priorities by supporting the Seqota Declaration n (incl. data collection in target woredas) and creating linkages with the UNFSS (i.e. FS road map, position paper). • FSHD built the capacity of government officials and partners around FS. 	<ul style="list-style-type: none"> • FSHD built the capacity of government officials around FS. • National policies and research priorities were supported by stakeholder mapping and participatory priority setting. • Intersectoral collaboration was facilitated by the establishment of MSP (led by GAIN). 	<ul style="list-style-type: none"> • Alignment with national policies and research priorities occurred by linking with existing initiatives (e.g. Zero Hunger, Sector Program) and by using food safety as a strategic entry point to FS discussions. • Intersectoral collaboration was facilitated by fostering cooperation at both central and local levels. 	<ul style="list-style-type: none"> • Respondents reported that no contextualization efforts were made in Nigeria.
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8.9 Program contextualization through stakeholder engagement in brief

The FSHD program deployed working with local partners as an explicit strategy to contextualize its research and activities. Enabling factors for contextualization were:

- The small number of focal countries involved in FSHD. This programmatic decision allowed the FSHD program to dive deeper into building an understanding of (sub)national food systems, to establish relationships and be responsive to country needs and demands.
- Collaboration with anchor institutes well-aligned with A4NH. Building on the existing collaboration with CGIAR in each of the countries was critical in leveraging their networks to allow FSHD to better connect with the country contexts.
- Putting into place Country Coordination Units (CCUs) was vital. They helped establish active linkages with policy makers which contributed greatly to contextualization. On the other hand, the experiences showed that the CCU's actual mandates and performance indicators were not very strictly or clearly defined, making successful contextualization prone to individual task perceptions and competences.
- Having a shared understanding facilitates stakeholder collaboration. It can pertain to a shared understanding of a problem to be addressed, a shared understanding of the concept of "food systems", a common research agenda, the collaborative design of the program, or of the needs of stakeholders.

Non enabling were:

- Having no defined stakeholder engagement process in place at the onset of the program, which led to different processes used in the different countries. These differences remained palpable throughout the program which led to the conclusion that timely stakeholder engagement in the program should be taken on board, including in the formulation stages of program development.
- The initial sequential structure of the CoAs constrained stakeholder engagement, and was one of the reasons to reconsider the program structure to allow for stronger stakeholder engagement across the CoAs and not only include technical aspects of FS innovations (and eventually transformation) but also the political and governance aspects as well as buy-in from societal actors.
- Externalities constituting barriers to stakeholder engagement related to the Covid-19 pandemic, and the conflict erupting in Ethiopia.

9 Influence of the program

This chapter describes the findings on the learning question: *"Has the evidence base generated and the engagement with stakeholders influenced policy makers and other stakeholders, nationally and internationally?"* The question was addressed through the document review, interviews, online survey and reflection session. Like the discussions around program achievements (see chapter 4), respondents from the program team typically found it difficult to answer questions related to the actual influence of the program. Whenever they came with an answer, they tended to be careful in their phrasing, emphasizing that the evidence was anecdotal, or nuancing that they were not well-placed to comment on this. Our analysis produced two key take-aways.

9.1 Influence of the evidence base was (still) barely visible

At the time of data collection, it was explained by a respondent that because the program was still in a phase where results were being produced, it would take a while for any influence to become visible. In addition, a respondent explained that some influence may never become visible in the sense that the program might also have prevented potentially harmful policy ideas from being implemented in the first place. As illustrated by a program team member:

"In Vietnam for example, one of the original intentions of the government was to modernize retail and close the traditional wet markets. I think we had an effect in avoiding this by highlighting their importance [...] That's a bad policy that could have affected people's diets. And this is just as valuable as having good policy ideas. If you as an economist stop a bad idea for a billion dollars dam, you have basically paid for your entire lifetime."

The story of the Ethiopian FBDGs was shared repeatedly as a good example of program influence. Others pointed to the successful collaborations that started up under the program, mostly within the focal countries, but also in a few other countries. For example, it was reported that Uruguay had asked the program to share insights on the FSHD approach and lessons learned. Finally, it was reported that the existing monitoring and evaluation system (i.e. MARLO) was not designed to capture the influence of the evidence and stakeholder engagement that the program contributed to, possibly because this aspect was not well explicated in the program design or theory of change.

9.2 Various mismatches between research and policy processes

Mismatches between research and policy processes were reported by several respondents – mostly in general terms, but sometimes referring to specific situations that occurred over the course of the program. One mismatch was that the policy questions that emerged from stakeholder consultations in the program did not always have academic value. For example: *"Can healthier food choices lead to a healthier food supply?"*. Another mismatch was that researchers may not be aware of the realities that policymakers face. One respondent explained that it was naive to think that just generating evidence would have an impact on policy, as policymaking was primarily a political process. Especially evidence that contradicts the political agenda easily goes ignored. A question raised by one of the respondents was: *"To what extent can researchers be expected to take policy realities into account?"* One respondent suggested that researchers should be more politically aware of the implications of their work and how their evidence is used to push specific agendas. Another researcher, however, had a different take on their role: *"I'm not a diplomat, I'm a researcher."*

Another important limitation resides in the fact that donors are generally not ready to adopt transformative thinking, which further contributes to a mismatch between research and policy processes in LMICs.

9.3 Cross-country comparison

Both the interviewees and the respondents to the online survey reported various challenges associated to the impact of the program. According to the interviews, in Bangladesh, there was little evidence that could be shared with policy makers, and it was difficult to make government bodies work together. In Nigeria, not much uptake of evidence was reported either. In Ethiopia and Vietnam, there were some concrete examples of program influence to report at this stage. In the online survey, most countries report active stakeholder engagement as a key factor to success. These stakeholders can be government actors, but also media and I/NGOs.

Table 9.1 *Influence of the program*

	Ethiopia	Bangladesh	Vietnam	Nigeria
Interviews	<ul style="list-style-type: none"> FBDGs repeatedly named as example of influential evidence. 	<ul style="list-style-type: none"> Little evidence that could be taken to policy makers. Efforts focused on building a stronger network with them. Challenge to make the various government bodies work together. 	<ul style="list-style-type: none"> Evidence used to demonstrate the importance of leaving wet markets open. NSA integrated in the national nutrition strategy. Support given to guidelines on NSA in the Zero Hunger National Action Program. More awareness on A4NH and FS. 	<ul style="list-style-type: none"> Not much uptake of evidence reported.
Survey Positive factors on influence	<ul style="list-style-type: none"> Active engagement with Government of Ethiopia Enabling policy environment (Seqota Declaration) Direct support of existing initiatives (e.g. FBDG) Context of preparation towards the UNFSS 	<ul style="list-style-type: none"> Degree of involvement with media and coverage of the program Pre-existing shift towards FS thinking for policy makers and practitioners Alignment with the new food security and nutrition policy (Ministry of Food/FAO) Emphasis of policy makers on food safety (effective entry point) 	<ul style="list-style-type: none"> Broad engagement across sectors (i.e. Ministries of Agriculture, Health, I/NGOs, SUN/CSA) Alignment with government's directives around agriculture and food safety Alignment with existing initiatives (e.g. Zero Hunger) 	<ul style="list-style-type: none"> Stakeholders engagement across all the stages of the program Engagement with government officials
Survey Negative factors on			<ul style="list-style-type: none"> Lack of dietary data in most parts of the country (except for the 3 districts covered) Lack of official communications (e.g. rural newspapers today, agricultural newspapers, etc.) 	<ul style="list-style-type: none"> Limited knowledge around FS in Nigeria Program has mostly been able to achieve characterization studies

9.4 Influence of the program in brief

FSDH has had a modest impact or influence on policy makers, nationally or internationally.

