Research Report

Sustainable WASH Systems Learning Partnership

NETWORK ANALYSIS AND SYSTEMS ASSESSMENT FOR SUSTAINABILITY IN THE RURAL SANITATION AND HYGIENE SECTOR IN CAMBODIA

LINC
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SUSTAINABLE WASH SYSTEMS
A LEARNING PARTNERSHIP

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Front cover: Cambodia RuSH sector stakeholders review and refine a system map at a consultative workshop in December 2017. Photo credit: WaterSHED.

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Acronyms

BCC	Behavior Change Communications
CDSA	Constituent-Driven Systems Assessment
CLTS	Community Led Total Sanitation
DP	Development Partner
FSM	Fecal Sludge Management
INGO	International Non-Governmental Organization
IRB	Institutional Review Board
LNGO	Local Non-Governmental Organization
MEL	Monitoring, Evaluation, and Learning
MRD	Ministry of Rural Development
NAP	National Action Plan
NGO	Non-Governmental Organization
ONA	Organizational Network Analysis
PS	Private Sector
RGC	Royal Government of Cambodia
RuSH	Rural Sanitation and Hygiene
SCE	Sanitation in Challenging Environments
SDG	Sustainable Development Goal
SO	Strategic Objective
SWS	Sustainable WASH Systems [Learning Partnership]
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Hygiene

Executive Summary

The Royal Government of Cambodia's National Strategy for Rural Water Supply, Sanitation, and Hygiene 2011-2025 has set a clear but ambitious vision for the sector: "Every person in rural communities has access to safe water supply and sanitation services and lives in a hygienic environment by 2025." However, the Rural Sanitation and Hygiene (RuSH) sub-sector[1] in Cambodia faces significant challenges to harmonize the sector and accelerate progress[2] to achieve that vision. It is composed of a crowded field of stakeholders. A recent service delivery assessment by the World Bank Group notes that the sector is uncoordinated and disjointed.[3] Furthermore, the outcomes of conventional interventions suffer from low sustainability. Current coordination efforts tend to work primarily with a core group of NGOs and government departments, without significant engagement of private sector and other traditional actors in the sector and efforts lack consistency in approach.[4]

To address this, Cambodian NGO WaterSHED, in collaboration with LINC, planned to facilitate a locally-led, locally-owned systems approach to engage RuSH stakeholders at the national level in a highly structured collaborative effort. As an integrated component of the collective action effort, LINC led a baseline analysis of the actors working on RuSH issues (this informal group of actors is referred to as the "RuSH Network"). The objective of this study was to support the RuSH Network to generate common understanding, discussion, and coordinated actions that will accelerate progress toward the sector vision. The analysis explores relationships in the RuSH Network and the interrelationship of various success factors and barriers to achieving the 2025 Sector Vision.

Methodology

WaterSHED and LINC designed this analysis to assess the RuSH Network and its alignment toward achieving the Government's 2025 Vision. After a June 2017 workshop was held to introduce stakeholders to network analysis and systems mapping, the survey instrument and an initial pre-determined list of over 110 stakeholder organizations was developed. This list represents the total population of stakeholder organizations that were expected to meet the criteria for network membership.[5] From June to September 2017, representatives of 99 organizations were interviewed – including government, development partner, private sector, academic, and NGO actors. Of those, 88 were identified as belonging to the network based on membership criteria and having at least one relationship with other network members. The interview had three sections:

1. Closed-ended questions about the respondent organization's attributes;

[1] The RuSH sector is the focus of this report and refers to the actors and actions working to improve access to and sustainability of rural sanitation and hygiene in Cambodia

[2] MRD 2016, National Action Plan RWSSH 2014-2018

[3] WBG-WSP 2015, Water Supply and Sanitation in Cambodia: Turning Finance into Services for the Future. http://documents.worldbank.org/curated/en/545311468178454239/pdf/100889-WSP-P131116-AUTHOR-Susanna-Smets-Box393244B-PUBLIC-WSP-SERIES-Cambodia-WSS-Turning-Finance-into-Service-for-the-Future.pdf

[4] Ibid.

[5] RuSH Network membership criteria: (a) permanent presence in the capital, Phnom Penh and (b) a commitment to RuSH as demonstrated by at least one of the following: strategy or mission that includes a focus on RuSH; or three or more staff that spend 50% or more time on RuSH issues; or annual budget for RuSH activities that is 25,000 USD or more.

