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Transforming Food Systems towards Sustainable Healthy Diets in Bangladesh, Ethiopia, and Viet Nam

A cross-country stakeholder analysis

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The CGIAR Research Initiative on Sustainable Healthy Diets through Food Systems Transformation (SHiFT) combines high-quality nutritional and social science research capacity with development partnerships to generate innovative, robust solutions that contribute to healthier, more sustainable dietary choices and consumption of sustainable healthy diets. We build on CGIAR's unparalleled track record of agricultural research for development, including ten years of work on food systems and nutrition under the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH), particularly under the research flagship Food Systems for Healthier Diets.

To learn more about this Initiative, please visit on.cgiar.org/SHIFT.

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Table of Contents

Abstract

The CGIAR Research Initiative on Sustainable Healthy Diets through Food Systems Transformation (SHiFT) recognizes the urgency of early stakeholder engagement to facilitate systemic changes towards sustainable healthy diets. This qualitative exploratory study aimed to provide insights about where stakeholders are active in food systems in Bangladesh, Ethiopia and Viet Nam and their characteristics. The conceptual framework of food systems for diets and nutrition proposed by the High Level Panel of Experts on food security and nutrition was used to map all stakeholders using a network analysis approach, in particular applying the degree centrality measure. This measure shows the food system domains with the largest number of stakeholder connections.

The analysis reveals that centralization is spread across various food system domains. In Bangladesh, the areas with the most stakeholder connections are observed in the policy and governance and food environment domains. In Ethiopia, more connections were observed under the food environment, and production system domains and the outcomes related to diets, nutrition and health. In Viet Nam, it is the production system, storage and trade, packaging and processing, and food environment domains with the most stakeholder connections.

Overall, platforms are active in policy and governance in all countries, suggesting that engaging with multi-stakeholder platforms is beneficial for SHiFT to advance the national agendas aimed at realizing sustainable healthy diets. Considering connectivity with food system domains, SHiFT can collaborate with all sectors. Moreover, focusing on stakeholders in the food environment, particularly on overseeing foodscapes for people, is essential. However, implementing food systems transformation requires identifying and engaging with other actors as well. However, there is limited representation of stakeholders in processing, transport, and retail, especially in Ethiopia and Bangladesh. International stakeholders emerge prominently from our analysis, suggesting that the food system narrative may still be primarily driven from an international/global perspective, resonating with the United Nations Food Systems Summit dialogues. To realize the ambitions of transitioning towards sustainable healthy diets for all, efforts must extend beyond projects/programs and engage national-level stakeholders.

Abbreviations and acronyms

ALiSEA	Agro-ecology Learning alliance in South East Asia
BNNC	Bangladesh National Nutrition Council
CCU	country coordination unit
CSO	civil society organization
ECSC-SUN	Ethiopian Civil Society Coalition for Scaling Up Nutrition
FAO	Food and Agricultural Organization of the United Nations
HLPE	High Level Panel of Experts on Food Security and Nutrition
IFAD	International Fund for Agricultural Development
MSP	multi-stakeholder platform
NGO	non-governmental organization
SHiFT	Sustainable Healthy Diets through Food Systems Transformation (2022-2024)
SUN	Scaling Up Nutrition Movement
UN	United Nations
UNFSS	United Nations Food Systems Summit

1 Introduction

Overview of SHiFT

The CGIAR Research Initiative on Sustainable Healthy Diets through Food Systems Transformation (SHiFT) aims to ensure sustainable healthy diets for all by stimulating the demand for sustainable healthy diets and the supply of sustainable nutritious foods, while also improving livelihoods, gender equity, and social inclusiveness in all sectors of food systems (**Box 1**). Through high-quality nutritional and socio-economic research, capacity sharing, robust metrics, and tools that support decisionmaking and partnerships, the Initiative generates contextual evidence of innovative food system solutions that could contribute to transforming food systems towards the consumption of more sustainable healthy diets in three target countries, Bangladesh, Ethiopia, and Viet Nam. SHiFT explores innovations for stimulating consumer demand and transforming their food environments, examines the dynamic interactions among micro, small and medium enterprises and the informal sector, assesses various trade-off and synergistic future scenarios as well as the governance arrangements and processes to generate knowledge that can be utilized to strategically refocus transformative processes. SHiFT invests in catalyzing collaborative action of different stakeholders to leverage various existing and emerging opportunities to ensure shifts towards more sustainable healthy diets.

Box 1. Definitions

Sustainable food systems deliver healthy diets for all, without exceeding the planet's resources, to achieve the national, regional, and international development priorities (Brouwer et al. 2021).

A sustainable healthy diet is a "dietary pattern that promotes all dimensions of individual health and wellbeing; has low environmental pressure and impact; is accessible, affordable, safe and equitable; and is culturally acceptable" for everyone, everywhere (FAO 2019).

Catalyzing food systems transformative processes

Since the 2021 United Nations Food Systems Summit (UNFSS), countries are at different stages of adopting national food systems transformation agendas which articulate their priority strategic pathways to expedite the shift towards more sustainable food systems **Table 1** provides examples of the milestones realized in Bangladesh, Ethiopia, and Viet Nam. However, translating the articulated commitments into implementable actions and measures can be especially challenging for governments and other food system stakeholders because of the need to align the diverse competing interests and solutions of different stakeholders working in multiple food system domains and sectors at varied spatial scales (Clapp et al. 2021; Singh et al. 2023). It is argued that the tensions, stagnation of indicators, and failure to realize systemic changes may often not result from inadequate knowledge alone but can also be attributed to the inability of actors to translate and transfer acquired knowledge into effective actions (Przesdzink et al. 2022; Singh et al. 2023).

SHiFT, collaborating with key national actors in each country, seeks to engage in national food systems transformation processes so that greater attention is given to sustainable healthy diets in policy narratives and actions. The Initiative will provide evidence of solutions that may stimulate the demand for sustainable healthy diets among different food system stakeholders in the public and private sectors. A shift towards increased demand for sustainable healthy diets cannot be achieved by mere improvement in policies alone. Systems-wide leadership and commitment to foster a collective understanding of the urgency to reshape 'our' food systems and to drive forward decisions to deliver the necessary solutions is essential. This requires innovative approaches of engaging with various stakeholders and governance arrangements, and to embrace different mechanisms of fostering ownership and inclusivity to catalyze the transformative processes to achieve the specified long-term objectives such as sustainable healthy diets.

Table 1: Selection of recent milestones in the sustainable food systems transformation agenda by country, 2021-present

	Milestones
Bangladesh	The national food systems transformation pathway document was released - *Towards Sustainable Food Systems in Bangladesh - National Pathway Document for the UN Food Systems Summit* Several official policy documents have been adopted, which align with the UNFSS priority actions described in the pathway document, including but not limited to: • *National Food and Nutrition Security Policy Plan of Action (NFNSP PoA 2021-2030)* • *3rd Country Investment Plan (CIP3) for Sustainable, Nutrition-Sensitive and Resilient Food Systems (2021-2025)* An official document was developed that links the UNFSS commitments with complementary country commitments for Nutrition for Growth (N4G) and the annual UN COP meetings on climate change.
Ethiopia	The national food systems transformation pathway document was released with a detailed investment plan containing 22 game changing solutions - *Food Systems Pathway Commitment and Position Statement* and the *Synthesis Report: Game Changing Solutions to Transform Ethiopia's Food System*. A three-pillar food systems governance structure was approved by the Prime Minister. At the federal level, 15 ministries comprise the Inter-Ministerial Steering Committee. The second pillar focuses on regional engagement and the third on partnerships between the Government and development organizations.
Viet Nam	A technical group of experts from ministries, UN organizations, CGIAR, NGOs, and research institutes was established to support the transformation process. An official policy document with clear tasks and solutions for different ministries to implement sustainable food systems commitments was approved by the Prime Minister and released - *National Action Plan to establish a Transparent, Responsible and Sustainable Food System in Viet Nam until 2030.*

Source: *SHiFT Country Engagement Strategy*, 2023.

Through Work Package 5 on Catalyzing Food Systems, SHiFT recognizes the importance of 1) engaging in national multi-stakeholder consultative processes to develop and support food systems transformation; 2) sharing capacities to support, make adaptations, and monitor systemic changes toward sustainable healthy diets; and 3) monitoring and documenting transformative changes in Bangladesh, Ethiopia and Viet Nam. Steering towards increased demand for sustainable healthy diets can be achieved with the concerted efforts of the diversity of stakeholders shaping the food system. However, it remains unclear which stakeholders to involve in different contexts, what their interests are, and the political economy interactions. People, their interactions, and relationships in any food system are key for understanding

what system issues become legitimized as well as how they shape and are shaped by the food system activities and the outcomes produced. Furthermore, nurturing collective leadership among stakeholders operating in different domains of food systems at varied operational scales is important to attain inclusive transformative change processes.

Previous studies highlight examples of multi-stakeholder platforms (MSPs) and the key connectors – organizations which, through their presence in different networks and platforms, play an active role in spanning boundaries in the system, bringing agendas and activities together across different partnerships (Posner & Cvitanovic 2019) - that had the potential to drive food system change for sustainable healthy diets in Viet Nam, Bangladesh, Ethiopia, and Nigeria (Herens et al. 2022). The literature emphasizes the importance of continuous monitoring of platforms and augmenting their capacities to shift towards more systems-based narratives that support transformative processes (Herens et al 2022; Singh et al. 2023). Questions about the 'dark side' of collaborative relationships in terms of power imbalances and their negative aspects are on the rise (Schutter et al. 2023). Understanding the specific stakeholders in the targeted countries, including their goals, competencies, influence, and distribution across the food system domains, remains crucial for underpinning any systemic change toward sustainable healthy diets.

The question addressed in this report is: ***Where in the food system are stakeholders active in Bangladesh, Ethiopia, and Viet Nam and what are their characteristics?*** This question is addressed using the stakeholder analysis approach described by Barquet (2022). Understanding, engaging, and capacitating food system stakeholders provide diverse insights into how to foster collaborations that drive systemic change

Rationale and objectives for stakeholder analysis

Stakeholder analysis is an essential step to generate knowledge about the intentions, interrelations, and resources that diverse actors hold to shape decisions in food systems (Turnhout et al. 2020; Bryson 2004; Varvasovszky & Brugha 2000). Knowing the behaviors of stakeholders is necessary for better design and alignment of the goals and strategies critical to refocus systemic change towards desired outcomes. However, the stakeholder mapping approaches usually applied in studies are often not robust, which raises questions about how to efficiently identify stakeholders that are beyond one's current knowledge of the systems and with whom to co-create transformative innovations and assure fair involvement in these processes (Barquet et al. 2022). The stakeholder analysis approach applied in this study permits exploring the stakeholders, individual as well as collective actors (platforms), involved in different components of the food system and allows identification of potential alliances with whom SHiFT could collaborate to promote radical changes towards sustainable healthy diets in Bangladesh, Ethiopia, and Viet Nam. In particular, the overarching question is assessed from three perspectives, that is:

1. Who are the stakeholders, including platforms, active in the food systems and what are their characteristics?
2. What are the key food system activities undertaken by these stakeholders?
3. In which food system domains are the stakeholders active?

The outputs of the stakeholder analysis include:

1. A ‘living’ database of food system actors operating in different food system domains and governance levels. This database can be used to communicate with stakeholders and is continually updated based on changes in each country.
2. A map of stakeholders active in each food system domain and their focus activities. This indicates the food system domains with the highest or least focus, as well as the networks that are well-placed to drive the food systems transformation agenda.
3. Evidence to guide decisions about stakeholders to consider in the research and learning agendas of SHiFT, and whom to engage in implementing innovative transformative actions for sustainable healthy diets.

2 Approach and methods

This section explains the methods used to collect and analyze the stakeholder information. The process included three steps. Stakeholder identification including actor (step 1) and platform mapping (step 2) was used to develop a living database for each target country. Stakeholder analysis was completed using software for analysis and visualization (step 3).

Step 1. Stakeholder identification

Identifying the stakeholders active in different parts of the food system is the first step to bound the systems of interest and to correctly define the challenges of concern in any given system (Barquet et al. 2022; Varvasovszky & Brugha 2000). Developing a 'living' database of stakeholders is necessary because food systems transformation processes or agendas are not static and will always be modified depending on who is active, what form that activity takes and what stimulates actor activity. Our assumption is that new food systems transformation stakeholders will join the ongoing processes, and similarly existing stakeholders may exit and lose interest in the processes. A living stakeholder database is advantageous for quick identification of potential actors with whom to work, timely validation and keeping track of the variations in actors and issues addressed in reshaping the food system toward sustainable healthy diets.

Based on the learnings from the CGIAR Research Program on Agriculture for Nutrition Health[1], we developed a stakeholder identification template (**Annex 1**) and a guide (**Annex 2b**) on how to update an existing database or develop a new one, based on the actors involved in decisionmaking and implementation in different food system activities in Bangladesh, Ethiopia, and Viet Nam. The templates were discussed with the SHiFT Country Coordinators and adaptations made to align with specific situations in each country context.

Over the course of 2022, stakeholder information was collected by members of the Country Coordination Unit (CCU) in each country. The CCU is comprised of researchers in SHiFT and representatives from SHiFT's Strategic Partners. Stakeholder information was verified with selected food system actors and complemented by checking the organization's websites, when available. Stakeholders from public and private organizations, formal and informal sectors, and government and non-governmental institutions were identified. Each database recorded the stakeholders by their different governance levels, specific areas and issues of focus in the food system, activities implemented and/or products produced. A contact person and email address(es) were also included. The information comprised a living database of actors engaged in different components of the food system. Each database was designed to be updated annually to capture any changes in the stakeholders active in the food systems.

[1] CGIAR's Research Program on Agriculture for Nutrition and Health (A4NH) Phase II, implemented from 2017 to 2021: https://a4nh.cgiar.org/about/

Step 2. Stakeholder platform mapping

This step assessed the networks/platforms through which food system actors connect and possibly engage in food system dialogues and invest in transformative innovations. Mapping networks allows the identification of potential anchoring institutions that are well-suited to advance the ambitions stipulated in the national food system transformation agendas. Knowing and stimulating the connections among stakeholders is essential to leverage their diverse resources in co-creation and innovation processes.

Using the stakeholder platform mapping template (**Annex 2a**), the SHiFT CCU in each country identified key (coordination) structures currently active in food system issues. The database highlighted the platforms, their main objectives, membership, functionality, linkages with constituents, and contact persons.

Each country's stakeholder database was generated based on informant interviews, document analysis and insights from the food system dialogues in the countries. The information was complemented and verified with selected food system actors and by checking the organization websites where available. The compiled templates were reviewed for sensemaking by the team at Wageningen Centre for Development Innovation and updated.

The main outputs of the stakeholder mapping were the databases of food systems actors and platforms that have the potential to drive systemic change at different governance levels in each target country. The databases were also intended to be relevant for other SHiFT activities that seek to validate, anchor, and/or scale research findings. Reports based on the 2022 version of each stakeholder database were published for Bangladesh, Ethiopia, and Viet Nam.

Step 3. Stakeholder analysis: translation and visualization

Identifying the unifying language used across all three stakeholder databases was the first step towards visualizing the stakeholder maps. The authors coded the actor categories and their self-reported areas of focus in the food system. Two researchers coded the information and consulted a senior researcher and the SHiFT Country Coordinators when clarifications were required. The diversity of self-reported areas identified across the three countries was categorized under twenty major themes (**Box 2**).