- Influence of the evidence base generated under FSDH was (still) barely visible. Partly because it takes time for results generated in an ongoing program to be embraced. And partly because some influence may never become visible when it comes to FSDH evidence indicating potentially harmful policy ideas and thus helped to prevent them from being implemented.
- Various mismatches were flagged between research and policy processes. Policy questions emerging from stakeholder consultations did not always touch upon academic interests, and researchers were not always aware of the realities faced by policymakers. A general acknowledgement was, though, that generating evidence by itself was insufficient to impact on policy, as policymaking is by definition a multifaceted process.
- Practically, the FSDH monitoring and evaluation system was not designed to capture research uptake and monitor its influence.

10 Principles for action reflecting a systemic approach

This chapter describes the findings on the learning question: *How have activities been integrated, reflecting a systemic approach? E.g. interactions, feedback loops with other parts of the food system?* Drawing upon the interviews and the online survey, it became clear that for people involved in the program, adopting a FS approach was seen as appropriate to throw a new light at the persistent problems of food insecurity and malnutrition, offering venues to connect dots where this was not done previously. Over the years of the program, significant progress was made in putting the consumers and their choices in the context of a broader FS, thereby bringing FS and HD together in a more integrated manner. In doing so, the program has generated key insights on how to engage with and involve different stakeholders, and how policy is intertwined with FS innovations to enable FS transformations, an area easily overlooked in FS research. From our analysis four principles for action emerged which can support the adoption and implementation of FS research more generally.

10.1 Cultivate a learning attitude to understand and own FS approach

Most respondents described their research experiences under FSHD as important learning processes over the years, both at the program team level as well as the individual level. This learning process typically started with mastering the concept of FS before eventually putting it into research practice, often learning by doing. Taking (or making) the time to conceptualize and bringing up the principles of systemic thinking in discussions was reportedly important although transformative thinking was not, at least initially, systematically used in the program. FSHD adjusted its approach upon realizing, during its second year, that up to that point, the ongoing research was addressing food value chains more than the entire FS. From then onwards a reflection process started that sought to bring out the differences between value chain and FS research. Drawing from this comparative reflection, the FS approach evolved over the years making it possible for FSHD to better define what distinguished FS research from other conceptual approaches, such as nutrition sensitive agriculture for example.

10.2 Build on commonly accepted frameworks to remain focused

Drawing from various commonly accepted frameworks (incl. HLPE framework¹⁰), adopting a general framework for FSHD, and articulating theories of change was deemed by respondents as a good program practice to guide the application of a systematic approach. It contributed to creating a shared language among the researchers attached to the program (see also section 5.2). It also allowed the FSHD team to make deliberate choices on what to integrate or not into studies and analyses. It also helped to keep in mind the 'bigger picture' and to clarify and define research scopes without losing sight of interlinked or adjacent food system areas and the potential trade-offs and/or synergies to be considered. Such framing also made it possible to consider the different components of the FS and synthesize information across a wide range of studies. Respondents from the program team reported that the time spent reflecting on theories of change and mapping the different transformation pathways had been insightful and helpful to give direction and monitor progress. On the other hand, some respondents emphasized the limitations of using commonly accepted frameworks, notably the risks of having too narrow a view thereby missing out some important dynamics that were not part of the framework (see chapter 7), or being used for deterministic reasons for analysis rather than to bring about change. As voiced by a researcher from the program team:

¹⁰ HLPE. Food security and nutrition: building a global narrative towards 2030. 2020.

"Even though there are now very specific frameworks on how to analyze, collect, and integrate data from different angles, the question of how I use these to actually change lives in practice is very much missing. [...] I think we need to get more active into changing the lives of the people."

10.3 Look at food systems at different levels

The FS approach is considered appropriate to link different problems because it allows for assessment and evaluation of different issues across scales (spatial, temporal), and levels. Using the FS approach effectively allows for the integration of synergies and trade-offs between the different disciplines. From a FS governance perspective, it addresses multi-level and multi-scalar issues (both temporal and spatial) in a given context. An important lesson learned was that one needs to invest in understanding how FS are understood at the different levels (local, national, regional, or global) in order to engage meaningfully with the stakeholders at each of these levels. It is by studying the different levels of FS, that FS connections – or disconnections – start to emerge. In relation to the need for more contextual FS approaches (see also section 5.4), it was emphasized by respondents that local FS dialogues can sometimes be completely different from national FS dialogues.

10.4 Contextualize FS research approaches

The FSHD program adopted a diets-oriented approach at the country level with the underlying idea of being able to compare between the different focal countries. This choice to adopt a geographical focus based on a limited number of countries characterized by very different contexts was well appreciated and considered helpful for the FS research (see also section 8.1). Engagement and collaboration were sought around problem definition, not only based on the disciplinary expert analysis, but also by engaging other stakeholders, and building on ongoing policy processes. In practice, this meant organizing interaction. The first steps was to get key actors to agree on the type of FS transformations needed, to identify who was involved, who was doing what and what were the research questions to be addressed by the program. This undertaking required organizing regular meetings and cross-disciplinary learning. This strategy grew somewhat organically under the FSHD program, with variable levels of success, but it required a lot of coordination skills by the program team. A key ingredient for success that emerged from our analysis is the in-country boundary-spanning work needed to form the necessary partnership and create wider networks among stakeholders. Therefore, having institutions with broad networks in the countries was deemed key (see also section 8.3), making it possible to link to existing policies as well as engage with stakeholders, including from those other sectors, such as private sector, education or health.

10.5 Principles for action for a systemic approach in brief

FSHD has generated key insights on how to put food systems research into practice. Key principles for action which support the adoption and implementation of FS research were:

- Cultivate a learning attitude to understand and develop ownership of a FS approach, at the individual and program level, whereby research experiences go hand in hand with learning experiences, grounded in learning by doing and taking time to conceptualize and bring up the principles of systems thinking in program dialogues.
- Build on commonly accepted FS frameworks to remain focused. FSHD adopted a general FS framework and articulated theories of change which were found to give good guidance to the application of a systematic approach. It helped to create a shared language and allowed for making deliberate choices concerning studies and analyses. It also helped to define research scopes without losing sight of interlinked or adjacent food system areas and the potential trade-offs and/or synergies to be considered.
- Look at food systems across scales and levels. A FS approach brings different problems together allowing for research of different issues across scales, levels and disciplines. An important lesson

was that one needs to invest in understanding how FS are understood at the different levels (local, national, regional, or global) in order to engage meaningfully with the stakeholders at each of these levels. It is by studying the different levels that FS connections – or disconnections – start to emerge.