2. Questions about the relationships that the respondent organization had with other actors on the predefined stakeholder list during the previous six-month period; and

3. Five open-ended questions about the key success factors and barriers for achieving the sector vision.

The data analysis included three complementary components:

- **Network Analysis:** Actor relationships were examined to identify patterns of interaction in the network, well-connected and influential (as defined by their network) actors and groups, and network gaps or opportunities (often identified as a lack of connections between actors or groups).

- **Factor Analysis:** The transcribed responses to the open-ended questions on the sector vision and perceived success factors and barriers were coded, grouped and analyzed for prevailing themes.

- **System Map:** Based on the interdependencies described in the open-ended interview responses, an initial and incomplete system map – or "messy map" – was generated[6] to show the interactions between key success factors and barriers to achieving the sector vision.

After the preliminary analysis, LINC and WaterSHED held a consultative workshop with over 100 participants from the RuSH sector to introduce and begin to engage stakeholders with the data, discuss the initial findings, and collect initial feedback which was incorporated into this report and the study findings.

Findings

The initial systems analysis uncovered a number of interesting potential focus areas for improving collective action and accelerating progress toward achieving the RuSH sector vision. In total, the RuSH Network is relatively large and on average, organizations are well-connected, but significant interconnectivity disparities exist for some organizations and groups of actors. Based on those observations, the overall findings fall into four categories: (1) network connectedness of individual and groups of actors, (2) perceived confidence between actors, (3) coordination and alignment among actors, and (4) interrelationships between factors in a system map. While many patterns within and across those four categories emerged from the analysis and are included in the rest of this report and its annexes, the following are a sample of three findings that resonated with stakeholders and demonstrate the types of insights that arose from the analysis.

Network connectivity disparities exist based on organization type, gender-leadership, and language

The network analysis identified clear differences in several measures of interconnectedness based on the type of organization (local or international NGO, private sector, government, development partner,

[6] The messy map can be found online at https://embed.kumu.io/11cab1cdd663aba677c6cd60809bfa50.

etc.), gender of the head of the organization (organizations led by women versus organizations run by men), and language the interview was conducted in (Khmer or English).

Analyzing the network through the lens of organization type shows that government actors are very well-connected to one another with the highest sub-network density (0.32) – much more than they are to the rest of the network. Meanwhile, private sector actors and local NGOs were among the least densely connected sub-networks of actors (densities of 0.05 and 0.03 respectively). Asymmetries in reported connections also highlight that local and international NGOs both felt they were better connected to government and development partners than the other way around, with NGOs reporting more than double the number of relationships with development partners and government than development partners and government reported with NGOs.

With respect to gender-leadership, woman-run organizations are less connected and less central to the network than organizations run by men. On average, women-run organizations reported fewer than 60% of the number of connections that organizations run by men reported. The sub-network of only woman-run organizations is half as well-connected as that of only organizations run by men (based on the density of each network, with values of 0.05 and 0.10 for the densities of the woman-run networks and networks run by men respectively). Woman-run organizations also averaged less than half of the centrality score[7] of organizations run by men, meaning they are much less likely to be an informational bridge between two other actors.

Findings around language revealed that although organizations interviewed in English are a small portion of the overall network, they are significantly better connected both to one another and to the network overall. The network of organizations interviewed in English is almost four-times as well-connected as the network of organizations interviewed in Khmer; on average they have over 80% more connections than organizations who chose to be interviewed in Khmer. They are also among the most centrally positioned in the network and among the most commonly named actors that other network members most desired to form new relationships with.[8]

These findings have several important implications. The tendency of government actors to forge more ties with other government actors rather than with NGOs, and the fragmentation of private sector and local NGO sub-networks indicate an opportunity for improved collaboration in the network. Also, given that gender of organization head and language of interview are only proxies for identifying gender and language issues in the network, these findings imply that the RuSH Network should conduct further investigation to understand these underlying contributors to these network inequalities. The network has already begun to respond to these potential biases with steps to empower women in WASH and expand use of dual-language communications.

[7] As measured by betweenness centrality, a score that counts the number of times an organization acts as a bridge on the shortest path between two other organizations.

[8] It is worth noting that all but one development partner were interviewed in English, all government actors were interviewed in Khmer and all but one local NGO were interviewed in Khmer (INGOs were interviewed in English and Khmer in approximately the same ratio as the overall network). However, within each organization type, the organizations interviewed in English were still more central and better connected than those interviewed in Khmer.