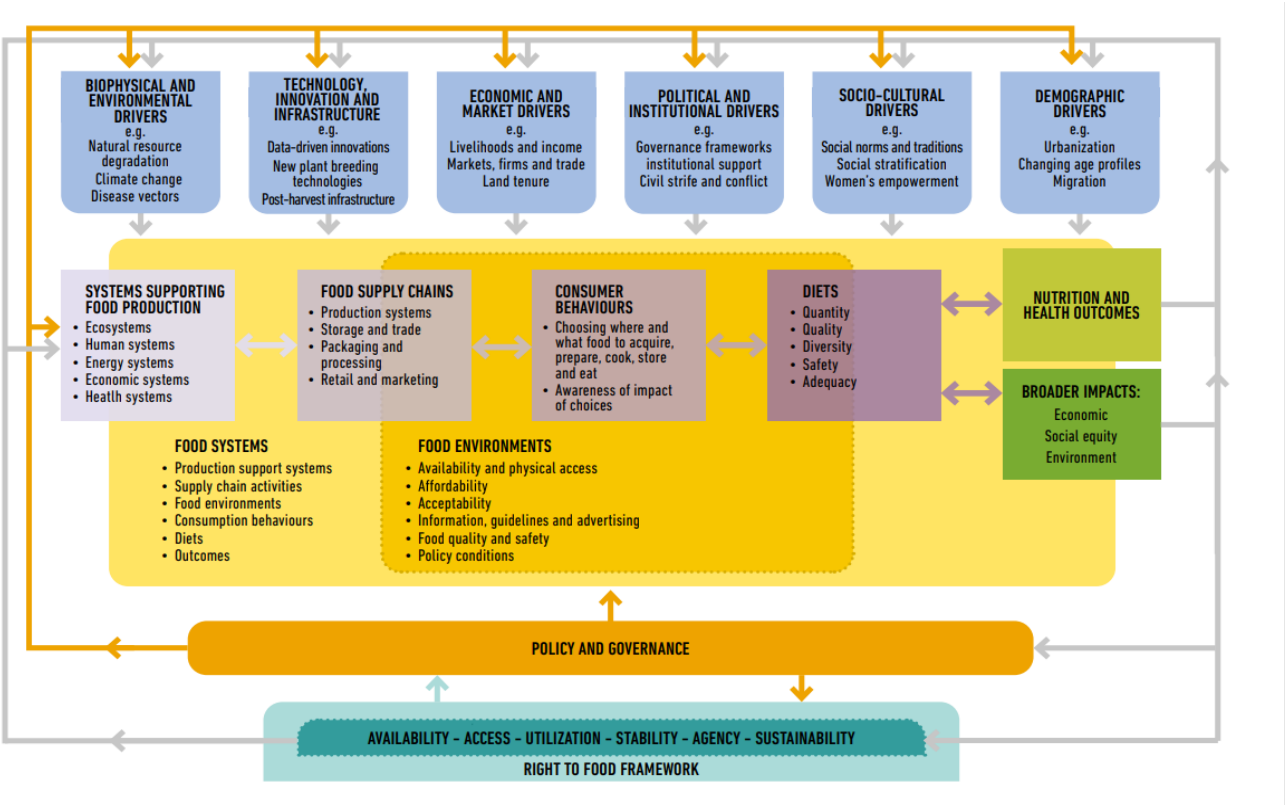
Box 2. Self-reported areas of focus

1. Food supply (including food production)
2. Food processing (also denoted as food technology)
3. Food trade (also indicated as agribusiness)
4. Food security (also reported as humanitarian assistance)
5. Consumer behavior
6. Nutrition
7. Food environment
8. Food safety (also reported as healthy and safe nutritious food)
9. Environment (also reported as climate resilience, energy, nature-based solutions, low-carbon sustainable development)
10. Policy (also reported as planning)
11. Gender equality
12. Economic development (economic growth)
13. Knowledge and capacity building (also reported as productive, diversified, and knowledge-based agri-economic growth - capacity building for emergency preparedness, capacity development, productive, diversified and knowledge-based agri-economic growth)
14. Resilience (also reported as community resilience and disaster response)
15. Governance (also reported as human rights and democracy)
16. Health (also reported as sexual and reproductive health, water, sanitation, and hygiene)
17. Youth development
18. Social policy (also reported as childcare and protection)
19. Agricultural marketing
20. Data management (also reported as information and data on food, nutrition, agriculture, gender, socio-demography, productive, diversified, and knowledge-based agri-economic growth)

We compared the self-reported areas for each country with components indicated in different food system frameworks described by the High Level Panel of Experts (HLPE) on food security and nutrition (2020a), Bellotti and Ingram (2022), van Berkum et al. (2018), and De Brauw et al. 2018. The comparison aimed to identify the framework that addressed the most self-reported areas to structure the follow-on analysis. **Annex 3** displays the comparative analysis among the four frameworks and illustrates the translation of the self-reported focus areas into their corresponding frameworks. The comparative analysis also highlights the gaps in each framework, indicating which domains are absent or not adequately addressed.

For this analysis, we used the conceptual framework of food systems for diets and nutrition proposed by the HLPE because it explicitly embraces food environments and dietary outcomes and encompassed a greater number of the self-reported food system domains compared to the other frameworks (**Figure 1**).

Figure 1: Conceptual framework of food systems for diets and nutrition proposed by the HLPE



Source: *Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition, 2017.*

Network analysis and visualization of the food system stakeholders was conducted using Cytoscape, an open-space visualization software (https://cytoscape.org/). The open-access software was originally developed for biology-related network mapping; however, it is increasingly used to support exploration, visualization, and understanding of the interaction of large social networks (Franz et al. 2023 and Shannon et al. 2003) because of the extended plug-in functionalities including integration of data in different formats, text mining and visual layouts of network maps. Cytoscape has a stable and user-friendly interface evidenced by fewer errors and setup issues compared to other software such as Gephi used in social network analyses. We modified the stakeholder identification templates used in SHiFT into stakeholder information sheets as an input into Cytoscape.

Cytoscape allows analysis of various fundamental characteristics of stakeholder networks such as closeness, centrality, and density. To address the questions in this study, we analyzed the degree of centrality (**Box 3**) of the food system domains, which reveals the extent to which stakeholders are active in different food system domains. Centrality shows the number and concentration of stakeholders active in the food system domains. This can range from 0 (no stakeholders are active in the domain) to 1 (all stakeholders identified are active in this domain). The degree of centrality helps to identify the food system domains that could be important in redesigning food system solutions to promote sustainable healthy diets as well as those where more action may be required. Adequate understanding of the priorities of stakeholders is helpful to identify potential collaborators to engage in developing innovative solutions that can be adapted to change the food systems. The network centrality depicted in this report

does not account for the relationships among the actors themselves or between actors and platforms to permit reflection about the network density and closeness centrality (i.e., stakeholders that bridge and influence dynamics in the food system).

Box 3. Definition of terminologies

Stakeholders: Individual food systems actors or entities as well as the platforms or networks through which different actors are coordinated.

Actor: Any single entity such as organizations whether national or international, NGOs, or academic institutions.

Platform: A collective of organizations coming together with a common agenda.

Network analysis: An approach that reveals how a system of autonomous actors, entities or groups are interconnected in complex web of social relations and interactions (Borgatti et al. 2009).

Degree centrality: A gauge of a node's connectivity and significance in the network. That is, the structural importance or prominence of a node in the network. Here, it reveals the food system domains with the highest and the least connections from stakeholders. The degree of centrality score spans from 0 to 1 where 0 signifies no connections and 1 represents the utmost possible number of connections. Here, this measure indicates the food system domain where most stakeholders are active and the potential areas requiring more attention (Przesdrink et al. 2021; Franz et al. 2023).

Network maps for each country were generated showing the activity in food system domains of individual actors and platforms (Section 3 and **Annex 4**). The nodes representing actors and platforms were mapped against the food system domain nodes using different color codes, shapes, and positions. For instance, platforms have a parallelogram shape and a light green color; they are positioned to the right of the stakeholder maps. International non-governmental organizations (NGOs) have a royal blue color and are positioned at the top left corner as shown in the maps in Section 3 and **Annex 5**. Color-coded lines were used to link stakeholders to the food system domains. The colors allocated to the stakeholders are based on the domain of operation in the food system. Production systems, packaging and processing, and storage and trade, which reflect the food supply chain have a similar color for the connecting edges (purple). The color was generated automatically in Cytoscape.

3 Results

This section is organized as follows. First, we show the characteristics of stakeholders that are active in the food system and their activities. Next, we present where the stakeholders are active in food system domains indicating the actual connections to the domains.

Characteristics of food system stakeholders in Ethiopia, Bangladesh, and Viet Nam

The characteristics include the type of stakeholder such as whether they are actors (individual entities) or platforms (a collective with multiple actors), the stakeholder categories, and the key activities.

Ethiopia

Overall, 85 individual actors and eight platforms were identified. Only the active stakeholders are considered in this analysis. Despite the potential variabilities in the food system areas of interest, the actors are clustered into seven broad categories:

- national and subnational governments
- NGOs
- research institutions
- international institutions and donor organizations
- UN organizations
- private sector (buyers, traders, aggregators)
- civil society organizations (CSOs)

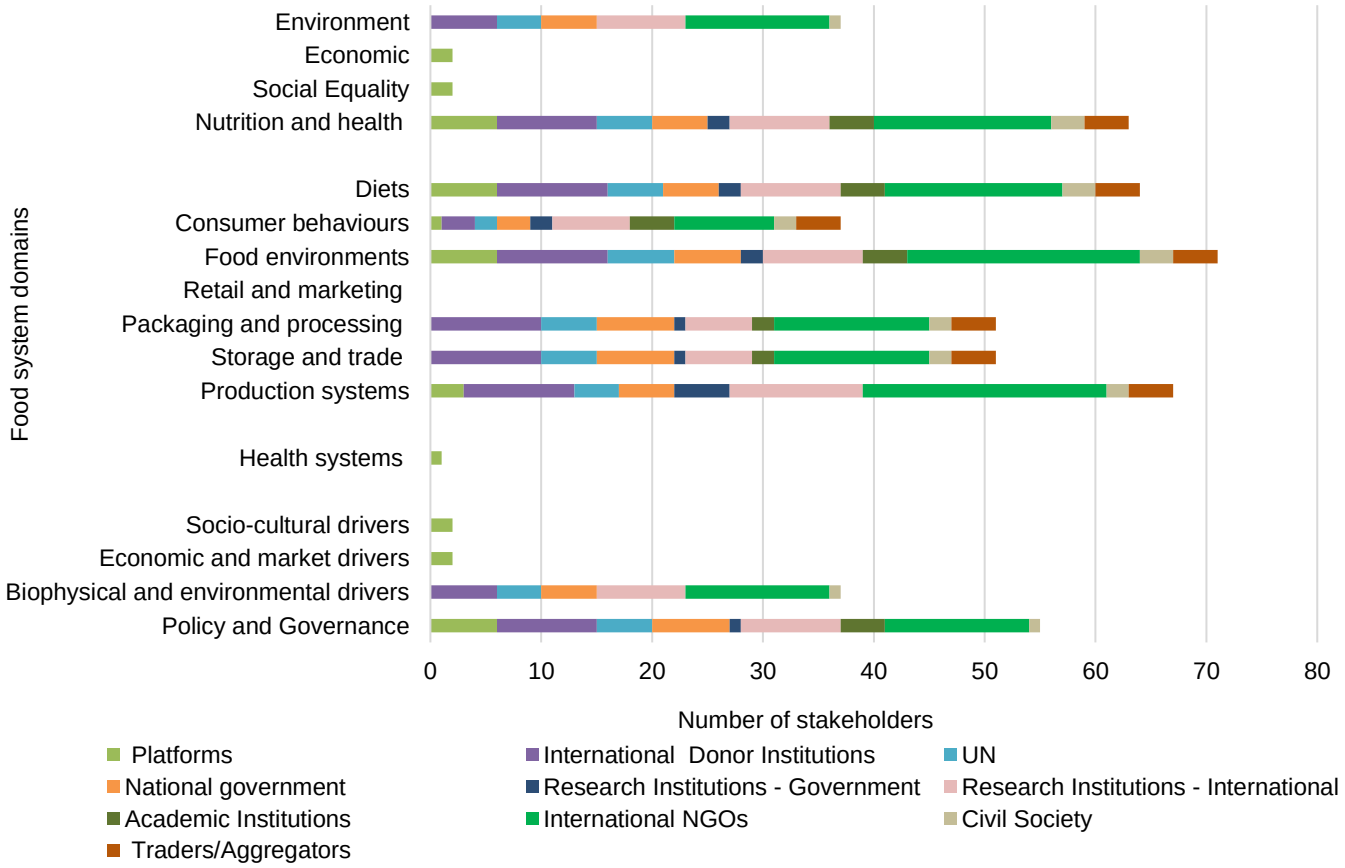
Annex 4a contains a list of the actors mentioned under each category. The analysis revealed that there is a high representation of international NGOs and research institutions, donor organizations, and UN agencies shaping most of the activities and hence the direction of Ethiopia's food system domains (**Figure 2**). These actors provide funding, implement various projects, and undertake research related to food production, processing, safety and trade; consumer behavior and social behavior change; diets and food environments; as well as food and nutrition security and environmental sustainability outcomes. NGOs and research-oriented actors (**Annex 4a**) are more active in the agricultural production system and food environment domains, while donor institutions invest in storage and trade, packaging and processing, and diets.

Government institutions largely connect to the food system domains aligned with their jurisdictional mandates. For example, the government ministries of health, agriculture, and foreign affairs as well as associated agencies such as the Ethiopian Agricultural Transformation Institute, Ethiopian Food, Beverage and Pharmaceuticals Development, the National Disaster Risk Management Commission, and the Ethiopian Food and Drug Authority are active in the components of food environment and diets, food production and safety, biophysical environment and in the policy and governance spaces.

A similar dynamic is observed with the academic institutions, which tend to connect more to the food environment, consumer behavior, diets, policy and governance for nutrition, and health impacts. Their areas of focus are nutrition-sensitive agriculture, food standards, regulations and control, emergency food and nonfood response, crop and livestock production, maternal, infant and young child nutrition, and environmental aspects.

Figure 2 illustrates that private sector actors have comparable activities to academic institutions, which are geared towards influencing the food supply chain domains from food production to health and nutrition outcomes. These private sector actors include the Dairy Producers and Processors Association, Horticulture Producers and Exporters Association, Meat Exporters Association, and the Poultry Producers and Exporters Association. The main activities of these associations relate to capacity development of different aspects of production and marketing, facilitating market access and business promotion, policy advocacy to address bottlenecks in the sectors, and research to improve the sectors.

Figure 2: Categories of actors and platforms across the food system in Ethiopia



Active platforms connect to most food system domains, except for the components of storage, trade, packaging, processing, and marketing as well as the biophysical and environmental drivers and their related outcomes. The platforms with most linkages to the food system domains are, in descending order,

the Seqota Declaration, Ethiopian Civil Society Coalition for Scaling Up Nutrition (ECSC-SUN), Rural Economic Development and Food Security Sector Working Group, and the Food Systems Multisectoral technical core team (**Annex 5a**). Other identified platforms are indicated in **Annex 4a**. Summarily, platforms can be categorized into those engaged in advancing food systems related policy agendas (e.g., Seqota Declaration, Disaster Risk Management Agriculture Task Force), the research-focused platforms (e.g., National Information Platforms for Nutrition), and the project/program-focused platforms (e.g., Nutrition-Sensitive Agriculture). Only platforms were mentioned as contributing towards issues concerned with health systems, socio-economic and cultural drivers, and the associated impact areas.

The identified food system stakeholders are active across all the domains in Ethiopia's food system except in the retail and marketing area. While government organizations are present in most components, it is the international actors that show most activity across all the food system domains. This high representation is in terms of the number of actors and activities undertaken. Details about the specific action areas for each stakeholder are summarized in the stakeholder identification report.