- Contextualize FS research approaches. The FSHD program adopted a diets-oriented approach in different country contexts where collaboration was sought around problem definition, not only based on the disciplinary expert analysis, but also by engaging other stakeholders, and building on ongoing policy processes. In practice, this meant organizing interaction, requiring a lot of coordination skills. A key ingredient for success was the in-country boundary-spanning work by actors connecting groups of stakeholders. Working with in-country institutions with broad networks made this possible.

11 Key lessons for FS research and program design

This chapter describes the findings of the learning question: *What lessons can be learned from FSHD for research to contribute to food system transformation?* This question was addressed through documenting the main takeaways as they emerged from the analysis across the various learning questions. The consultative workshops with the program team and PhD candidates provided an opportunity to further reflect on these findings and collectively identify some of the key lessons in relation to FS research design and programming. These are summarized in six key lessons below.

11.1 Facilitating interagency collaboration

FSHD was part of a complex CGIAR program (A4NH), bringing many implementing partners together. The people working in the program were accountable to their respective centres as well as to the program, which inevitably generated some tensions. This required the program team to adopt a systemic approach to management and governance, assuming principles such as flexibility, adaptability, system based problem framing, and responsiveness, geared towards facilitating interagency collaboration. Bringing in an outside institute for managing the overall flagship (WUR) was reported as a successful mechanism to facilitate collaboration between the different CGIAR centres. One of the program team leaders explained that there had typically been institutional rivalries between different CGIAR centres when it came to allocate CRP funding.

11.2 Ensuring adaptive and responsive program management

The initial linear design of CoAs was at odds with the concept of a systems approach and with the aim of embedding and anchoring FS approaches in the focal countries (see also sections 5.1 and 8.5). This limitation however was addressed swiftly by the program team, by taking action to involve national researchers, policy makers and other stakeholders in countries as part of the process. The analysis indicates that such adaptive program planning owes a lot to the theory of change adopted by the program at the onset. Allowing for a realignment of the sequence of actions by maintaining the focus on where these should collectively lead was reported as central to FSHD adaptability. Another illustration of this adaptive management was the responsiveness of the program to the Covid-19 pandemic, not only requiring researchers to revise and adjust their research designs, but also initiating new efforts to monitor the impact of the pandemic in the FS of the focal countries.

11.3 Facilitating context specific FS research in-country

The need to be receptive and adaptive to critical food issues and ongoing developments in country was flagged repeatedly by respondents as being central to the success of the program. The reflections on FSHD experiences across countries showed differences in how to best engage with key stakeholders and how to best contextualize approaches. In countries with a stronger centralised and hierarchical governance structure (i.e. Ethiopia and Vietnam), a kind of 'push-down' pathways was used, working through government-supported collaborative structures whereas in countries with more decentralised governance structures (i.e. Nigeria and Bangladesh), 'coalition building' appeared to be a better approach. This typically started with the creation (or ideally identification of an existing) platform that was then supported by FSHD to grow into a FS transformation platform. FSHD experiences further suggest that incentive mechanisms need to be considered in the specific country contexts to create good will and engagement of local research institutions and universities. In retrospect, it was

considered that the multi-stakeholder engagement and platform formation should have ideally started at the onset of the program, with a clear process to guide the work, and with an anchor point in-country (see also chapter 8).

11.4 Putting stronger emphasis on food environments

Traditionally CGIAR focused on both food security and dietary intake, but missed their actual interface. The FSHD program contributed to bringing the emphasis on the latter by advancing the concept of 'food environment'. This was reported by respondents as one of the key achievements of the program (see also section 4.2) and a very insightful way to revisit traditional approaches. As it was reported under 5.2, the notion of food environment helped CGIAR centres connecting all the work they were already doing downstream and upstream, making it more visible how they could benefit from one another. As voiced by a researcher from the program team:

"I guess we've made it much more explicit and thought much more carefully in what the food environment is. That we need to be doing research on that. I was really coming from a production-oriented perspective, and I think the focus on food environment for instance has been a real change. That may be the most important evolution we have done. Ironically a good diagram such as the one from HLPE can sometimes help us to change the way we think about what we do."

As such, advancing the concept of food environments was reported to have paved the way for not only re-understanding but also rethinking the work of CGIAR. Discussions with the program team suggest that food environment could eventually serve as an entry point to look at food issues. As illustrated by a respondent describing the recent restructuring of the centres:

"Biodiversity International recently formed an alliance with CIAT and as they were standing up, one work program area became the food environment and consumer behavior. This is directly a spin-off from the work of FSHD".

11.5 Being forward looking and aware of the political economy in FS

For programming future FS research, it was deemed critical to be more forward-looking. Discussions with the program team indicate that because the dynamics of food system transformations are complex, there is a need to take more of a proactive approach in considering *"What does the future of our FS look like? What do people want them to look like?"*, thereby anticipating more explicitly wider issues in our FS, including the aspects of equity, inclusiveness, power, and sustainability or other challenges that might emerge. Some FSHD research was about pilot-testing FS innovations driving the FS in a given direction, with a view to upscaling. Examples were the dietary gap assessments in the focal countries, followed by exploring different interventions on how to address these at scale. These pilots were successful, but it turned out to be difficult to trace the effect of such interventions on the system. The discussions indicate that more emphasis should be put on ensuring a conducive policy environment allowing for changes to take place and on more systematically documenting evidence of what works in FS governance. Finally, the attention given to the role, position and power of the big actors dominating the FS was flagged as another critical area of attention for future FS research. This was reported as an important limitation for the program. Even though FSHD engaged with the private sector to some extent, the absence of genuine interest for healthy food by these actors was considered as a critical constraint, one that ought to be more explicitly addressed by future FS research program. As voiced by a respondent:

"From a political economy perspective, one of the barriers is the fact that some actors want to maintain the status quo [...] An enabler would be any governance system that allows us to challenge that status quo."

11.6 Paying attention to a researcher's individual development

Based on the interviews and the workshop reflections, it became clear that, at the individual level, it is not simple nor straightforward to apply a FS research approach. Researchers need to balance out the need to work from a holistic perspective, whereas they also need to limit the scope of their research in order to take a deeper dive and provide sensible research output. As phrased in section 4.4, FS research requires grazers and moles. Collaboration is required between disciplines to oversee the whole FS, which requires people to step out of their comfort zone and work in an interdisciplinary manner to find answers. But not everybody is well equipped or likes to work in such an interdisciplinary environment. Even more experienced researchers in FSHD flagged that it took them time to become aware and to feel enabled to act as such, suggesting that personal development and openness to learning is required to grow into the role of food system researcher. As it was put by one respondent:

"Linking the little dots together, this is what systems thinking is about. It's about recognizing that the way nutritionists see the problem is probably correct but it's only partial and the way that ecologists see the problem is probably correct but it's also partial and you have only a bigger picture when you put those together".