The Ministry of Rural Development is well-positioned to lead improved coordination and collaboration

The network analysis revealed that the Ministry of Rural Development (MRD), the lead government ministry for RuSH issues, is the most centrally-positioned actor in the network. MRD is the most frequent bridge between other actors and has twice as many connections as the next most connected actor. The factor analysis also showed that government involvement was the second most-cited success factor for achieving the sector vision.

Still, the analysis identified some potential for increased efficiency and coordination of efforts. On average, each organization is implementing 5.6 of the 13 activity type choices given in the interview, with some NGOs implementing 11 activity types and 26% of the network (23 organizations) implementing eight or more activity types.[9] This suggests that many organizations are taking on a wide range of activities themselves rather than collaborating with one another to deliver more focused activities. Additionally, in the factor analysis, a collaboration mechanism was the most-cited success factor by interviewees. However, when asked about what to invest time and effort in, collaboration and coordination mechanisms dropped to the sixth most frequently named factor.

These findings raise several questions that may be valuable to further investigate for the RuSH Network to determine whether to invest in structured collaboration. In either case, MRD can leverage its existing network and high centrality to continue facilitating improved coordination and collaboration among other actors. To support this, other RuSH Network actors can actively engage and partner in developing mechanisms for structured collaboration.

Existing thematic sub-groups within the network represent strong models for coordination

The sector has several existing thematic sub-groups that meet on a somewhat regular basis. Membership in those sub-groups is not formal; organizations self-select to participate. Analysis of the active participants in three existing sub-groups (based on their attendance at meetings in the months prior to and during the study) highlights some interesting differences from the overall network. The network analysis indicates that the existing sub-groups are very well-connected internally and are also quite central and well-connected to the network as a whole. The factor analysis also shows that members of these sub-groups were much more likely than the overall network to cite collaboration mechanism as a success factor (the most-cited factor for all sub-groups, with over 80% of actors citing it, compared to 58% of the whole network). Unlike the overall network, when asked about what to invest time and effort in, collaboration remained the most-cited factor by the existing sub-group members.

It is also worth noting that several closely-connected "communities" of actors were identified based on their existing network connections.[10] These are not groups that were established formally or informally within the network, but rather sets of actors who are densely connected to one another. Three of the five communities identified in the analysis appear to have some themes that bring them together (a community of government and implementers focused on household behavior change, a community of

[9] The 13 activity types asked in the survey are listed in Question 18 in Annex 3 of this report. Some examples include: CLTS, household latrine subsidy, financing sanitation, market development activities, infrastructure activities, capacity building, policy development, and research.

[10] Communities were identified using a clustering algorithm, which uses only the existence or lack of relationships in the network without considering any quantitative or qualitative characteristics of the actors themselves.

private sector and NGOs working on market-based activities, and a community of development partners coordinating with one another and local and international NGOs).

The key takeaway is that the existing sub-groups are a potential mechanism and model for increasing structured coordination and collaboration of the network writ large. Analysis of these sub-groups (and potentially others that form) should also be included in a follow-up analysis conducted to measure change over time. Additionally, the identified informal communities should be considered as good initial groups to work with on forming new regularly coordinating sub-groups.

Next Steps

It is often difficult to understand how and where to make meaningful interventions in a complex system. This report contains some concrete recommendations but is designed primarily to provide the Cambodia RuSH Network with ownership of and insights from information gathered about the current state and structure of the system within which they operate. The body of the report further expands upon the findings above and other actionable results to provide a foundation for discussions and actions in the RuSH Network. In particular, the study sheds light on the need for network strengthening support to drive structured collaboration in the sector. With MRD's network and its importance for the sector, they are well positioned to support and benefit from network strengthening.

Though SWS is not currently planning to continue to facilitate collective action at the national level, some recommended next steps for MRD and other RuSH Network actors include:

- Development of customized reports using the data from this study for the existing thematic sub-groups and/or other relevant sub-networks as appropriate;
- A visioning session with the RuSH Network around the changes they would like to see in the network structure and the system;
- A structured program of events to facilitate the sector to enact the changes envisioned;
- Leveraging the existing thematic sub-groups and informal communities to more closely represent the overall network and to model a potential structure for increased collaboration across the network;
- Utilizing the strong network position and convening power of MRD to facilitate network strengthening with the goal of achieving the 2025 Sector Vision; and
- Reassessing the network and the system every two to three years in order to properly track and better understand how changes in the structure occur over time.