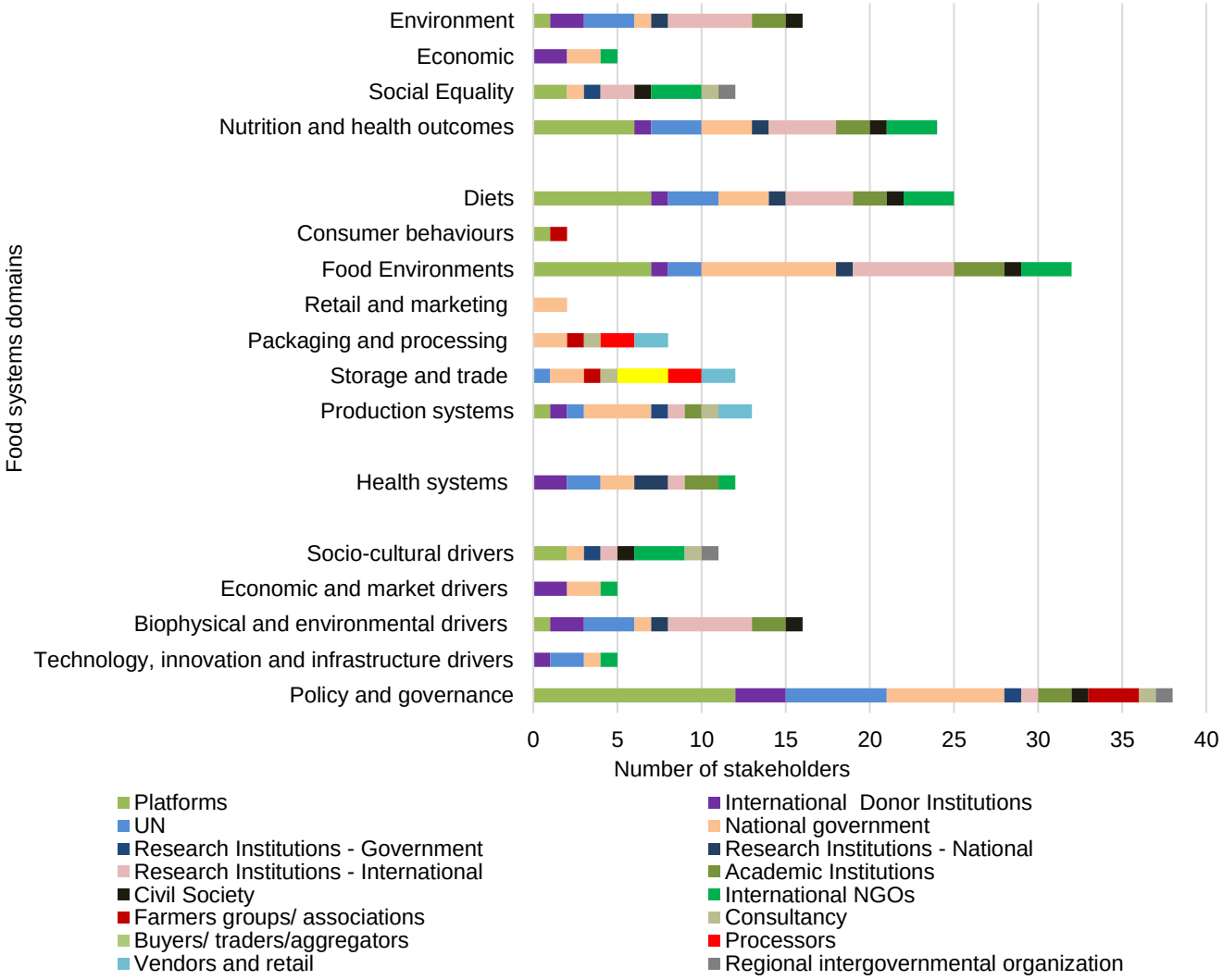
Bangladesh

Approximately 69 individual actors and 10 platforms were identified in Bangladesh. The clusters of actors were similar to the eight categories observed in Ethiopia, however, Bangladesh had an additional cluster of regional intergovernmental organizations (**Annex 4b**).

Government institutions (ministries, departments, and agencies) and national and international research organizations are the most active entities across most food system domains (**Figure 3).** Government ministries and departments include the Ministries of Food, Health, and Family Welfare, Agriculture, Environment Forest, and Climate Change. Agencies include the Bangladesh National Nutrition Council (BNNC) and Bangladesh Agricultural Research Council. Authorities include Bangladesh Food Safety Authority and General Economics Division Planning Commission. The institutes identified are the Bangladesh Institute of Research and Training on Applied Nutrition. This cluster of actors contributes to policy development, implementation, capacity strengthening, monitoring, and coordination focused on food production, food environment, storage, processing, and marketing, and health systems to impact nutrition, social equity, economic and environmental outcomes.

Different research organizations participate in building evidence about Bangladesh's food systems. Whereas the government-led research organizations (e.g., Bangladesh Agricultural Research Institute) focus on the socio-cultural drivers and impacts, product systems, and the dynamics in policy and governance, national (non-government) research institutes (e.g., Bangladesh Breastfeeding Foundation) prioritize building evidence about dynamics in health systems, nutrition and health outcomes, food environments, diets, and environmental concerns. International research institutes are active in most food system domains but do not focus on the processing to marketing dynamics, consumer behavior, technology and infrastructure drivers, and the socio-economic aspects.

Figure 3: Categories of actors and platforms across the food system in Bangladesh



Academic institutions are active across a range of domains, especially in the food environment, health systems, policy and governance, environmental aspects, diets, and nutrition outcomes. The Institute of Nutrition and Food Science at the University of Dhaka, Bangladesh Agriculture University, and the Department of Development and Poverty Studies are examples of some of the academic institutions engaged in training and knowledge production about the country's food systems.

From a bottom-up perspective, the private sector, comprising of farmers' associations, traders, processors, vendors, retailers, buyers, aggregators, and consultants, is active in domains aligned with their expertise and businesses (**Figure 3** and **Annex 4b**). Whereas buyers and aggregators, like the Trading Corporation of Bangladesh, concentrate on storage and trade activities, processors extend their attention to packaging and processing issues. This cluster of actors, particularly the farmer associations, also participates in the policy, governance and consumer behavior arenas.

About four international donors, six NGOs, and five UN agencies (see **Annexes 4b and 5e**) participate in most domains and address most food system drivers and impacts. There is minimal or no mentioned involvement of international actors in the storage, processing, and marketing components.

The platforms contributing to Bangladesh's food systems comprise of the government-established coordination structures (e.g., BNNC, Food Planning and Monitoring Unit, District Nutrition Coordination Committees), thematic teams (e.g., Food Policy Working Group), and project/program-oriented structures (e.g., the SUN movement in Bangladesh, committee to follow up UNFSS activities). Various platforms are formed in all domains, except the ones focused on storage, packaging, processing and marketing (**Annex 5b**). Further, no networks were reported to be active in addressing the health systems and the technology, infrastructure, and economic drivers. The platforms with presence in four or more food systems components are BNNC, Civil Society Alliance for SUN in Bangladesh, Nutrition Club, and Upazila Nutrition Coordination Committee (**Annex 5e**).

The analysis reveals a diversity of stakeholders engaging across all the food system domains in Bangladesh. Despite the key role of international actors, we illustrate that government institutions have a strong presence in shaping most components. More details are available in the stakeholder identification report.

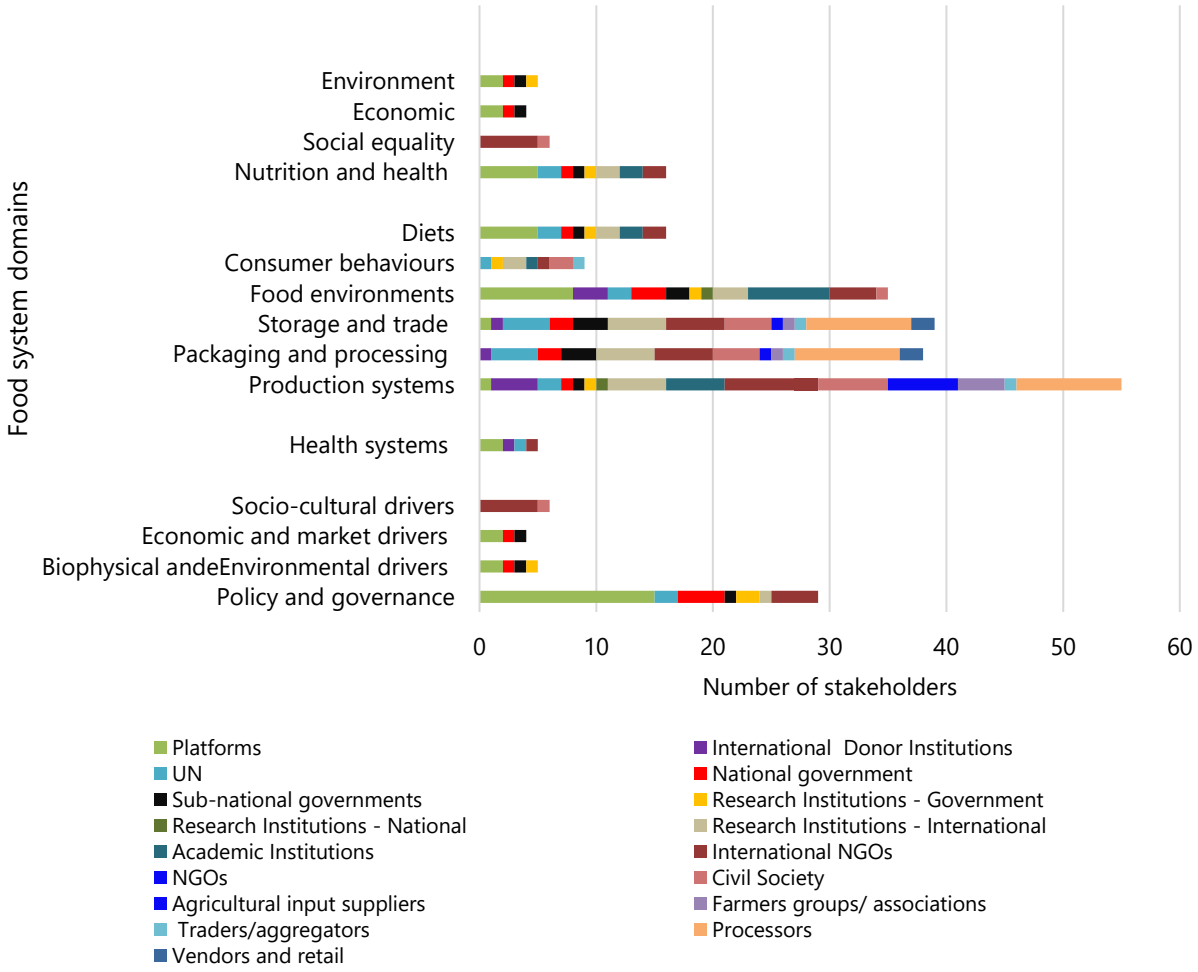
Viet Nam

There are 87 individual actors, and 23 platforms in Viet Nam's food system. The individual actors are broadly clustered into eight categories that are like those observed in Ethiopia. However, each category is contextually unique in terms of the number and specific types of actors identified (**Figure 4** and **Annex 4c**).

Both the national and sub-national Vietnamese government organizations are active in most food system domains. However, national governments (such as Ministries of Agriculture and Rural Development, Planning and Industry, Natural Resources and Environment) have more connections to the policy, governance, and food environment aspects while subnational governments (like the departments representing specific ministries) contribute more on the storage, processing, packaging, and trade aspects.

A plausible number of national and international research institutes engage in generating evidence about the country's food systems from farm to fork (**Figure 4**). Examples in this category are the Vietnam Academy of Agricultural Sciences, Institute of Policy and Strategy for Agricultural Rural Development, Mekong Development Research Institute, CGIAR, the French Agricultural Research Centre for International Development, and Health Bridge Foundation Canada. Government-led and non-government national research institutions are active in different activities, but the latter's efforts are only in the production system and food environment domains. Conversely, international research organizations exhibit greater involvement across the food supply chain components, complemented by a focus on healthy diets, consumer behavior, and policy and governance. Academic institutions concentrate on food environments and production systems.

Figure 4: Categories of actors and platforms across the food system in Viet Nam



Most international NGOs, such as Rikolto, SNV, Oxfam, CARE International, World Vision, FHI 360, World Wide Fund for Nature, and CropLife Viet Nam contribute to the food supply chain domains and expand their scope into the socio-cultural drivers and impacts. The UN agencies show similar patterns, in addition to focusing on the country's health systems. Viet Nam's CSOs (**Annex 4c**) participate in the food supply chain (production to trade), and address consumer behavior, the food environment, socio-cultural drivers, and health and nutrition outcomes.

The private sector, comprised of agriculture input suppliers, farmer associations, processors, and traders/aggregators, show targeted involvement in domains aligning with their specialties namely production, processing and trade. International donors, such as the Embassy of Canada, United States Department of Agriculture, Australian Centre for International Agricultural Research, and development banks, like the Asian Development Bank and World Bank, seem to focus on food production, processing and storage, food environments, and health systems.

The 23 platforms mentioned are further categorized as: platforms associated with specific projects/programs (e.g., steering board for National Action Plan for Zero Hunger, Postharvest Network, steering committee on National Nutrition Strategy, and the Mekong Region Multistakeholder Platform); technical working groups on nutrition, food safety, sustainable agriculture, and natural resources management; platforms focused on specific issues (e.g., Viet Nam One Health Partnership for Zoonosis, Nutritional Food Group-EuroCham, Vietnam Consumers Protection Association, Slow Food Hanoi; and regional networks such as the Agro-ecology Learning alliance in South East Asia (ALiSEA), Common Microbial Biotechnology Platform, and Markets and Agriculture Linking Chains in Asia (**Annex 4c**).

Platform involvement is reported for most food system domains except for the component of consumer behavior, packaging, and processing. There was no platform focusing on socio-cultural drivers and equity outcomes. The platforms active in four or more food system domains include Slow Food Community in Hanoi, the SUN Civil Society Alliance, Nutritional Food Group-Europe Chamber of Commerce Viet Nam, and the Technical Working Group on Nutrition (**Annex 5c**). Fifteen out of 23 platforms participate in the policy and governance arena. Other platform activities encompass multi-sector planning and resource mobilization, promoting science-based knowledge creation and use, stakeholder coordination and information sharing, and advocacy to increase attention to specific issues. Details about the specific objectives of the food systems stakeholders in Viet Nam can be found in the stakeholder identification report.

Stakeholder representation in food system domains

This section presents the food system domains with the highest and lowest stakeholder connections. We identify the domains and areas of focus that are currently central or prioritized in shaping the food systems in Ethiopia, Bangladesh, and Viet Nam. Network centrality is defined in **Box 3**. It depicts the total number of stakeholders connecting to each food system component. The highest degree of centrality is 1, here implying that all identified food systems stakeholders connect to the domain.

Ethiopia

The areas with the highest stakeholders' linkages spread across the food supply chain domains, the drivers and impacts of Ethiopia's food system (**Figure 5** and **Figure 6**). Highly connected nodes slightly differ between individual actors and platforms (**Annex 5a**). For instance, the highest number of individual actors connect to the food environment (n=65), production systems (n=64), and diets (n=58) domains. These mostly focus on nutrition and health outcomes (n=57). On the other hand, an equal number of platforms (n=6) connect to the components of policy and governance, food environment, diets, and health and nutrition impacts. This implies that network centralization based on platforms highlights more distribution across domains. Overall, the food environment domain has the highest cumulative participation of stakeholders (n=71); and has a representation of all categories of stakeholders described earlier in Section 3.

The areas with the least stakeholder connections are the socio-economic and cultural drivers and their associated impact areas as well as the health systems domain. The Seqota Declaration and the ECSC-SUN are the only identified platforms active in these areas. The lowest connectivity exists in the retail and marketing component, where no stakeholders were identified.

In summary, network centralization in Ethiopia is distributed across five food systems areas comprised of the food environment, production systems (n=67), diets (n=64), nutrition and health impacts (n=63) and policy and governance (n=55). These highly connected areas are central in shaping the operations and outcomes of current food systems and are proxy indicators of where current investments in systemic change focus. For SHiFT, the identified central nodes provide entry points to generate knowledges and share experiences/ evidence about the dynamics of systemic change in the Ethiopian food system. However, addressing emerging issues in all food systems domains should be emphasized.