Technically, researchers phrased limitations to making claims about causality when doing an intervention and trying to identify an impact because there are so many aspects and uncertainties involved. It was observed that classical randomized controlled trial designs probably are not, by themselves, the best way forward in FS research, but will need to be complimented by other research strategies. So, not only at the level of disciplines but also at the level of joint research techniques more collaboration and synergies are required, posing additional emphasis on the collaborative skills of the individual researcher. Lastly, in order to contextualize and contribute to impact, researchers need to be (or become) good communicators to interact with stakeholders in country, and find ways to link up with decision and policy-making processes, which, so far, has not always been easy.

11.7 Lessons for FS research design and programming in brief

FSHD has led to a multitude of insights with a view to program planning and research design, by using the learning questions to map experiences of the program team, key researchers from CGIAR, from universities and national institutions, from the country coordinators and selected informants in the four focal countries. The key lessons relate to:

- Facilitating interagency collaboration. FSHD, being part of a wider CGIAR program (A4NH), adopted a systemic approach to management and governance, assuming principles such as flexibility, adaptability, system based problem framing, and responsiveness, to facilitate interagency collaboration. Assigning this role to a party not embedded in CGIAR was considered helpful.
- Ensuring adaptive program planning and responsive implementation. Guided by the theories of change, FSHD managed to adjust its initial linear program design to the needs of adopting a FS approach, also in the focal countries, by involving national researchers, policy makers and other stakeholders as part of the process. Another illustration of adaptive management was the responsiveness to the Covid-19 pandemic, leading to new efforts to monitor the impact of the pandemic in the FS.
- Facilitating context specific FS research in-country. FSHD experiences across the four countries showed differences in how to best engage with key stakeholders and how to best contextualize approaches. A key lesson was that multi-stakeholder engagement and platform formation should start at the onset of the program, with a clear process to guide the work, while collaboration with an anchor institute in-country.
- Putting stronger emphasis on food environments rather than on food security or dietary intake. Embracing the concept of food environments and consumer concerns helped to advance the

understanding of FS approaches across the different CGIAR institutes involved in FSHD and to rethink their work relating to food issues.

- Being forward looking and staying aware of the political economy in FS. Being forward-looking was considered critical for programming future FS research. Envisioning consequences of the dynamics of food system transformations, although complex, needs to be taken on board more explicitly, thereby anticipating wider issues in the FS, including aspects of equity, inclusiveness, power, and sustainability or other challenges. Also, more emphasis should go to ensuring a conducive policy environment allowing for changes and to systematically documenting evidence of what works in FS governance, including the role, position and power of the big actors currently dominating the FS.
- Paying attention to a researcher's individual development. Becoming a FS researcher was described as a process of learning by doing. Researchers need to balance between working from a holistic perspective, while they also need to define and address targeted research questions limiting their research scope. Collaboration between disciplines is required to adopt and ensure that different components of the FS are addressed, for which not every researcher is well equipped. Not only at the level of disciplines but also at the level of joint research techniques more collaboration and synergies are required, posing additional emphasis on the collaborative skills of the individual researcher, also with a view to contribute to impact for which researchers need to interact with stakeholders of various kinds.

12 Discussion and conclusion

This chapter first presents some of the methodological considerations of the FSHD learning journey. It then goes on to draw the main conclusions, relating to insights on FS research practices for healthier diets and to transferable knowledge for new programming. In doing so, this chapter discusses the implications of the lessons learned for a wider audience than the program team, that is food system researchers and decision-makers working at national and international level.

12.1 Methodological considerations

As described previously, the scope of the learning journey was to facilitate a learning process to generate key lessons on FS research principles and practices and to inform future FS research. The methodology used in this learning journey was geared towards capturing individual experiences and insights from researchers and professionals engaged with FSHD and/or A4NH and connecting these at collective levels allowing for joint sensemaking of findings. The early consultations and joint formulation of learning questions (LQs) served as the FSHD learning agenda, guiding the entire learning journey. The overall approach engaged different stakeholders groups in different ways:

- The FSHD core team was actively engaged in shaping the learning agenda by formulating the LQs but also through regular feedbacks and in participating to both the interviews, and consultative workshops. This involved the program manager, the CoA leads (who are also key researchers/post-docs), A4NH key resource people (e.g., A4NH program director, M&E officer), and the A4NH country coordinators of the four focal countries.
- A selected group of key researchers was also interviewed and engaged in the consultative workshops. This involved post-docs, CG researchers and PhD candidates.
- A selected group of in-country stakeholders was consulted through an online survey, including representatives from national governments, national and internal NGOs, national universities and research institutes and universities, as well as UN institutions. They were also engaged in online feedback sessions to validate the findings of the learning journey.

This approach was chosen with the aim that the FSHD would assume ownership over their own learning journey, and would actively take part in data collection and generating lessons learned. This approach was only partially successful. In practice, the team that was formed to facilitate the learning journey designed and implemented the data collection, ran the analyses, and drafted the lessons learned, without deep engagement of the team. Despite the regular updates provided to the FSHD team and the consultative processes in place, it is well possible that the lessons documented by the learning journey will not trigger double or triple loop learning whereby people themselves are able to articulate their own actions for change and act upon it.

The online survey rolled out across the four FCs captured views from a variety of stakeholders, including policy makers, researchers from national institutes, national and international NGOs. Whereas the outreach was satisfactory, some respondents in the various countries reported facing difficulties to answer some of the questions relating to FSHD due to their low familiarity with FSHD and the difficult distinction between A4NH as the umbrella program and the five flagships including FSHD. In other words, stakeholders in-country had limited understanding of the actual flagship division.

An important consideration to keep in mind when reading the subsequent conclusion sections relates to the fact that the learning journey targeted the FSHD team members and key researchers as well as a range of other key stakeholders engaged in FSHD. It was very positive that many people were willing to participate in the interviews and consultative workshops. But by exploring the learning questions with this particular group of respondents, the lessons learned as formulated may, as a result, be skewed to what we may call an 'expert opinion' of experienced FS research experts and practitioners and may not necessarily align with or appeal to a wider audience. In addition, as

indicated by many of the respondents themselves, they may not be in the best position to objectively assess the program. Further validation and dialogue with a wider audience at the international and national level is required to validate the findings and distil an adequate set of guiding principles on FS research programming and practice.

12.2 Conclusions on FS research for healthier and sustainable diets

A first key conclusion stemming from this FSHD learning journey is that the program has contributed substantially to mainstreaming FS and HD considerations in agricultural research and development. FSHD has propelled the principles and practices of FS research for healthier diets at CGIAR level as well as in the focal countries. Firstly, by keeping a clear focus on generating outputs of various kinds (i.e. academic publications, reports, blogs, papers etc.) disseminated through the FSRC, thus opening a gateway to the international community to use and expand on FSHD insights. Secondly, by contributing to increased attention for FS transformation, by putting it on the agenda at the country-level as well as globally. The program contributed to raise awareness on the need to pay more systematically attention to consumer perspectives and diets in both the research and policy sphere. Thirdly, by building capacity and strengthening partnerships for FS research resulting in an expanding pool of experienced FS researchers.