Figure 5: Distribution of actors and platforms across food system domains in Ethiopia

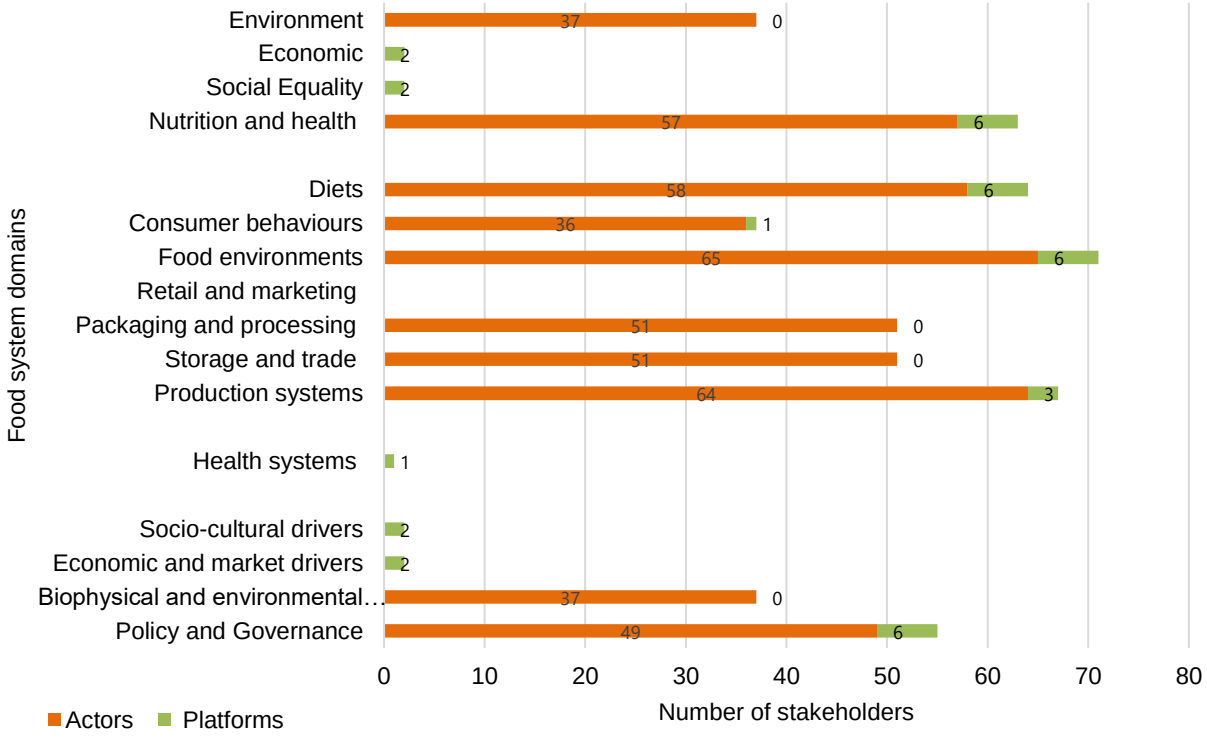
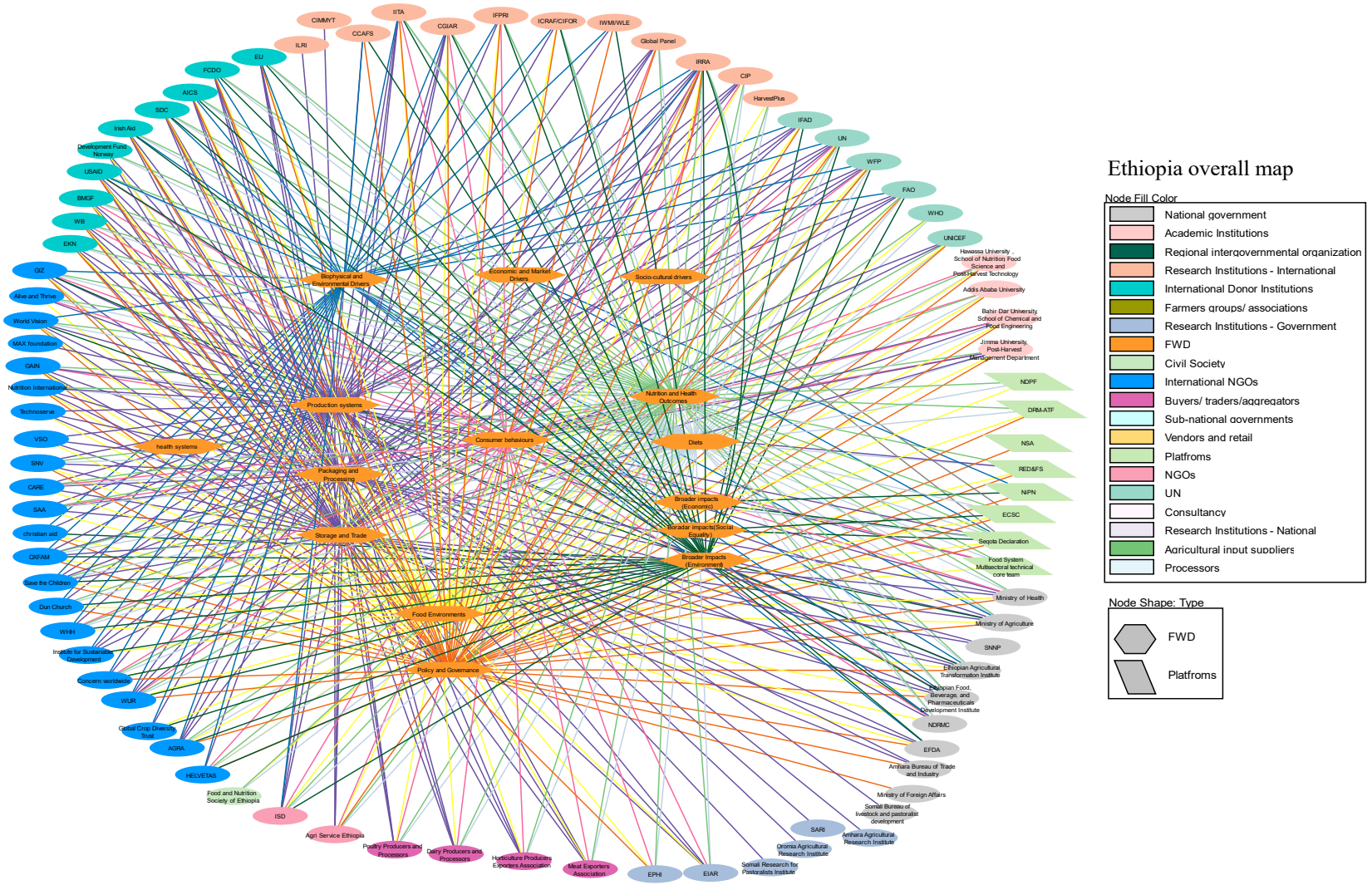


Figure 6: Network map connecting actors and platforms to food system domains for Ethiopia



Bangladesh

Network centralization, based on degree centrality, is low in Bangladesh (score of 0.339), which indicates that there are very few food system domains to which the majority of the identified stakeholders connect. Overall, the domains with the highest numbers of stakeholder linkages are the policy and governance area (n=38), food environment (n=32), diets (n=25), and nutrition and health outcomes (n=24) (**Figure 7** and **Figure 8**). The connectedness of platforms and individual actors alone to food system domains differs significantly. Whereas most platforms are active in the policy and governance arena (n=12), the number of individual actors connecting to this domain and the food environment is almost the same (n=25) (**Figure 8**).

In summary, the extent to which stakeholder connections are concentrated on specific food system domains in Bangladesh is low. The policy and governance and food environment domains have the highest number of stakeholder connections. For the SHiFT, engaging in the policy and governance arena is timely to advance the ambitions of ensuring sustainable healthy diets for all. From a systemic perspective, there is a need to identify the stakeholders across all domains to advance the narrative of sustainable healthy diets.

Figure 7: Distribution of actors and platforms across food system domains in Bangladesh

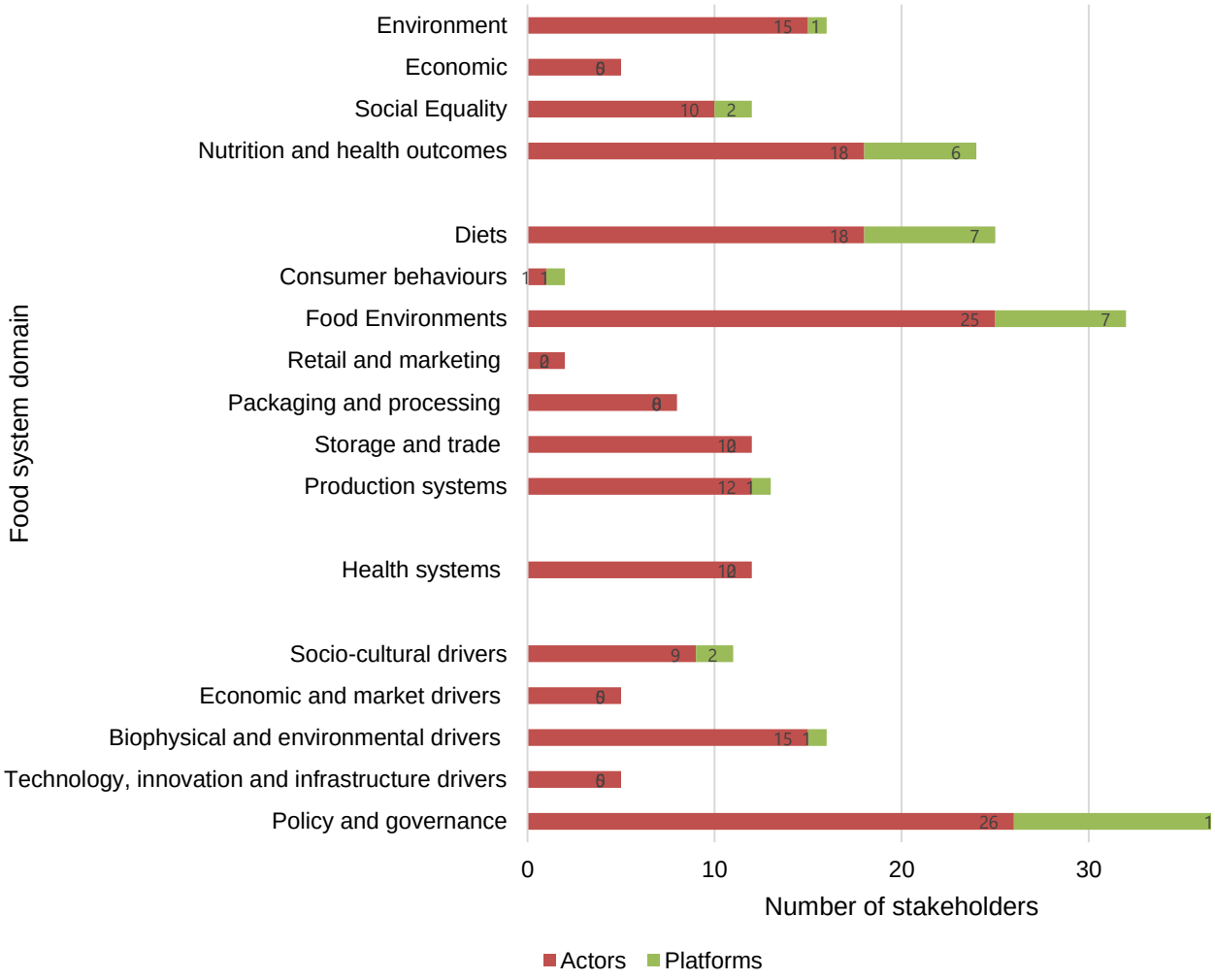
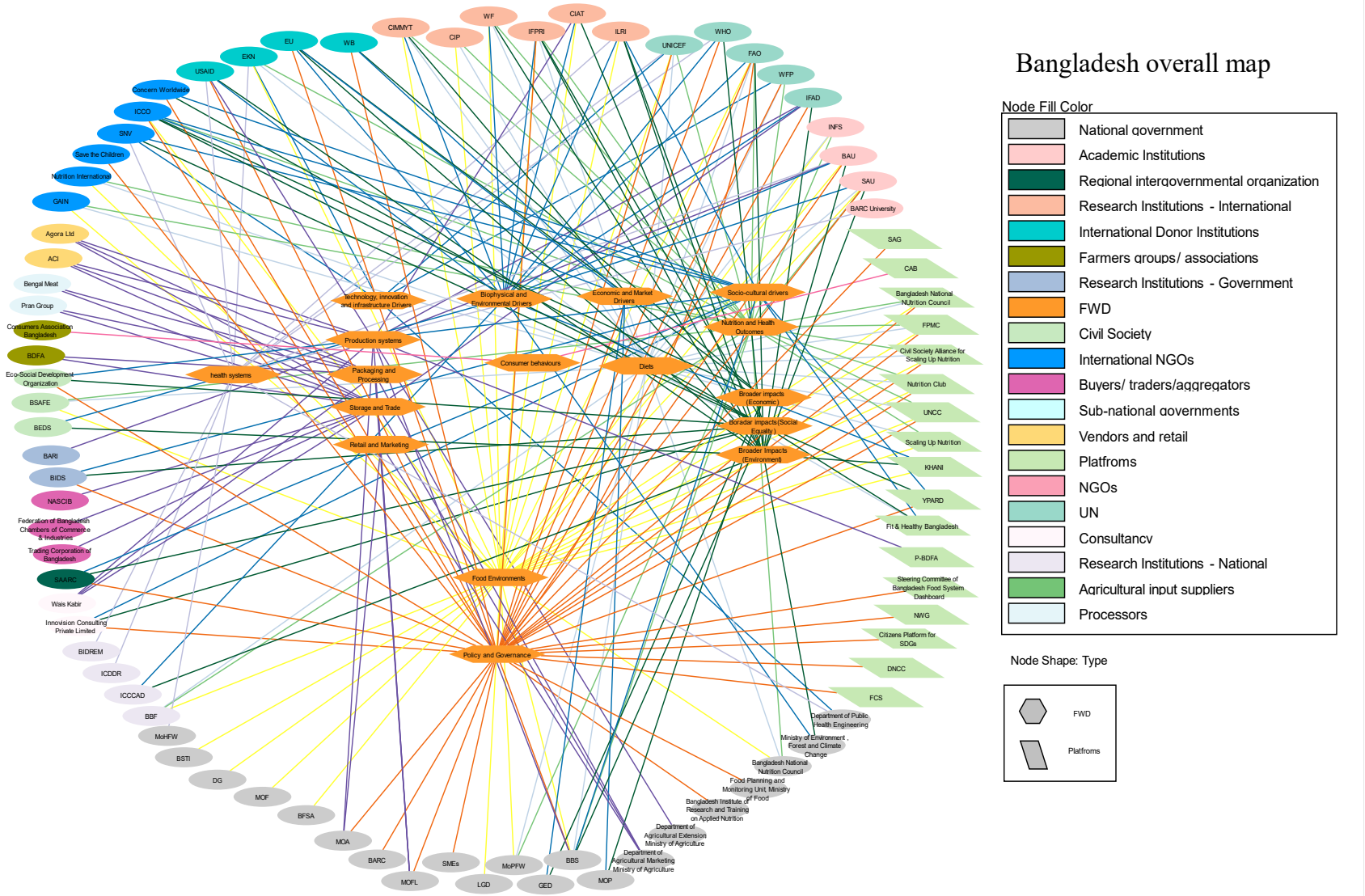


Figure 8: Network map connecting actors and platforms to food system domains for Bangladesh



Viet Nam

In Viet Nam, most network centralization is observed in the food supply chain domains (**Figure 10 and Figure 11**). Similar to Bangladesh and Ethiopia, there are significant variations in the domains with the highest number of connections from actors and platforms. Network centralization based on actors alone is highest in the domains of production systems (n=54) followed by packaging and processing, and storage and trade (n=38), as well as the food environment (n=35). Conversely, the policy and governance (n=15) and the food environment (n=8) have the highest number of connections from identified platforms.

Fifteen (15) out of 19 existing platforms are active in influencing policies and governance practices. The platforms are active in research including food markets and consumption analyses, food safety risks assessment and conduct awareness creation events and lobbying to inform policy, capacity development and programming decisions such as modernization and digitalization of food value chains, national action plan for food systems, standards, and legislations to influence the food supply chain and the design of the multisectoral approaches. There seems to be low platform engagement among the other drivers of food systems and the impacts, except for the health and nutrition outcome. None of the platforms are connecting on issues regarding the socio-cultural drivers and social equality impacts.

Though the highest number of stakeholders connect to the production systems component, it is important for SHiFT to equally recognize the different areas of centrality revealed from a platform perspective.

Figure 9: Distribution of actors and platforms across food system domains in Viet Nam

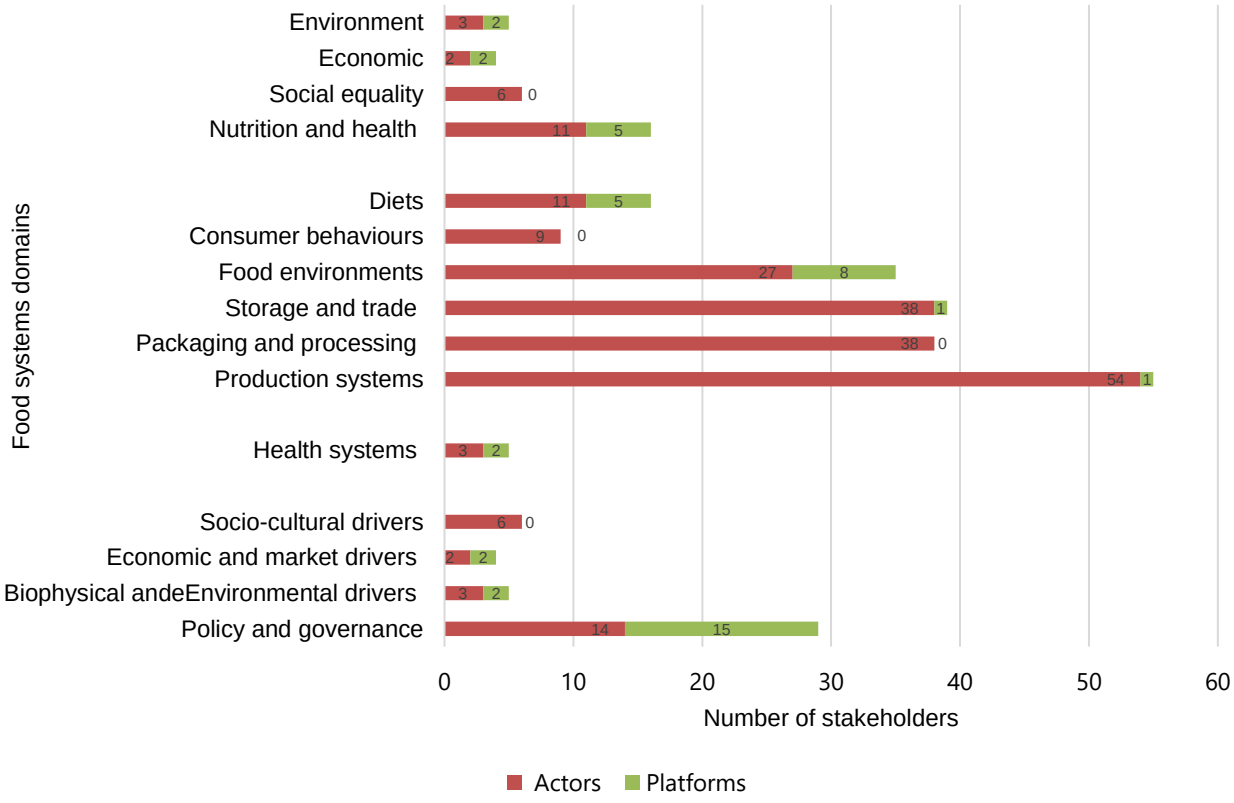
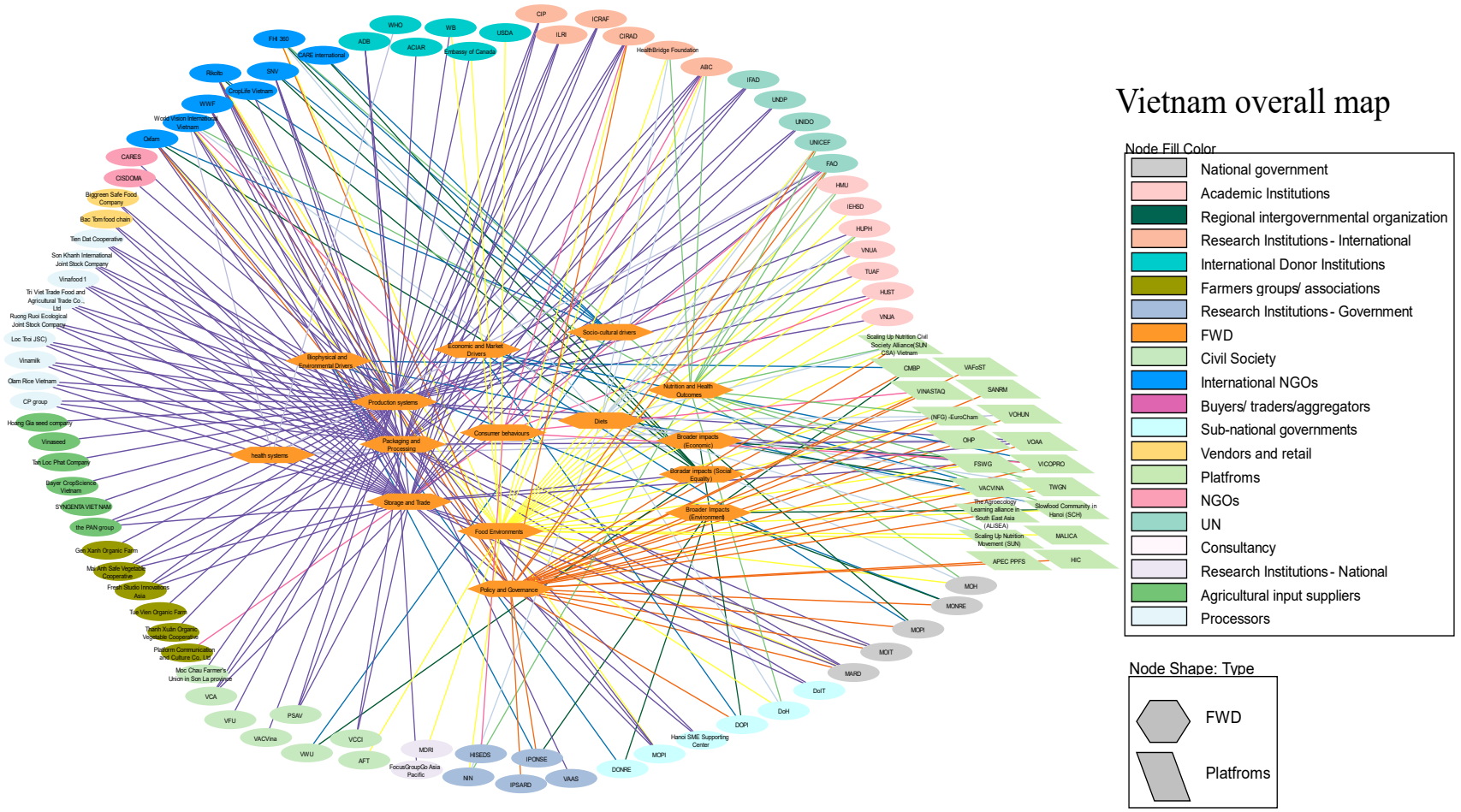


Figure 10: Network map connecting actors and platforms to food system domains for Viet Nam



Cross country synthesis

The stakeholder analysis approach applied in this study aimed to explore food system actors and potential alliances with whom SHiFT could collaborate to promote radical changes toward sustainable healthy diets in Bangladesh, Ethiopia, and Viet Nam. Our analysis reveals similarities in the categories of food system stakeholders. First, both individual actors and platforms are active across multiple food system domains in all countries. Second, in all three countries the main categories of stakeholders involved include national governments, international donors, UN agencies, research institutions, NGOs, CSOs, private sector (farmers/traders/ aggregators/processors) and academia. Third, stakeholders pursue various goals, with the top five areas of focus varying by country. In Bangladesh, priorities are policy and governance, food environments, diets, environment, and health/nutrition outcomes. Ethiopia prioritizes food environments, production systems, diets, nutrition/health outcomes, and policy/governance. Viet Nam emphasizes production systems, storage/trade, packaging/processing, food environment, and policy/governance. Overall, there's a common focus on food system domains across countries, with Bangladesh leaning more towards policy while Ethiopia and Viet Nam prioritize production.

Variations exist in stakeholder configurations across the food system domains and their prioritized areas of focus (Section 3 and **Annex 5**). Platforms primarily emphasize policy and governance, while individual actors are more active in food supply chains (from production to diets), notably in Ethiopia and Viet Nam (Section 3). Regional platforms like as the South Asian Policy Leadership for Improved Nutrition and Growth in Bangladesh and ALiSEA in Viet Nam were identified, but none were mentioned in Ethiopia.

Table 2 presents food system domains with the most stakeholder connections, categorized by individual actors and platforms for each country. Prioritized domains vary slightly based on whether connections are from individual actors, platforms or both. For instance, in Ethiopia platforms show higher connections to policy and governance and in Viet Nam to diets/health outcomes in Viet Nam platforms show higher connections compared to total actor connections. Similarly, actors exhibit higher connections to production/storage/processing in Ethiopia and Viet Nam. This suggests that key food system domains may differ depending on the stakeholder type that is analyzed.

Table 2: Food system components with the highest connections per country and by stakeholder category

Category	Food system domain	Ethiopia			Bangladesh			Viet Nam		
		Stakeholders	Actors	Platforms	Stakeholders	Actors	Platforms	Stakeholders	Actors	Platforms
Drivers	Policy and governance	x		x	x	x	x	x	x	x
	Technology, innovation and infrastructure drivers									
	Biophysical and environmental drivers									
	Economic and market drivers									
	Socio-cultural drivers									
Systems supporting production	Health systems									
Food supply chain	Production systems	x	x					x	x	
	Storage and trade		x					x	x	
	Packaging and processing		x					x	x	
	Retail and marketing									
	Food Environments	x	x	x	x	x	x	x	x	x
	Consumer behaviours									
	Diets	x	x	x	x	x	x			x
Broader outcomes and impacts	Nutrition and health outcomes	x	x	x	x	x	x			x
	Social Equality									
	Economic									
	Environment				x	x				

Note: *Stakeholders* refer to the combination of individual actors/entities and platforms

Further, the food system domains with the most diversity of stakeholder categories differ in the three countries (Section 3 and **Annex 5**). In Viet Nam, most stakeholder diversity was found in the production systems. In Ethiopia, most stakeholder diversity was found for the food environment while in Bangladesh most stakeholder diversity was found for policy and governance. These are also the highest-ranked centralizing nodes for each country. In addition, food environments and policy and governance are common food system domains identified as centralizing nodes in all countries. The centralizing components underscore their importance in directing food system investments and influencing processes in the countries.

Overall, there seems to be a low stakeholder involvement in the socio-cultural and environmental drivers and their associated outcomes (Section 3). There is a low focus on social equity, economic and environmental impacts, and drivers. Food systems domains with a high degree of centrality are presumed to effectively influence various structural and functional behaviors of the system (Przesdink et al. 2022). These can be potential entry points for understanding the prevailing systemic biases and the strategies for reorienting the food system, disseminating ‘new’ knowledge, co-creating transformative governance mechanisms and innovations (Przerdzink et al. 2022; Kardos et al. 2020).

4 Conclusions, reflections, and next steps

This study aimed to provide insights about where stakeholders are active in food systems in Bangladesh, Ethiopia, and Viet Nam, and about their characteristics to thus fuel a more focused stakeholder engagement strategy for SHiFT. It illustrates the potential of conducting stakeholder analyses to gain insight into stakeholders' positioning and activities in different food system domains.

Conclusions and reflections

The main conclusions from the stakeholder analysis are:

- Platforms are active in policy and governance, suggesting that engaging with MSPs is beneficial for SHiFT. However, implementing food systems transformation requires identifying and engaging with other actors as well.
- Considering connectivity with food system domains, SHiFT can collaborate with all sectors. Moreover, focusing on food environment stakeholders, particularly in overseeing foodscapes for people, is essential. However, there is limited representation of stakeholders in processing, transport, and retail, especially in Ethiopia and Bangladesh, raising questions about the impact on the objectives of Work Packages 2 and 4.
- International stakeholders emerge prominently from our analysis, suggesting that food system narratives may still be primarily driven from an international/global perspective, resonating messages from the UNFSS dialogues. To realize the ambitions of transitioning towards sustainable healthy diets for all, efforts must extend beyond projects/programs and engage national-level stakeholders.

Reflections

First, our study identified clustered areas where stakeholders self-identify in the food system, which can be used to guide the co-design of strategies for their engagement in systems transformation agendas. This can help SHiFT focus more precisely on identified stakeholders (platforms and actors).

Second, platforms primarily focus on policy and governance, with some attention to shared objectives in the food environment domain for health and nutrition impact. However, there is minimal formation of platforms related to packaging and processing, storage, and trade as well as environmental drivers and impacts across all countries, known as the "missing middle". Bakker et al. (2019) also noted the limited formation of multistakeholder structures in the private sector, possibly due to informalities in food-related trade, processing, and marketing (Wertheim-Heck et al. 2019). As concluded by Trubswasser et al. (2022), efforts to enhance food safety, processing, marketing, and labeling are important steppingstones for developing strategic policies and practices addressing food retail, provision, and trade components of the food environment. However, platforms often stem from time-bound funded projects or international movements. While this is important to advance specific goals, such platforms evolve or become obsolete when agendas change or projects end (Herens et al. 2022). While current food systems transformation narratives and processes are still in their early stages, there is potential for new platforms to emerge and existing ones to shift priorities to support transitions toward sustainable healthy diets.

Third, diverse actors operate within food system domains, with some specializing in specific areas of jurisdiction and expertise while others engage across all components. While governments offer leadership and technical expertise and a conducive environment to enable transformative strategies, international donors, NGOs, research-oriented organizations, and UN agencies are notably present across all countries, playing a boundary-spanning role. These boundary-spanning actors are similar in all countries despite slight differences in focus (e.g., objectives and activities). Common actors include UN agencies (FAO, World Health Organization, UNICEF, International Fund for Agricultural Development), donors and international financial institutions (World Bank, United States Agency for International Development, Dutch Embassy), NGOs (SNV, Global Alliance for Improved Nutrition, World Vision, Save the Children), and research institutions (CGIAR) (**Annex 4**). These international organizations play a crucial role in supporting food systems policy promotion and knowledge transfer across countries, as noted by Bakker et al. (2019). Strengthening government ownership, adaptability, and entrepreneurial approaches to systemic changes is vital for institutionalizing transformative innovations (Herens 2022).

Methodological considerations

Network centrality provides insight into popular connecting points. The degree of centrality enables building an understanding of the systemic biases in transformative processes and accentuates the areas with limited focus. The present study focused on the linkages between stakeholders and food system domains, assessing the proportion of connections between stakeholders and food system domains and assigning values between 0 and 1 (indicates a denser network with stronger connections between nodes), (Kardos et al. 2020). However, this does not reveal aspects of network architecture, critical linkages, and its dynamics. The scores presented in this study can be attributed to the relationships primarily established between the food system domains and the stakeholder groups, but not to the existing connections between platforms and actors, and among platforms.

Another limitation to the present study is the absence of using weighted edges. Weighted edges are crucial for illustrating the strength or significance of relationships. While the concept of weighted edges is valuable for exploring stakeholder relations in a network, this feature was not utilized due to limitations in our dataset. This step would be helpful to determine which stakeholders are vital to engage in food systems for sustainable healthy diets dialogues and to demonstrate ways in which powerful actors could facilitate improved engagement of less influential actors. This perspective would highlight which groups of stakeholders may be excluded from food system solutions and determine strategies to involve them in shaping the system's transformative agendas. Building more understanding on the integration and boundary spanning actors is necessary across food system domains to support the assimilation of ‘new’ evidence about transformative processes.

We found few stakeholders related to the drivers of food systems, including technology, innovation, infrastructure, biophysical and environmental factors, economic and market dynamics, and socio-cultural influences. This observation extends to associated impact areas, except for nutrition and health outcomes. This may, in part, be attributed to the food systems narrative employed likely having influenced the identification of stakeholders and their roles. This study primarily focused on stakeholders involved in ensuring sustainable healthy diets, most of whom work on core components of food systems with direct food-related objectives.

Future considerations

The stakeholder analysis revealed that platforms focus on policy/governance making engaging with MSPs crucial. In addition, given its objectives, SHiFT should collaborate and zoom in on food environment stakeholders, but also stakeholders active in the domains of processing, transport, and retail. Likewise, while acknowledging the prominent role of international stakeholders in the current food systems transformation dialogues, SHiFT would benefit from deepening engagement with (sub)national-level stakeholders for sustainable healthy diets.