A second important conclusion is that there is still little evidence that FSHD contributed to FS transformations for healthier diets. FSHD laid some important groundwork on identifying FS innovations that could support FS transformation in desired directions, thereby defining FS innovations as *'a policy or regulation, an institutional process, a change in knowledge, a technology, or combination thereof that is either not used or not widely used within a food system, with the potential to change diets on a wider scale'* (IFPRI 2019a). But overall, FSHD at best made a humble contribution to FS transformation for healthier diets. The (limited) duration of the program was reported as the main reason given that transformative change implies change across places, sectors, issues, scales (spatial, temporal) and people, making this process time-demanding (Visseren-Hamakers et al., 2021).

A third key conclusion relates to the little evidence on how FSHD managed to integrate trade-offs and synergies in regard to the environmental outcome. This resonates with observations in the literature highlighting that environmental objectives are poorly incorporated in value chain research for food security and nutrition (Farmery et al., 2021). The findings suggest that this can be partly explained by the fact that a focus on healthier diets, considered to be an effective compass to navigate FS complexity, also bears a risk of simplification. Similar observations are described in a FSHD paper highlighting that current food system analyses are not very relevant for understanding critical trade-offs and policies to achieve synergies, and that too little attention is paid to food system drivers, determinants of food choices, the political economy and power relationships (Brouwer, McDermott & Ruben, 2020). Another explanation may relate to the fact that other major research programs already addressed the issue of sustainable diets in the light of planetary boundaries (see Willet et al., 2019; Swinburn et al, 2019), providing a substantial and excellent body of complementary evidence to the FSHD flagship. Lastly, this research domain is relatively young and possibly less like to be brought to the forefront. Some exploratory work done under FSHD relates to building an understanding of the role of FS governance in FS transformation to deal with the interactions between food production, processing and consumption, in relation with the different drivers of FS guided by the nutritional, social, environmental and economic outcomes. Governing for FS transformation involves more than designing and implementing a new paradigm for future FS in the most effective way. Understanding current FS governance practices is a basic requirement as well as recognizing that FS transformation is a complex and long-term process involving learning, reflection, dialogues and power struggles (Vignola, Oosterveer & Béné, 2021).

A fourth conclusion is that equity and inclusion were not automatically integrated in, nor consistently addressed by FSHD program, mainly as a result of lack of expertise in the team. Critical shortcomings

observed related to the way equity and inclusiveness were operationalized across the various studies, usually judged as having too narrow a view, focusing on women, or youth, only. Access to relevant and reliable data in the FC was reported an additional barrier.

A final conclusion relates to the emerging interest for and growing body of work done on food environments as an entry point for FS research for healthier diets. Embracing the concept of food environments and consumer concerns was reported to have helped advancing the embrace of FS approaches across the different CGIAR institutes involved in FSHD, challenging them to rethink their work relating to food issues.

12.3 Conclusions on programming for FS research

Looking at the findings on adopting principles for action for FS research and programming, the conclusion is that FSHD successfully generated key insights on how to put FS research into practice, although this was not done in a premeditated or orchestrated way. Key principles for action to adopt FS research in program development relate to the use of generally agreed upon frameworks and development and use of theories of change that feed into an ongoing dialogue on what direction to take and where to adjust. This should notably include the integration of trade-offs and/or synergies in regard to environmental and social aspects. Furthermore, at the level of program management, facilitating interagency collaboration and ensuring adaptive program planning is required, cultivating a learning attitude to understand and develop ownership of a FS approach. Research experiences going hand in hand with learning experiences were reported as a critical success factor, requiring attention for a researcher's individual development.

Another important conclusion is that putting into practice contextualized FS diets-oriented approaches helps to look at FS at different levels and engage meaningfully with the stakeholders at each of these levels. FSHD built on the strategy developed for A4NH to contextualize its research and activities (Wyatt et al., 2020), which worked better in some countries than others. This learning journey further suggests that a contextualized FS research benefits from working with a limited number of countries and coordinating with a local anchor institute which can support an effective stakeholder engagement process.

A final conclusion relates to the influence of the program and the uptake of research outcomes of FSHD which was found to be rather modest. It was acknowledged that additional actions are needed alongside generating a robust evidence-base to ensure use of FSHD research outcomes. One could argue that there is a need for parallel tracking in FS research in which FS and diet-oriented studies go hand in hand with studying advocacy and stakeholder engagement strategies throughout the program. Future programming could benefit from integrating more explicitly implementation or evaluation research to study what is called 'evaluation use': instrumental use (leading to decision making, actions), process use (learning through the process), and conceptual use (Patton, 2020).

References

Report

Argyris, C., Schön, D.A. Organizational Learning II: Theory, Method, and Practice, Addison-Wesley Publishing Company, New York (1996)

Argyris, C., 1999. On Organizational Learning. second ed Blackwell Publishing, Oxford, UK.

Brouwer, I.D., John McDermott, J., Ruben, R.(2020): Food systems everywhere: Improving relevance in practice, Global Food Security, Volume 26, 100398, doi.org/10.1016/j.gfs.2020.100398.

Farmery, A.K., Brewer, T.D., Farrell, P., Kottage, H., Reeve, E., Thow, A.M., Andrew, N.L.(2021): Conceptualising value chain research to integrate multiple food system elements, Global Food Security, Volume 28; doi.org/10.1016/j.gfs.2021.100500.

Fillion, G., Koffi, V., Ekionea, J., 2015. Peter Senge's learning organization: a critical view and the addition of some new concepts to actualize theory and practice. J. Org. Cult. Commun. Confl. 19, 73–102.

Haysom G, Olsson EGA, Dymitrow M, Opiyo P, Taylor Buck N, Oloko M, Spring C, Fermskog K, Ingelhag K, Kotze S, Agong SG. Food Systems Sustainability: An Examination of Different Viewpoints on Food System Change. *Sustainability*. 2019; 11(12):3337. doi.org/10.3390/su11123337

Hekkert, M.P., Suurs, R.A.A., Negro, S.O., Kuhlmann, S., Smits, R.E.H.M. (2007): Functions of innovation systems: A new approach for analysing technological change, Technological Forecasting and Social Change, Volume 74, Issue 4, 2007, Pages 413-432; doi.org/10.1016/j.techfore.2006.03.002.

HLPE (2017). Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

McClory, S., Read, M., & Labib, A. (2017). Conceptualising the lessons-learned process in project management: Towards a triple-loop learning framework. *International Journal of Project Management*, 35(7), 1322-1335.