The suggested next steps in stakeholder engagement for leveraging food system transformation for sustainable healthy diets are to:

- *Assess the network density between food system stakeholders*, a measure to build understanding of stakeholder interactions. Exploring the network density will add to our findings in revealing the dynamic interaction among food systems stakeholders and their critical linkages. The progressive analysis can explore the density of networks to identify the connecting institutions and to ascertain inclusivity of different stakeholders.
- *Examine the power dynamics among food system stakeholders.* A power dynamic analysis could examine the stakeholders engaging or influencing specific food system issues to understand their level of interest in an issue, sources of power (influence), and the patterns and contexts of interaction. This includes assessing the relational power dynamics for insights into the potential impacts of the food system transformation strategies in the focus countries; and stakeholder network maps for a better understanding of the conditions facilitating or inhibiting certain networks as well as insights of power-sensitive strategies to ensure more equitable involvement of diverse actors in decision-making processes relating to sustainable healthy diets.
- *Explore stakeholder perceptions of enablers, barriers, incentives, and perceived benefits* of participating in transformative food system agendas, extending beyond policy and governance. This aids in identifying stakeholders for different work packages and targeting transformation effectively. Any multistakeholder initiative aiming for food system change must grasp stakeholder priorities, system boundaries, and desired changes.
- *Identify the boundary spanning stakeholders with potential to support the multistakeholder processes necessary to facilitate food systems transformation*. 'Boundary spanning' as a practice seeks to enable knowledge exchange between communities of science and policy in a specific context and actively shaping complex science-policy landscapes (Posner & Cvitanoc 2019). Boundary-spanning structures address the challenge of bridging different subsystems and related fragmented siloed organizational structures (Bizikova, Echeverría, & Hammill 2014; Drimie et al. 2011). SHiFT is interested in spanning the boundaries between science and policy so that decisionmaking processes are informed by the most current and best available scientific knowledge. The analysis should focus on exploring which organizations – singe actors – are actively involved in or leading an existing platform link with the emerging or established multistakeholder collaboration driving the food systems transformative agenda setting or action planning. Explore the roles and impact of these boundary spanning organizations in the science – policy interface for food systems transformation. Whereas the need for effective knowledge exchange between science and policy in the realm of transformative change is widely embraced and the role of boundary spanning and knowledge brokering well acknowledged (Posner & Cvitanovic 2019),

evaluation of what works, why, what matters, and the impact of such exchanges is an emerging area of interest.

In conclusion, food systems transformation processes shape desired outcomes in conjunction and not in isolation. Navigating the stakeholder landscape to mobilize transformative power inclusively is challenging. Our analysis supports SHiFT's strategy of collaborating with existing platforms and targeted actors to implement research findings and foster innovations. The study sheds light on which actors matter most in which domain. The results inform SHiFT's internal research-practice connection in support of uptake of research outcomes and testing of innovations. In the countries where SHiFT is active, the results can inform Strategic Partners and be used to validate and as such feed or strengthen existing partnerships, with a specific focus on national and sub-national stakeholders.

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Annex 1: Stakeholder identification matrix

SH Category	Name SH	type of SH single or multiple actor (MSP)	Area of focus	Activities implemented	Products generated	Level of interest in Food system transformation (FST) Score	Level of influence in FST (decision making power) Score	Contact person(s)	Email / other contact details
International Institutions/Donor organizations									
National government									
Local government									
Research Institutes									
International NGOs									
Civil Society Organizations									
Private sector									

Annex 2a: Stakeholder platform identification

Platform identifier networks & platforms relating to FST for sustainable healthier diets											
Name	**Shared aim (stated intent)**	**Dominant narratives**	**Stakeholder/ Group Composition**	**Platform Leadership/ Convener/ Name of project**	**Type of activities implemented**	**Products generated**	**Level of operation (i.e., international, national, regional, local)**	**Duration of platform/network (start - end period)**	**Status of operation (drop down list active/inactive)**	**Contact**	**Email**

Annex 2b: Guide to stakeholder mapping template

The stakeholder mapping template has been created to bring together, in one central place, all the stakeholders working on food systems issues in the SHIFT focal countries, with the idea of making a central database that can be used to quickly identify potential stakeholders with whom we might want to work. There are two separate templates. The first one seeks to simply list all actors, from a wide range of sectors, in one place. Populated by all WPs- with the overview of the country coordination Unit.

Stakeholder Category

Write the names of the stakeholders in full.

International Institutions/ donor Institutions- this includes organizations which fund projects, for example USAID or EU delegations, the World Bank or other funding organizations. Only include in this category the organizations themselves, not all the projects that they fund.

UN Organizations: This includes organizations like UNHCR, FAO, WFP, UNICEF, and other United Nations members.

National Governments: This includes various relevant ministries and other governmental organizations who have a mandate to support national level programs. This may also include organizations which set food standards or ensure compliance with food safety and labeling.

Sub-national Government: Including government organizations working at both the regional and local level who have a mandate to support elements of the food system.

Research Institutes: Government or private research organizations active in carrying out research on food systems issues. This would also include knowledge institutes or organizations involved in research and development for private companies. The institutes may be national or international.

Academic institutions: this includes universities and vocational education institutes who have a role in education and research around food systems issues.

International NGOs: large NGOs with a presence in multiple countries (for example, organizations like Save the Children, BRAC, Oxfam etc.) This organizations usually receive funding from external sources and a run by full time, salaried staff.

Civil Society Organizations: groups of local people who are united around a certain issue, for example consumer rights groups, or organizations working to support specific groups in society (for example children or the elderly). Often, although not always, these types of organizations rely on the support of volunteers and include few paid staff.

Private sector

Because the private sector is such a large group, it has been sub-divided into several categories to ensure that no key organizations are left out.

Input Supply organizations, including cooperatives as well as private companies, who supply inputs to farmers (seeds, fertilizers, pesticides, machinery)

Farmers groups/Associations: While it would be impossible to include all farmers in the country, this group of stakeholders should include representative groups including cooperatives, farmers associations or other types of groups who represent the interests of various farmer as well as key large scale farming companies.

Buyers/ traders: Companies that purchase and aggregate food products for distribution.

Processers: Micro/ Small/ medium and larger companies who produce processed foods for the domestic market. Focus should be on the specific areas of the project's geographical interest and linking to the stakeholders engaged in work package 2.

Vendors and Retail (including informal actors) including supermarkets, major distributers and associations who represent groups of informal actors (associations of market traders, for example).

Name of Stakeholder

For the Name of the Stakeholder, please list the full name. For example, the World Food Programme with the abbreviation in parentheses. For names of large companies that might be owned by a parent company, please list both the common name and the name of the parent company. For example, the SAI GON CO.OP Mart is owned by the parent company Ho Chi Minh City Cooperative Buying and Selling Association. In this case you should list the more well-known name of the retail branch, as well as the name of the company which owns the retail branches.

Link to Website

While this may not always be possible, especially for smaller organizations (for example farmer organizations), please include a link to the organization's website, if possible. This could also be, for example, a link to a Facebook page. This will allow us to find the organization or additional details more quickly about them in the future.

Area of Focus

This means what area of focus in the food system, NOT geographical area. You may select more than one focus area, since organizations are often working on multiple issues and focus areas. However, try to select only areas that are the organization's real focus. If they do a very small amount of work on a specific issue, it may not be worth mentioning.

Food production includes organizations that support farmers, including through research, and work on improving productivity (for example, introducing climate smart crops or higher yielding varieties). It could also include organizations working on alternative production methods (for example, agro-ecology).

Input Supply includes organizations supplying inputs or carrying out our research on alternative inputs (for example plant breeding or ways to increase soil fertility) or on improving systems around access to input supply.

food processing and trade companies (of any size) or organizations who are directly engaged in food processing activities (at various scales, from micro-level to large scale), as well as those who are supporting research to improve food processing activities.

food safety organizations or companies working on the issue of food safety including development and enforcement of food safety standards, monitoring and testing of foods, developing and enforcing standards. This may also include consumer rights groups and other organizations supporting increased demand for food safety.

food environment organizations working on the better understanding and or influence how the food environment shapes food choice behavior or carrying out activities to actively adjust or alter the food environment, for example creating regulations.

Consumer behavior organizations working to change consumer behaviour is some way. This might be around campaigns to support consumption (or reduce consumption) or certain foods, or those research mechanisms to influence consumer behavior, for example vouchers to support increase purchase of fruits and vegetables, food advertising.

Nutrition: Includes organizations which work specifically on issues of promoting consumption of more nutritious diets or other nutrition specific activities (promotion of exclusive breastfeeding and appropriate IYCF practices, health related services such as growth monitoring or provision of vitamin A supplementation) as well as companies who are support development of promotion of more nutritious products, for example, fortification or product reformulation).

Gender: organizations with projects or programs focusing on supporting gender inclusion, within the food system's context. For example, projects working to support gender sensitive food value chains or governmental ministries with a specific gender focus.

Environment: Includes organizations specifically seeking to reduce the environmental impact of various food value chain activities including production side practices such as the introduction or promotion of drought tolerant crops, new soil fertility practices or reduce use of pesticides. This could also include demand level interventions, for example promoting reduced consumption of animal source foods.

Policy: Includes organizations working on all aspects of the policy process, from agenda setting to policy formation, to policy adoption, implementation, and evaluation. This can include organizations working on policies related to all aspects of the food system.

Activities Implemented

This category will be most relevant for governmental, non-governmental, UN and research actors, and may be less relevant for private sector actors. This section should include a list of the **key** activities implemented by the organization related to the food system. It does not have to be comprehensive, as organizations will likely be involved in many activities, but rather it should seek to provide an overview of the main activities and areas of work.

Products Generated

This category is most relevant for private sector actors involved in creating products, but it may also be relevant to other partners and could include research or other types of knowledge products. For large organizations, a list of the broad categories of the types of products will suffice (you do not have to list all the products produced by a certain company).

Area of Operation (Geographic)

This includes the scale of where the partner is working. For actors working at the national level (government ministries, etc) choose national level. Large private sector actors whose products are sold throughout the country can also be included as actors working at the national level.

Regional
Provincial or district
Other

Contract Person

Please list the name and contact details (ideally including an email address, but if not possible, a phone number is fine) for 1-2 individuals from this organization who can be contacted for future engagement.

Annex 3: Self-reported areas of focus

Area of Focus	HLPE	Foresight 4 food	Bekrum	de Brauw et al.
Food Production (Input Supply, Agribusiness)	Food System --> Food supply chain --> production systems	Core Activities ---> production	Food system activities ---> Agriculture production	Food Value Chain ---> Agriculture production
Food Processing (Technology)	Food System --> Food supply chain --> Packaging and Processing	Core Activities ---> Processing	Food system activities ---> Food processing and Transformation	Food Value Chain ---> processing and Packaging
Food Trade (Agribusiness)	Food System --> Food supply chain --> Storage and Trade Economic and Market drivers	Drivers ---> Markets	Food system activities --->Food storage, transport and trade, Business services	?
Food Security (Humanitarian Assistance) ??		Food system --> Supporting services		Food system outcomes --> Food security
Consumer Behavior	Food systems --> Food Environments --> Consumer behaviours	Food system --> Consumption	Food system activities --> food consumption and consumer characteristics	Consumer behavior
Nutrition	Food systems --> Food Environments Food systems --> Diets Food systems -->Nutrition and Health outcomes	Food system outcomes --> Food and nutrition security Drivers---> Consumption	Food system outcomes --> Food security	Dietary Outcomes and Food Environment
Food Environment	Food Systems ---> Food Environments	?	?	Food Environment
Food Safety (healthy and safe nutritious food)	Food Systems ---> Food Environments	?	?	Food Environment
Environment (Climate resilience, Energy, Nature-based solutions, low-carbon sustainable development,)	Biophysical and Environmental Drivers Broader Impacts--->Environment	Drivers ---> Climate and Environment Food system outcomes---> Environmental Sustainability	Environmental Drivers, Environmental outcomes	Biophysical and Environmental Drivers, sustainability
Policy, planning	Policy and Governance	Institutional Environments	Socio-Economic drivers--> Policies Food system activities ---> Enabling Environment	Drivers ---> Political and Economic drivers

Area of Focus	HLPE	Foresight 4 food	Bekrum	de Brauw et al.
Gender equality	Socio-cultural drivers ---> Women's Empowerment Broader impacts: Social Equality	?	?	Drivers---> Sociocultural Drivers
Economic Development (Economic Growth)	Economic and Market Drivers Broader impacts--> Economic	Drivers --> Demographic and Developments, Food System Outcomes ---> Economic and Social Well-being	Socio-Economic drivers--> Policies + Markets Food system outcomes--> Socio-economic outcomes	Drivers ---> Political and Economic drivers Socio-economic
Knowledge and Capacity Building (Productive, diversified, and knowledge-based agri-economic growth-capacity building for emergency preparedness, capacity development, Productive, diversified and knowledge-based agri-economic growth)	Policy and Governance	Supporting Services	?	?
Resilience (Community Resilience- Disaster Response)	?	?	?	?
Governance (Human rights and Democracy)	Policy and Governance	Institutional Environments	Socio-Economic drivers--> Policies Food system activities ---> Enabling Environment	Drivers ---> Political and Economic drivers
Health (Sexual and reproductive health, water, sanitation, and hygiene)	System supporting food production --> health systems Technology, innovation and infrastructure Drivers	?	?	-Health Drivers---> Technology and Infrastructure
Youth Development	Policy and Governance	Institutional Environments	Socio-Economic drivers--> Policies Food system activities ---> Enabling Environment	Drivers ---> Political and Economic drivers

Area of Focus	HLPE	Foresight 4 food	Bekrum	de Brauw et al.
Social policy (Child care and protection)	Policy and Governance	Institutional Environments	Socio-Economic drivers--> Policies Food system activities ---> Enabling Environment	Drivers ---> Political and Economic drivers
Agriculture marketing	Food System --> Food supply chain --> Retail and Marketing	?	Food system activities --> Business services	Food Environment --> Promotion and ads
Data Management (Information and data on food, nutrition, agriculture, gender, socio-demography, Productive, diversified, and knowledge-based agri-economic growth)	Policy and Governance ??	Supporting Services	?	?
Retail	Food System --> Food supply chain --> Retail and Marketing	Core Activities ---> Retailing	Food system activities ---> Food retail and Provisioning	Food Value Chain ---> Markets and Modern Retail

Annex 4a: Stakeholders active in the food system in Ethiopia

National and international food system stakeholders in Ethiopia in 2022		
International Institutions/ Donor Institutions	**National governments**	**Research Institutions**
BMGF Ethiopia	Ministry of Agriculture	Amhara Agricultural Research Institute
Development Fund Norway	Ministry of Health	EIAR
Delegation of the EU to Ethiopia	Ethiopian Agricultural Transformation Institute	SNNP Agricultural Research Institute
Foreign, Commonwealth & Development Office (FCDO)	Ethiopian Food, Beverage, and Pharmaceuticals Development Institute	Oromia Agricultural Research Institute
World Bank	National Disaster Risk Management Commission (NDRMC	Ethiopia Public Health Institute (EPHI)
Italian Agency for Development Cooperation	Ministry of Foreign Affairs	Somali Research for Pastoralists Institute
Swiss Development Cooperation	Ethiopian Food and Drug Authority (EFDA)	ILRI
Irish Aid	Amhara Bureau of Trade and Industry	CIP
Dutch Embassy (Netherlands))	SNNP Bureau of Trade and Industry	Global Panel
Feed the Future (USAID)	Somali Bureau of livestock and pastoralist development	CGIAR
		IFPRI
United Nations Organizations	**Academic Institutions**	IITA
UNRCO	Addis Ababa University	CCAFS
WFP	Hawassa University, School of Nutrition, Food Science and Post-Harvest Technology	CIMMYT-Ethiopia
FAO	Jimma University, Post-Harvest Management Department	HarvestPlus
WHO	Bahir Dar University, School of Chemical and Food Engineering	IWMI/WLE
UNICEF	Wageningen UR	ICRAF/CIFOR
IFAD	Greifswald University	IRRA
Non-Governmental Organizations – international & national NGOs		**Private sector** (Buyers/Traders/Aggregators)
GAIN	MAX foundation	Dairy Producers and Processors
GIZ	Dun Church	Horticulture Producers Exporters Association
Alive and Thrive	Sasakawa Africa Association (SAA)	Meat Exporters Association
World Vision	Welthungerhilfe. German Agro-Action (WHH	Poultry Producers and Processors
Christian Aid	Institute for Sustainable Development	
Nutrition International	Concern worldwide	**Civil Society Organizations**
OXFAM	HELVETAS	Post-Harvest Professionals Association
Save the Children - Ethiopia	Global Crop Diversity Trust	Sesame Business Network - Northwest Ethiopia (SBN)
Technoserve	AGRA	Food and Nutrition Society of Ethiopia
VSO	Stichting Wageningen Research Ethiopia	
WRI	Agri Service Ethiopia (national)	**Platforms**
SNV-Netherlads Development Organization	Institute for Sustainable Development (national)	Food System Multisectoral technical core team
Agriprofocus		Rural Economic Development and Food Security (RED&FS) Sector Working Group
CASCAPE-CANAG project		Nutrition Sensitive Agriculture (NSA) forum
CARE-Ethiopia		Seqota Declaration
		National Information Platform for Nutrition (NiPN)
		Nutrition Development Partners Forum (NDPF)
		Disaster Risk Management Agricultural task force (DRM-ATF)
		Ethiopian Civil Society Coalition (ECSC) - SUN website for Ethiopia