Lecoutere, E., van den Berg, M., de Brauw, A. (2021): Effective Food Systems Innovations An Inventory of Evidence from Bangladesh, Ethiopia, Nigeria, Viet Nam, and Other Low- and Middle-Income Countries, IFPRI Discussion Paper 02022, IFPRI, Washington. <https://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/134401/filename/134613.pdf>

Neufeld, L. M., Hendriks, S., & Hugas, M. (2021). Healthy diet: A definition for the United Nations Food Systems Summit 2021. *A paper from the Scientific Group of the UN Food Systems Summit*. UN, New York.

Patton, M. Q. (2020). Evaluation use theory, practice, and future research: reflections on the Alkin and King AJE series. *American Journal of Evaluation*, 41(4), 581-602.

Swinburn BA, Kraak VI, Allender S, et al. The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. *Lancet* (London, England). 2019 Feb;393(10173):791-846. DOI: 10.1016/s0140-6736(18)32822-8. PMID: 30700377.

Van Dyck, B., Vankeerberghen, A., Massart, E., Maughan, N., & Visser, M. (2019). Institutionalization of participatory food system research: encouraging reflexivity and collective relational learning. *Agroecology*, 13(1), 21–32. Retrieved from: <https://revistas.um.es/agroecologia/article/view/385641>

Vignola, R., Oosterveer, P., & Béné, C. (2021): Conceptualising food system governance and its present challenges. Report Environmental Policy Group, Wageningen University and Research.

Visseren-Hamakers, I.J., Razzaque, J., McElwee, P., et al. (2021): Transformative governance of biodiversity: insights for sustainable development, *Current Opinion in Environmental Sustainability*, Volume 53, pp 20-28.doi.org/10.1016/j.cosust.2021.06.002.

Wyatt, A., Covic, N., McDermott, J. (2020): Country Coordination and Engagement: Lessons from A4NH for One CGIAR, Strategic Brief 2020, CGIAR, Washington.

Included in the document review

Brouwer, I. D., McDermott, J., & Ruben, R. (2020). Food systems everywhere: Improving relevance in practice. *Global Food Security*, 26.

IFPRI (2018). *Food Systems for Healthier Diets in Ethiopia: Towards a Research Agenda*. IFPRI Discussion Paper, 01720. Washington D.C., USA, 50pp.

IFPRI (2019a). *Food System Innovations for Healthier Diets in Low and Middle-Income Countries*. IFPRI Discussion Paper, 01816. Washington D.C., USA, 32pp.

IFPRI (2019b). *Food Systems for Healthier Diets in Bangladesh: Towards a Research Agenda*. IFPRI Discussion Paper, 01902. Washington D.C., USA, 52pp.

IFPRI (2019c). *Determining Key Research Areas for Healthier Diets and Sustainable Food Systems in Vietnam*. IFPRI Discussion Paper, 01872. Washington D.C., USA, 118pp.

IFPRI (2020a). *Inclusive Food System Transformations for Healthy Diets National Experiences with a Global Challenge* [Strategic Brief]. Washington D.C., USA, 12pp.

IFPRI (2020b). *Gender Equity Considerations in Food Environments of Low and Middle Income Countries: A Scoping Review*. IFPRI Discussion Paper, 01991. Washington D.C., USA, 59pp.

IFPRI (2020c). *Food Systems Research to Support Sustainable Impact* [Strategic Brief]. August, Washington D.C., USA., 4pp.

IFPRI (2020d). *Supporting Consumer Choices Toward Healthy, Safe, and Sustainable Diets in Low and Middle-Income Countries* [Strategic Brief]. August, Washington D.C., 4pp.

IFPRI (2021). *Effective Food Systems Innovations: An Inventory of Evidence from Bangladesh, Ethiopia, Nigeria, Viet Nam, and Other Low- and Middle-Income Countries*. IFPRI Discussion Paper, 02022. Washington D.C., USA, 110pp.

FSHD (2017). *A4NH Annual Report to the Independent Steering Committee* [PowerPoint presentation]. 6th Annual ISC Meeting, October 31, IFPRI, Washington D.C., USA.

FSHD (2018a). *A4NH Monthly Flagship Meeting* [Meeting minutes]. March 27, Wageningen, The Netherlands.

FSHD (2018b). *A4NH Annual Planning Meeting* [Meeting minutes]. December 10-11, Abuja, Nigeria.

FSHD (2019a). *A4NH Annual Planning Meeting* [Meeting minutes]. September 25-27, Wageningen, The Netherlands.

-
- FSHD (2019b). *A4NH Country Coordination and Engagement: Report on Discussion Forum on Nutrition Sensitivity of CGIAR Work in Nigeria* [Meeting Minutes]. November 28, Ibadan, Nigeria.
- FSHD (2020a). *A4NH Annual Report to the Independent Steering Committee* [PowerPoint presentation]. 4th Annual ISC Meeting, October 27, IFPRI, Washington D.C., USA.
- FSHD (2020b). *A4NH Country Coordination and Engagement: Lessons from A4NH for One CGIAR* [Strategic Brief]. December 2020, IFPRI, Washington D.C., USA.
- FSHD (2020c). *A4NH Country Coordination and Engagement in Ethiopia: Situation Analysis and Support to Flagship Programs* [PowerPoint presentation]. September 2020, Addis Ababa, Ethiopia.
- Glover, D., & Sumberg, J. (2020). Youth and food systems transformation. *Frontiers in Sustainable Food Systems*, 4, 101.
- Kalmpourtzidou, A., Eilander, A., & Talsma, E. F. (2020). Global vegetable intake and supply compared to recommendations: a systematic review. *Nutrients*, 12(6), 1558.
- Mekonnen, D. A., Talsma, E. F., Trijsburg, L., Linderhof, V., Achterbosch, T., Nijhuis, A., Ruerd, R., & Brouwer, I. D. (2020). Can household dietary diversity inform about nutrient adequacy? Lessons from a food systems analysis in Ethiopia. *Food Security*, 12(6), 1367-1383.
- Vermeulen, S. J., Park, T., Khoury, C. K., & Béné, C. (2020). Changing diets and the transformation of the global food system. *Annals of the New York Academy of Sciences*, 1478(1), 3.

Appendix 1 Interview guides

Core team

Interview Guide - FSHD core programme team members

General details

Date interview

Name interviewee

Male/female

Position Interviewee

Organization

Engaged with FSHD since

Role in FSHD / Field of expertise

Name Interviewer

Duration interview

Introduction

Ask for permission to record

Interview

LQ2a **Q1** What do you consider in hindsight the major achievements generated by the cluster(s) (results, defined or unexpected outputs, approaches) you are working in over the past five years of FP1 FSHD?

- Did these contribute to food system transformation? If so, how did this happen, with what type of results? If not, why not?
- What did you learn from it/are your main take away?

LQ9 **Q2** How do/did you apply a (food) systemic approach in your research (design, implementation, and approaches)?

- What type of activities did you integrate, and why did you do so, and how?
- What were particular barriers and enablers to develop a systemic approach?
- What were your experiences / what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?)
- If you did not do this, why not?

LQ5 **Q3** In your work, did you make an effort to integrate aspects of equity and inclusion, such as women's empowerment, youth engagement, into your research questions/design?

- If yes, what did you do, and why?
- What are according to you the main barriers or enablers to making these efforts?
- what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?)
- If you did not make such an effort, why not?

LQ6a **Q4** In your work, did you need to make deliberate efforts to adjust your research design, research implementation, and approaches fit for purpose in the different countries?

- If yes, why did you do this, and how?
- What were particular barriers and enablers to develop contextualised approaches?
- What were your experiences / what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?)
- If you did not do this, why not?

<i>LQ6b</i>	Q5	<p>Did you engage with national and international stakeholders to make your research design, research implementation, and approaches fit for purpose in the different countries?</p> <ul style="list-style-type: none"> • What did you do, and why? And what were the main results? • What were particular constraints or enablers in stakeholder engagement? • What were your experiences / what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?) • If you did not do this, why not?
<i>LQ1</i>	Q6	<p>Do you feel that the core aim of FSHD, focusing on healthy diets, food environments, and consumer perspectives, has translated into more dialogue on FS in relation to healthy diets in international or national forums?</p> <ul style="list-style-type: none"> • Where do you observe this /What are examples of forums where you observe this? • How would you describe the core narrative/core topic and why they are discussed in these forums? • What changes – if any- do you observe as a result of integrating healthy diets in the food systems dialogues? • Where not and why not? • What were your personal experiences and what did you learn from it?
<i>LQ4</i>	Q7	<p>Do you think that a focus on healthy diets as the main outcome is a good entry point for a research program on food systems for healthy and sustainable diets?</p> <ul style="list-style-type: none"> • Have you considered other outcomes, next to healthy diets, in terms of synergies and/or trade-offs? If so, which ones? And why do you consider those relevant? • What were your experiences / what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?) • If not, why not?
<i>LQ3</i>	Q8	<p>Did your understanding of food systems change over time since you are engaged in FP1 FSHD?</p> <ul style="list-style-type: none"> • What was in your view FP1's initial focus, at the onset of the program? • How would you describe its current focus, and how does it differ from the initial focus? • What do you think of this evolution of perspective, why did it happen? • Did affect your work? In what way? • <if not already mentioned> What have you learned during this process: about your role as researcher, about the type of activities, research techniques applied, other?
<i>LQ7</i>	Q9	<p>Do you think that the evidence base generated by FSHD and the stakeholder engagement strategies has influenced policy makers and other stakeholders, nationally and / or internationally?</p> <ul style="list-style-type: none"> • What types of uptake do you see, did that match your expectations? • What efforts were made to enable uptake? (Who made them/who should make those efforts?) • If no efforts were made, why not? • What do you consider as barriers and enablers for uptake/use of the FSHD evidence base ? • What did you learn from it (about your role as researcher, about the type of activities, research techniques applied, other?)

A4NH Country coordinators

General details

Date interview

Name interviewee

Male/female

Position Interviewee

Organization

Engaged with FSHD since

Role in FSHD / Field of expertise

Name Interviewer

Duration interview

Introduction

Ask for permission to record.

Interview

LQ2a	Q1	What do you consider in hindsight the major achievements generated by the cluster(s) (results, defined or unexpected outputs, approaches) you are working in over the past five years of FP1 FSHD? <ul style="list-style-type: none">• Did these contribute to food system transformation? If so, how did this happen, with what type of results? If not, why not?• What did you learn from it/are your main take away?
LQ9	Q2	How do/did you apply a (food) systemic approach in your research (design, implementation, and approaches)?
	Skip in CC interview	<ul style="list-style-type: none">• What type of activities did you integrate, and why did you do so, and how?• What were particular barriers and enablers to develop a systemic approach?• What were your experiences / what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?)• If you did not do this, why not?
LQ5	Q3	In your work, did you make an effort to integrate aspects of equity and inclusion, such as women's empowerment, youth engagement, into your research questions/design?
	Skip in CC interview	<ul style="list-style-type: none">• If yes, what did you do, and why?• What are according to you the main barriers or enablers to making these efforts?• what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?)• If you did not make such an effort, why not?
LQ6a	Q4	In your work, did you need to make deliberate efforts to adjust your research design, research implementation, and approaches fit for purpose in the different countries? <ul style="list-style-type: none">• If yes, why did you do this, and how?• What were particular barriers and enablers to develop contextualised approaches?• What were your experiences / what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?)• If you did not do this, why not?
LQ6b	Q5	Did you engage with national and international stakeholders to make your research design, research implementation, and approaches fit for purpose in the different countries? <ul style="list-style-type: none">• What did you do, and why? And what were the main results?• What were particular constraints or enablers in stakeholder engagement?• What were your experiences / what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?)• If you did not do this, why not?

LQ1	Q6	<p>Do you feel that the core aim of FSHD, focusing on healthy diets, food environments, and consumer perspectives, has translated into more dialogue on FS in relation to healthy diets in international or national forums?</p> <ul style="list-style-type: none"> • Where do you observe this /What are examples of forums where you observe this? • How would you describe the core narrative/core topic and why they are discussed in these forums? • What changes – if any- do you observe as a result of integrating healthy diets in the food systems dialogues? • Where not and why not? • What were your personal experiences and what did you learn from it?
LQ4	Q7	<p>Do you think that a focus on healthy diets as the main outcome is a good entry point for a research program on food systems for healthy and sustainable diets?</p> <ul style="list-style-type: none"> • Have you considered other outcomes, next to healthy diets, in terms of synergies and/or trade-offs? If so, which ones? And why do you consider those relevant? • What were your experiences / what did you learn (about your role as researcher, about the type of activities, research techniques applied, other?) • If not, why not?
LQ3	Q8	<p>Did your understanding of food systems change over time since you are engaged in FP1 FSHD?</p> <ul style="list-style-type: none"> • What was in your view FP1's initial focus, at the onset of the program? • How would you describe its current focus, and how does it differ from the initial focus? • What do you think of this evolution of perspective, why did it happen? • Did affect your work? In what way? • <if not already mentioned> What have you learned during this process: about your role as researcher, about the type of activities, research techniques applied, other?
LQ7	Q9	<p>Do you think that the evidence base generated by FSHD and the stakeholder engagement strategies has influenced policy makers and other stakeholders, nationally and / or internationally?</p> <ul style="list-style-type: none"> • What types of uptake do you see, did that match your expectations? • What efforts were made to enable uptake? (Who made them/who should make those efforts?) • If no efforts were made, why not? • What do you consider as barriers and enablers for uptake/use of the FSHD evidence base ? • What did you learn from it (about your role as researcher, about the type of activities, research techniques applied, other?)

Appendix 2 Workshop program for FSHD program team and country coordinators

Food Systems for Healthier Diets Learning Journey - Sense Making Workshop FSHD program team

Thursday 2nd September 2021, online

Aim of the workshop:

- To share (initial) findings based on learning questions (document review, interviews, online survey, PhD workshop)
- To facilitate reflection by the program team on the inventory of findings
- To guide the programme team to jointly formulate lessons learned in practising food systems research and for future programme planning.