Annex 4b: Stakeholders active in the food system in Bangladesh

National and international food systems stakeholders in Bangladesh in 2022		
International Institutions/ Donor Institutions	**Government** (national and subnational)	**Research Institutions** (national and international)
World Bank	Ministry of planning	Bangladesh agriculture research institute (BARI)
United States Agency for International Development (USAID)	Ministry of Agriculture	Bangladesh agriculture research Council (BARC)
European Union (EU)	Department of Agricultural Marketing, Ministry of Agriculture	Bangladesh Breastfeeding Foundation (BBF)
Netherlands Embassy	Ministry of Fisheries & Livestock	International Centre for Diarrhoeal Disease Research, Bangladesh
	Institute of Public Health Nutrition, MoHFW	International Centre for Climate Change and Development
United Nations Organizations	Ministry of Health and Family Welfare (MoHFW)	International Livestock Research Institute (ILRI)
Food and Agriculture Organization (FAO)	Bangladesh National Nutrition Council	International Center for Tropical Agriculture (CIAT)
World Food Programme (WFP)	Ministry of Food	International Food Policy Research Institute (IFPRI)
International Fund for Agricultural Development (IFAD)	Ministry of Environment, Forest and Climate Change	International potato center (CIP)
World Health Organization (WHO)	Bangladesh Standards and testing institutions (BSTI)	International Maize and wheat improvement center (CIMMYT)
UNICEF	Food planning and monitoring unit (ministry of food)	WorldFish
	Bangladesh bureau of statistics (BBS) Demography and Health wing	
Non-governmental organizations (NGOs)	Bangladesh Food Safety Authority	**Private sector (Farmers, processors, business)**
SNV	Department of Public Health Engineering	Bangladesh Dairy Farmers' Association (BDFA)
Global Alliance for Improved Nutrition (GAIN)	Local government division (MoLG, RD & C Division)	Trading Corporation of Bangladesh
Nutrition International	General Economics Division (GED) Planning Commission	Federation of Bangladesh Chambers of Commerce & Industries
Concern Worldwide	Bangladesh Institute of Research and Training on Applied Nutrition	National Association of Small Cottage Industries of Bangladesh (NASCIB)
Save the Children	Department of Agricultural Extension, Ministry of Agriculture	Pran Group
ICCO Cooperation		Bengal Meat
	Academic Institutions	Agora Ltd
Platforms	Institute of Nutrition and Food Science, University of Dhaka	ACI limited Advanced possibilities
Food Security Cluster (FCS) Bangladesh	Department of Development and Poverty Studies, Sher-e-Bangla Agricultural University	
Scaling Up Nutrition Bangladesh	Bangladesh Agriculture University	**Civil Society Organizations**
Multi-stakeholder Land Platform for Land Governance and Corruption Monitoring	James P Grant School of Public Health, BRAC University	Bangladesh Environment and Development Society (BEDS)
Bangladesh National Steering Committee for Nutrition - National Nutrition Programme (NNP)		Eco-Social Development Organization
YPARD Bangladesh		BSAFE Foundation
Sustainable Agriculture Initiative Platform		
Consumers Association Bangladesh		

Bangladesh National Nutrition Council		
Asian Food Security Network Bangladesh (AFSN)		
Platforms (cont'd)		
Bangladesh Food Safety Network- KHANI		
National Network on Agriculture for Nutrition		
Citizen Platform for ADGs		
The Food Planning and Monitoring Committee (FPMC)		
Nutrition Club		
Upazila Nutrition Coordination Committee (UNCC)		
District Nutrition Coordination Committee (DNCC)		
Steering Committee of Bangladesh Food Systems Dashboard		
South Asian Policy Leadership for Improved Nutrition and Growth (SAPLING)		
Bangladesh Nutrition Working Group		

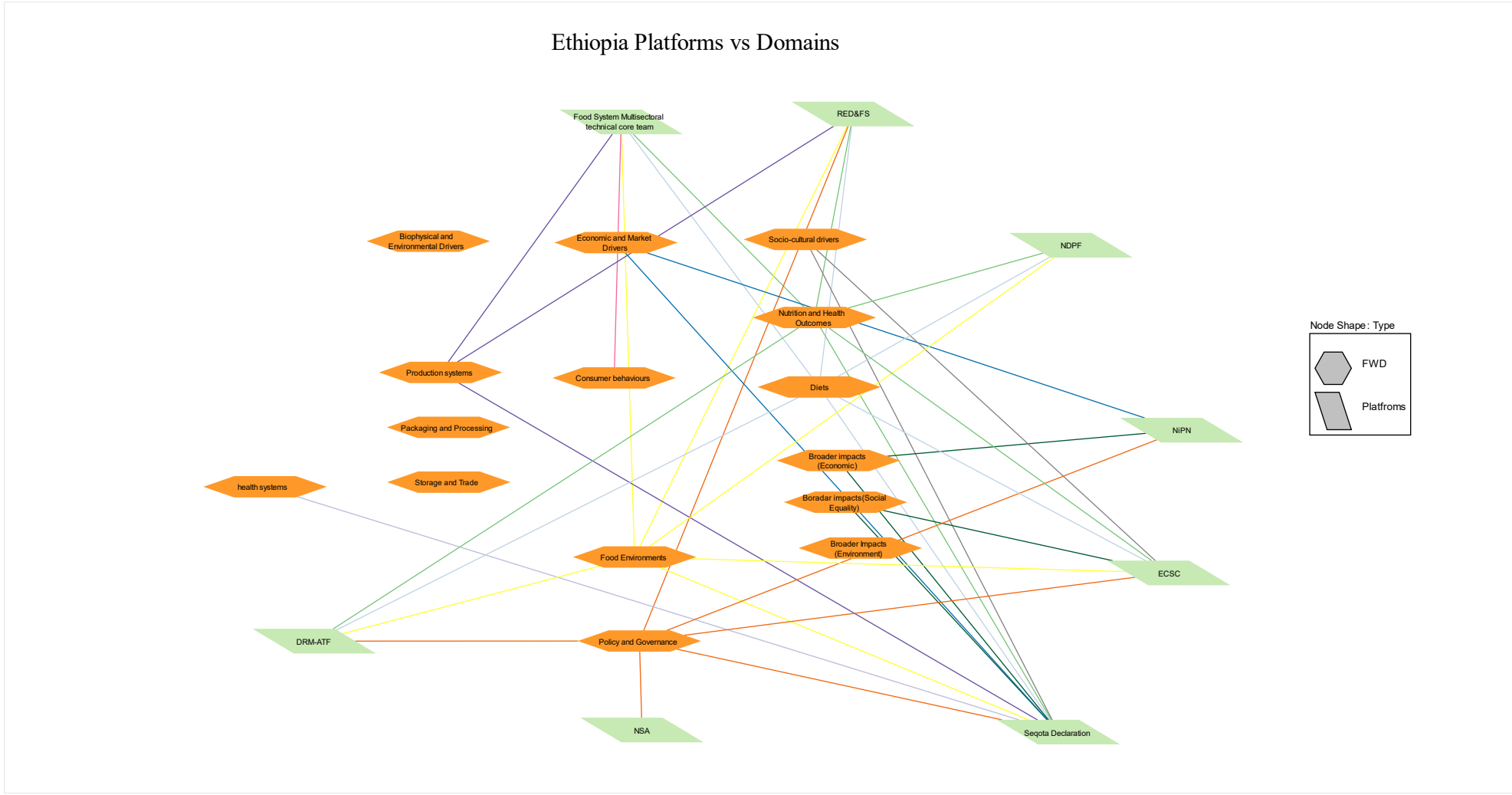
Annex 4c: Stakeholders active in the food system in Viet Nam

National and international food systems stakeholders in Viet Nam in 2022		
International Institutions/ Donor Institutions	**Government** (national and subnational)	**Research Institutions** (national and international)
Asian Development Bank (ADB)	Ministry of Agriculture and Rural Development (MARD)	Hanoi SME Supporting Center - Hanoi Authority for Planning and Investment
Australian Centre for International Agricultural Research (ACIAR)	Ministry of Health (MOH)	National Institute of Nutrition (NIN)
U.S. Department of Agriculture (USDA)	Ministry of Natural Resources and Environment (MONRE)	Institute for Policy and Strategy for Agriculture and Rural Development (IPSARD)
Embassy of Canada in Hanoi, Viet Nam	Ministry of Industry and Trade (MOIT)	Viet Nam Academy of Agricultural Sciences (VAAS), including FAVRI, CASRAD
World Bank (WB)	Ministry of Planning and Investment (MOPI)	Hanoi Institute for Socio Economic Development Studies (HISEDS)
	Department of Agriculture and Rural Development (DARD)	Institute of Strategy and Policy on Natural Resources and Environment (IPONSE)
United Nations organizations	Department of Health (DoH)	Mekong Development Research Institute (MDRI)
World Health Organization (WHO)	Department of Natural Resources and Environment (DONRE)	FocusGroupGo Asia Pacific
Food and Agriculture Organization (FAO)	Department of Industry and Trade (DoIT)	The Alliance of Bioversity International and CIAT (ABC) - Viet Nam
International Fund for Agricultural Development - Viet Nam (IFAD)	Department of Planning and Investment (DOPI)	International Rice Research Institute (IRRI) - Viet Nam
The United Nations Children's Fund (UNICEF)	**Academic Institutions**	International Potato Center (CIP) - Viet Nam
United Nations Industrial Development Organization (UNIDO)	Hanoi Medical University (HMU) - School of Preventive Medicine and Public Health	World Agroforestry (ICRAF) - Viet Nam
United Nations Development Programme (UNDP)	Hanoi Medical University (HMU) - School of Preventive Medicine and Public Health	French Agricultural Research Centre for International Development (CIRAD)
	Hanoi University of Public Health (HUPH)	HealthBridge Foundation of Canada, Viet Nam office
Non-governmental organizations (NGOs)	Center for Public Health and Ecosystem Research (CENPHER)	
Rikolto	Viet Nam National University of Agriculture (VNUA)	**Private Sector**
Oxfam	Thai Nguyen University of Agriculture and Forestry (TUAF)	The PAN Group Joint Stock Company (the PAN group)
SVN	Hanoi University of Sciences and Technology -School of Biotechnology and Food Technology (HUST)	Viet Nam National Seed Group JSC (Vinaseed)
Care International	The Institute for Environmental Health and Sustainable Development (IEHSD)	Tan Loc Phat Seeds Company Limited (Tan Loc Phat Company)
World Vision International		SYNGENTA Viet Nam
FHI360	**Civil Society Organizations**	Bayer CropScience Viet Nam
World Wide Fund for Nature (WWF)	Viet Nam Chamber of Commerce and Industry (VCCI) - SME Support Center	Hoang Gia seed company
CropLife Viet Nam	Partnership for Sustainable Agriculture in Viet Nam (PSAV)	Gen Xanh Organic Farm

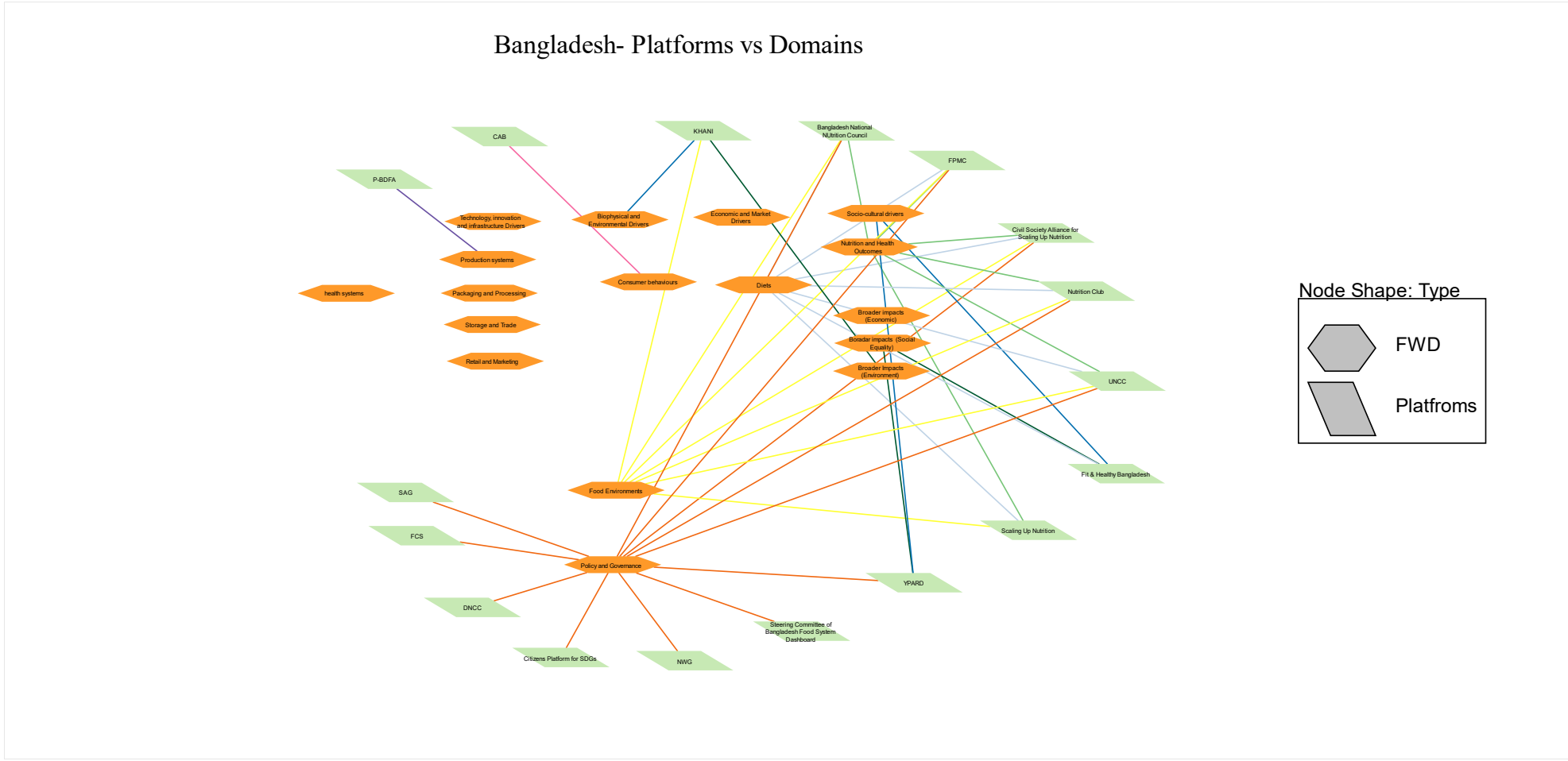
The Consultative Institute for Socio-Economic Development of Rural and Mountainous Areas (CISDOMA)	Viet Nam Farmer's Union (VFU)	Thanh Xuân Organic Vegetable Cooperative
Center for Agricultural Research and Ecological Studies (CARES)	Moc Chau Farmer's Union in Son La province	Tue Vien Organic Farm - Viet Lien Investment Company Ltd.
	Civil Society Organizations (cont'd)	**Private Sector (cont'd)**
	Viet Nam Women's Union (VWU)	Mai Anh Safe Vegetable Cooperative
Platforms	Viet Nam Consumers Protection Association (VICOPRO)	Fresh Studio Innovations Asia
Food Safety working group (FSWG)	Viet Nam Standards and Quality Association (VINASTAQ)	Platform Communication and Culture Co., Ltd (Flatform Viet Nam)
Slowfood Community in Hanoi (SCH)	Viet Nam Gardening Association (VACVina)	Loc Troi JSC (Loc Troi Group)
Markets and Agriculture Linkage Chains in Asia (MALICA)	Viet Nam Cooperative Alliance (VCA)	Olam Rice Viet Nam
Asia- Pacific Economic Cooperation Policy Partnership on Food Security (APEC PPFS)	Viet Nam Organic Agriculture Association (VOAA)	Viet Nam Dairy Products Joint Stock Company (Vinamilk)
Viet Nam Standards and Quality Association (VINASTAQ)	Transparent Food Association (AFT)	CP Viet Nam Corporation (CP group)
Viet Nam Consumers Protection Association (VICOPRO)		Viet Nam Northern Food Cooperation (Vinafood 1)
Viet Nam Gardening Association (VACVINA)		Tri Viet Trade Food and Agricultural Trade Co., Ltd
Viet Nam Organic Agriculture Association (VOAA)		Ruong Ruoi Ecological Joint Stock Company
Horiculture Innovation Club (HIC)		Son Khanh International Joint Stock Company
The Viet Nam Association of Food Science and Technology (VAFoST)		Tien Dat Cooperative
Technical Working Group on Nutrition (TWGN)		Bac Tom food chain
Nutritional Foods Group (NFG) - European Chamber of Commerce in Viet Nam (EuroCham)		Biggreen Safe Food Company
Scaling Up Nutrition Movement (SUN)		
Scaling Up Nutrition Civil Society Alliance (SUN CSA) Viet Nam		
Sustainable Agriculture and Natural Resources Management Working Group (SANRM)		
The Agroecology Learning alliance in South East Asia (ALiSEA)		
Common Microbial Biotechnology Platform (CMBP)		
The Viet Nam One Health Partnership for Zoonoses (OHP)		
Viet Nam One Health University Network (VOHUN)		
The steering committee of the national nutrition strategy (NNS)		