Time (CEST)	Session	Who
2.30 pm	Opening session <ul style="list-style-type: none"> • Welcome to the session • Workshop aim, objectives and anticipated outcomes • Workshop flow 	Inge Brouwer Marion Herens
2.40	Presentation of the learning journey methodology and inventory of findings (bullet points): <ul style="list-style-type: none"> • Aim and logic of mixed method approach in relation to learning goals • Initial results of document review, interviews, online in-country survey • Q&A (for clarification) 	Marion (design/method) Xavier, Hermine
	Aim session: Present and validate findings	
3.15	Group Discussion (Round 1): What are initial reactions to the findings presented? Any surprises? In (random) pairs, share & note initial thoughts & reflections on findings. Possible guiding questions: <ul style="list-style-type: none"> • What surprises you? • What confirms your thoughts? • What do you disagree with? 	Intro round 1 & 2 plus instructions on the group work - Xavier
	Aim session: Reflect collectively on findings	
3.25	Group Discussion (Round 2): What are the most important findings? Three Subgroups of 5-6 people (combined pairs). Each group is allocated a set of 2-3 LQs. <ul style="list-style-type: none"> • Share first impressions • Prioritize findings as a group around set of LQs. Which ones are most important? Take into account the 3 learning domains: <ol style="list-style-type: none"> 1. Content/thematic issues FS research (<i>what</i> to address, and <i>how</i>) 2. Conditions FS research (within / across countries) (<i>what</i> needs to be adaptive/flexible and <i>whom</i> to engage) 3. Program planning & organisation FS research 	1 facilitator per group, Marion: LQ1,2a,2b,9 Xavier: LQ 3,4,5 Hermine: LQ 6a, 6b, 7
	Aim session: Prioritize findings	
4.00	Break	

Time (CEST)	Session	Who
4.10	<p>Group Discussion (Round 3): Based on collective reflections and prioritization of findings, formulate lessons learned (key statements) from the work done and how it could be done differently to better serve food systems research.</p> <p>Subgroups (same as round 2) formulate lessons based on the priority findings</p> <p>Outcome: Lessons learned from FSHD research and practice to be considered for future programming</p>	1 facilitator per group Marion, Xavier, Hermine
4.45	<p>Synthesis of session:</p> <ul style="list-style-type: none"> • Groups present their critical lessons learned • Discussion/reflections • Next steps <p>Aim session: synthesis of collective reflection and validation of the inventory of lessons learned</p>	Marion Herens
5.20	Thanks and wrap up	Inge Brouwer

Appendix 3 Workshop program PhD candidates

Food Systems for Healthier Diets Learning Journey – Learning Workshop FSHD PhD researchers

Tuesday 21st September - online

Aim of the workshop:

- Identify puzzles and pearls experienced by PhD researchers in their work as FS researchers
- Harvest learnings and insights from PhD candidates practicing FS research
- Joint reflection of lessons learned and needs for young FS researchers.

Draft programme outline

Time (CEST)	Session	Who	Notes
9.30 am	Opening session	Marion	<ul style="list-style-type: none"> • Presentation of the FSHD learning journey (overall aim, methodology, LQs) • Workshop aim, objectives and anticipated outcomes
9.45 am	Round of self-introductions	PhD Candidates	<p>Each participant to introduce her/himself by answering:</p> <p><i>Q: What is your favourite food? Who cooks it best?</i></p>
10.00	Elevator pitches	PhD Candidates	Each PhD candidate to briefly explain her/his research in less than a minute (elevator pitch)
10.15 am	Present quick scan of their ' Puzzles and pearls '	Xavier	Presentation followed by a short Q/A (i.e. reactions, reflections, adds-on)
10.30 am	Break		
10.45 am	Interactive session - Round 1	Marion & Xavier	<p>Split into 2 sub-groups</p> <p>Each sub-group to discuss on their respective FSHD research experiences.</p> <p>Each sub-group to assign a note-taker (Jamboard) and a rapporteur</p> <p><i>Aim: Collectively reflect on each other's personal experiences and formulate recommendations.</i></p> <p><i>Q: Drawing from your respective experiences, what would you like to keep on doing and what would you do differently? What would you advise to a new PhD candidate under FSHD?</i></p> <p><i>Note: Session to be recorded</i></p>
11.00	Feedback in plenary	PhD Candidates	Each group to report in 3-5min
11.15 am	Interactive session – Round 2	Marion & Xavier	<p>Change the two subgroups</p> <p>Each sub-groups to assign (new) note-taker and rapporteur</p> <p><i>Aim: Formulate key programmatic take-aways on how to better frame and nurture FS research</i></p> <p><i>Q: What would you advise a research program like FSHD to better support young FS researchers (incl. training, day-to-day supervision, sharing knowledge, others)?</i></p>

Time (CEST)	Session	Who	Notes
			Try formulate 2-3 statements building on the round 1.
			<i>Note:</i> Session to be recorded
11.30 am	Feedback in plenary	PhD Candidates	Each group to report in 3-5min
11.45 am	Wrap-up and close	Marion	

Appendix 4 Coding list documents and interviews

Code	subcode
Countries	Bangladesh
	Ethiopia
	Nigeria
	Vietnam
EMERGING THEMES	Coordination
	Design of program in-country
	Direction of CGIAR
	Flagship interaction
	Scaling
LQ1 Dialogue FSHD	Changes observed
	Core narrative
	Lessons learned
	Where
	Why /not
LQ2A Major achievements	Contribution to FS transformation
	Lessons learned
	Major achievements
	Failures
LQ3 Understanding FS changed	Current focus + difference
	Initial focus
	Lessons learned
	Opinion on evolution
	Work affected + how
LQ4 Entry point healthier diets	Lessons learned
	Other outcomes (synergies + trade-offs)
	Why
	Why not
LQ5 Equity and inclusion	Barriers
	Enablers
	Lessons learned
	What and why
	Why not
LQ6A Contextualisation	Barriers
	Efforts made and why
	Enablers
	Lessons learned
	Why not
LQ6B Stakeholder contextualisation	Barriers
	Enablers
	Lessons learned
	What + results
	Why not
LQ7 Influence evidence-base	Barriers for uptake
	Efforts made to enable
	Enablers to uptake
	Lessons learned
	Uptake seen
	Why no efforts
LQ9 Systemic approach	Activities integrated
	Barriers
	Enablers
	Lessons learned
	Systemic approach
	Why not

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Report WCDI-21-186

Wageningen Centre for Development Innovation supports value creation by strengthening capacities for sustainable development. As the international expertise and capacity building institute of Wageningen University & Research we bring knowledge into action, with the aim to explore the potential of nature to improve the quality of life. With approximately 30 locations, 6,800 members (6,000 fte) of staff and 12,900 students, Wageningen University & Research is a world leader in its domain. An integral way of working, and cooperation between the exact sciences and the technological and social disciplines are key to its approach.



To explore
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