Post harvest network		
Steering board Zero hunger challenge action plan		
Mekong Region Multistakeholder platform		

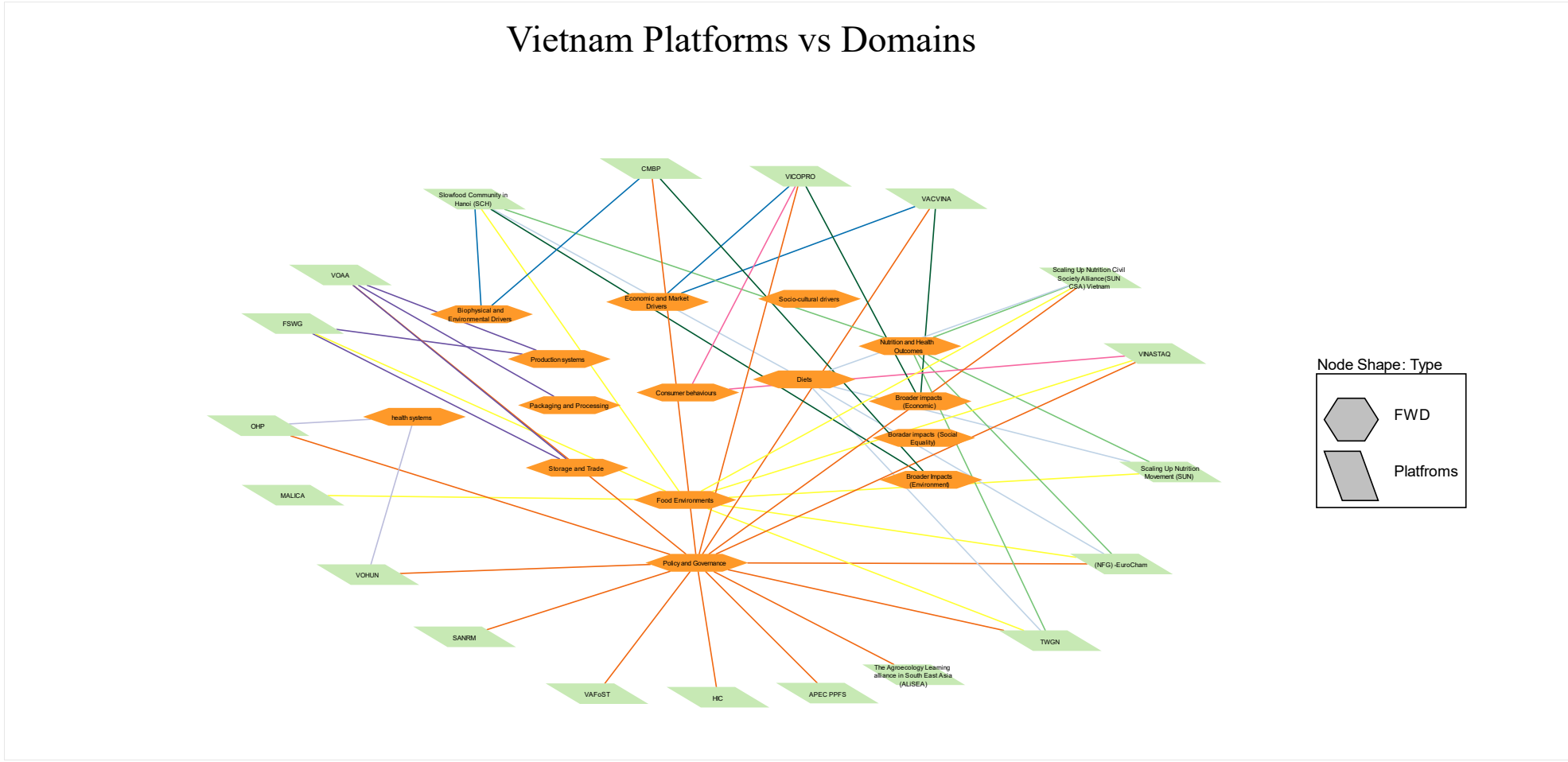
Annex 5a: Platforms vs. domains – Ethiopia



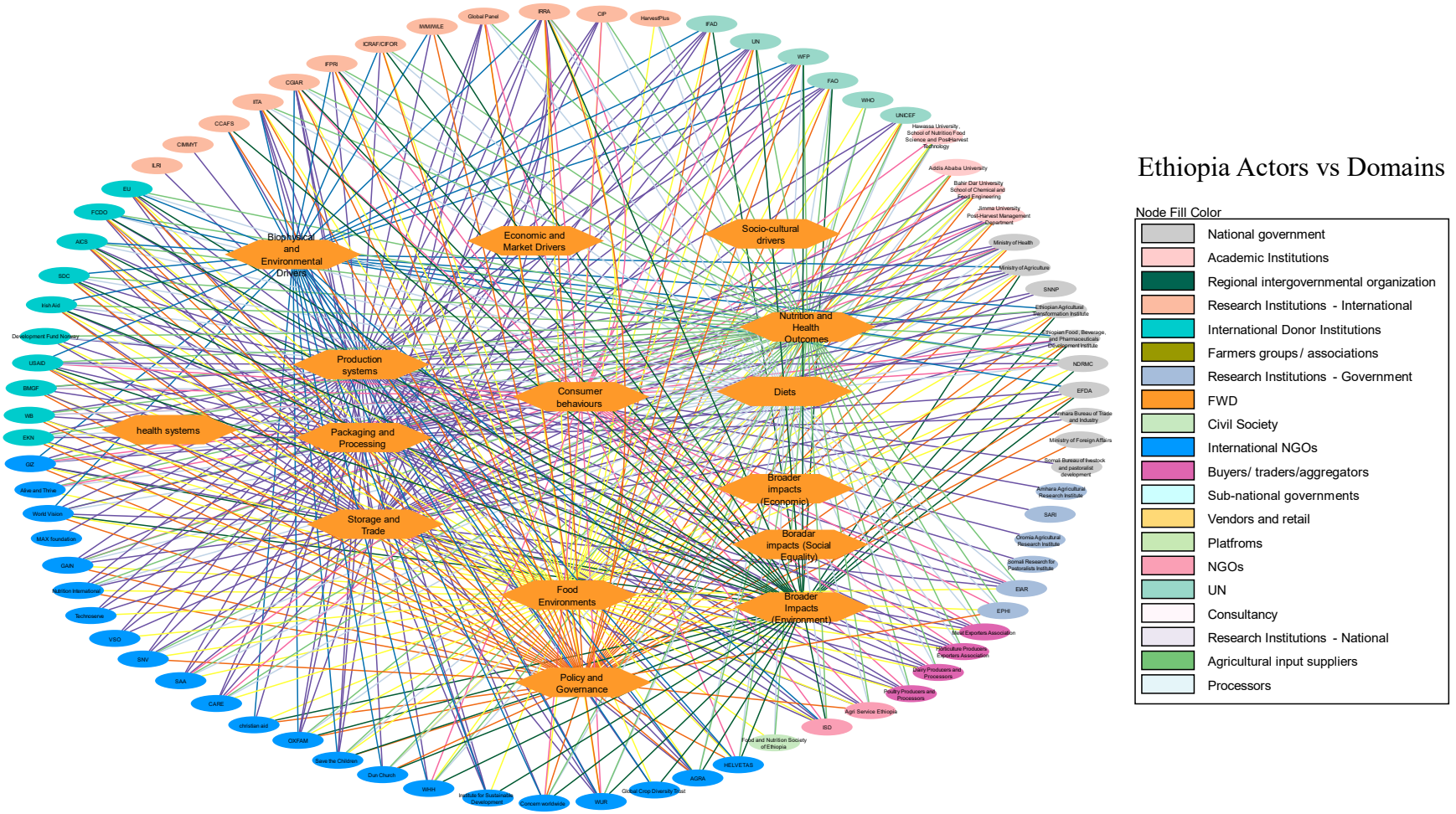
Annex 5b: Platforms vs. domains – Bangladesh



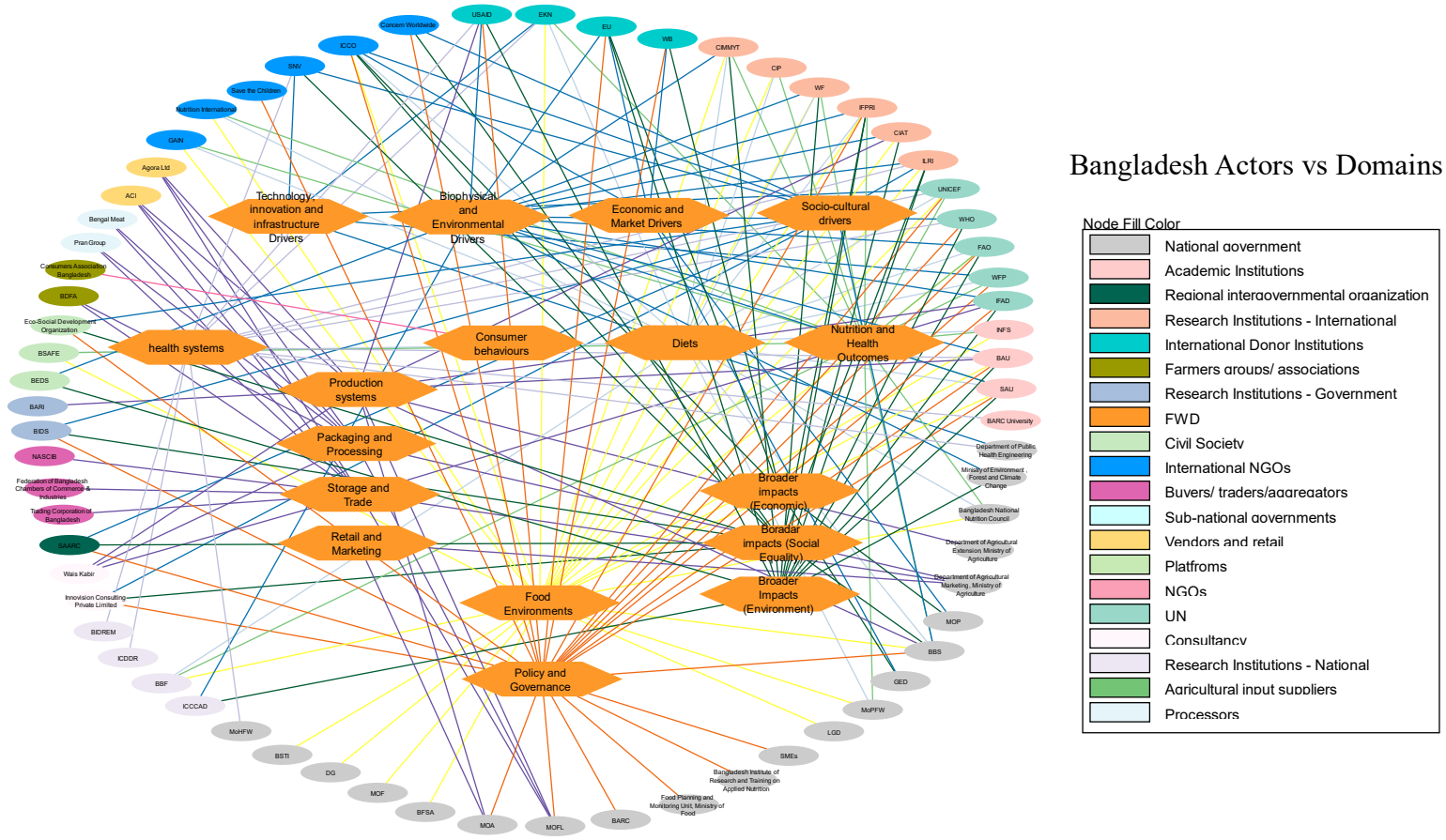
Annex 5c: Platforms vs. domains – Viet Nam



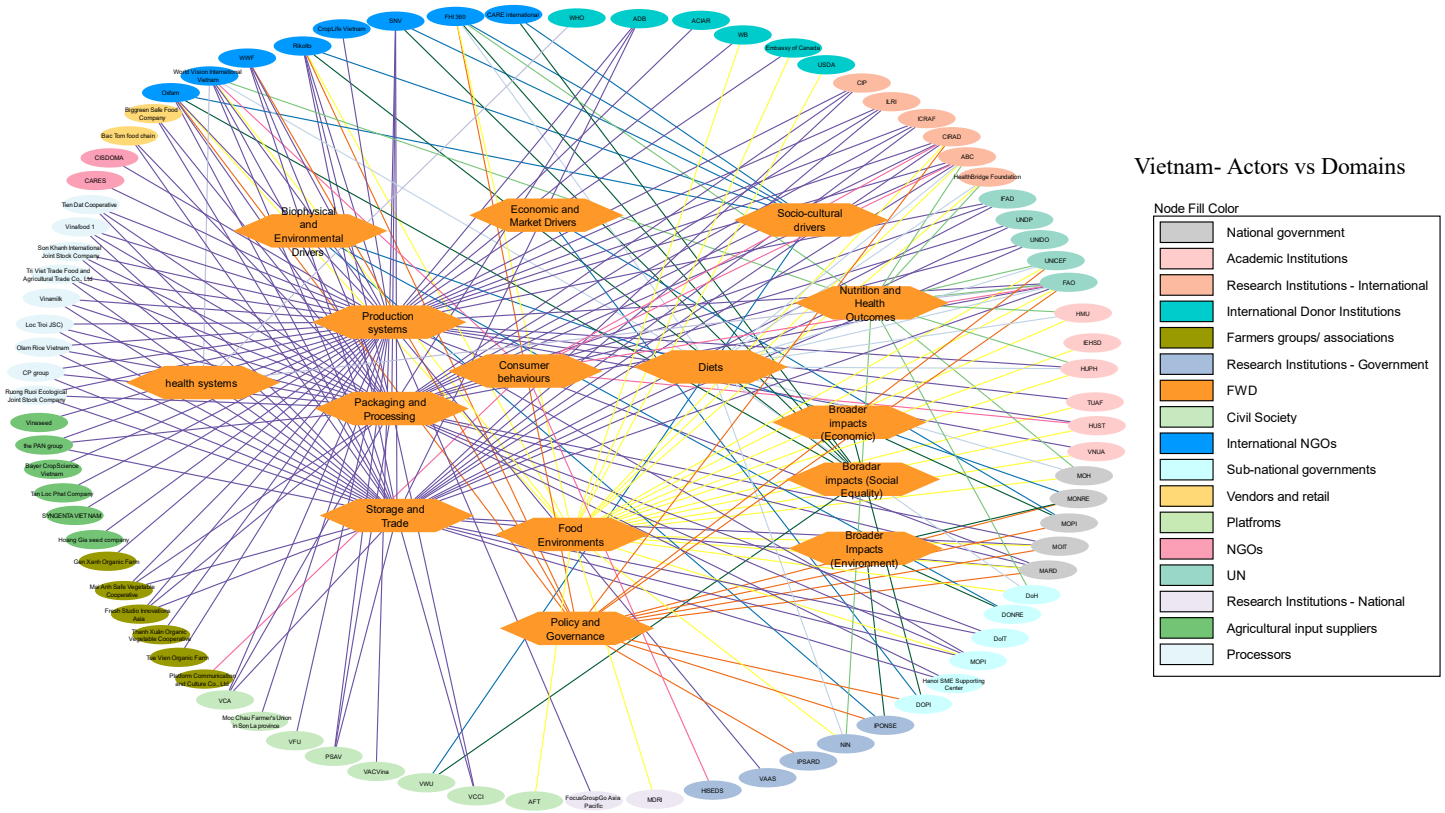
Annex 5d: Actors vs. domains - Ethiopia



Annex 5e: Actors vs. domains - Bangladesh



Annex 5f: Actors vs. domains – Viet Nam



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