Background

This report summarizes an analysis of the relationships among actors and factors for Rural Sanitation and Hygiene (RuSH) at the national level in Cambodia. It was prepared for the Sustainable WASH Systems (SWS) Learning Partnership to serve as a baseline of how actors and factors influence RuSH outcomes at this moment in time. The results will be used to inform stakeholder intervention design, to support RuSH Network facilitation, and to serve as a baseline to measure change over time. The analysis covers the organizational relationships in the network of 88 actors working on RuSH issues, and the inter-relationships of the success factors and barriers to achieving the Royal Government of Cambodia's (RGC) RuSH sector vision.

Sustainable WASH Systems Learning Partnership

The Sustainable WASH Systems Learning Partnership is a global U.S. Agency for International Development (USAID) cooperative agreement to identify locally-driven solutions to the challenge of developing robust local systems capable of sustaining water, sanitation, and hygiene (WASH) service delivery. It has a strong emphasis on partnership and learning for catalytic change in the WASH sector. Coordinating with and facilitating interactions among nine consortium partners in four countries, the project works to meet the rapidly increasing needs of USAID's partner countries for sustainable WASH activities.

Cambodia RuSH Sector

The RGC's National Action Plan has set a clear but ambitious sector vision: "Every person in rural communities has access to safe water supply and sanitation services and lives in a hygienic environment by 2025." However, the RuSH sector in Cambodia faces significant challenges to achieving that vision. The challenges inhibiting further acceleration to reach sustainable service delivery for all in Cambodia are categorized by major development actors[11] as: a lack of coordination between institutions and other actors, a lack of shared measurement systems, low government capacity, a lack of financing, low participation by important groups of actors such as women, and low institutional involvement in private sector activities.

In Cambodia, SWS, led by WaterSHED working with LINC, has begun facilitating a locally-led, locally-owned systems approach to engage key sector stakeholders in collective action to achieve the 2025 Sector Vision. Comprehensive systems analyses will provide a basis for action to align stakeholder activities and accelerate progress toward the national vision.

The Collective Action Approach in Cambodia

Highly structured, collaborative efforts have been shown to enable the achievement of substantial impact on a large scale in many sectors. This approach is modeled on the five key conditions of collective

[11] ADB 2012, Rural Development for Cambodia: Key Issues and Constraints, http://www.adb.org/sites/default/files/publication/29792/ruraldevelopment-cambodia.pdf;
WBG-WSP 2015, Water Supply and Sanitation in Cambodia: Turning Finance into Services for the Future, http://documents.worldbank.org/curated/en/545311468178454239/pdf/100889-WSP-P131116-AUTHOR-Susanna-Smets-Box393244B-PUBLIC-WSP-SERIES-Cambodia-WSS-Turning-Finance-into-Service-for-the-Future.pdf

impact as described by Kania and Kramer (2011)[12] which distinguish this approach from other types of collaboration: (1) a common agenda, (2) shared measurement systems, (3) mutually reinforcing activities, (4) continuous communication, and (5) the presence of a backbone organization.[13]

Change involves alignment, commitment, policy and trust. There are several critical preconditions that are fundamental to the implementation of collective action: the presence of an influential champion or a small group of champions, adequate financial resources, and a common sense of urgency for change.

The introduction of this approach in Cambodia aligned with several key opportunities: (1) the impetus of the RGC to decentralize RuSH activities and fully implement the National Action Plan,[14] (2) the influx of significant investment by major donors,[15] and (3) the urgency to refine strategies and align the activities of a large and diverse network to achieve the sector vision by 2025[16] and to strategically inform the development of the next iteration of the National Action Plan (NAP II).

This Report

This report includes the findings from an Organizational Network Analysis (ONA) and Constituent-Driven Systems Analysis (CDSA) of the RuSH sector in Cambodia. ONA is a technique to map and analyze the organizational relationships among institutional actors in a network. CDSA is a method to engage stakeholders in mapping and analyzing factors influencing the results of a system. The two system mapping techniques complement one another. The study and this report also incorporate local context and local knowledge from feedback received from stakeholders based on meetings and a consultative workshop held to share initial observations from the data.

Together, the ONA and CDSA – including the visualizations of the system and the network – are meant to facilitate conversations about: alignment and divergence among the actors working on national level RuSH issues, the identification and prioritization of areas that need further collaboration, and where shifts in relationships and/or structure to the network are needed to achieve sector-wide goals.

The study design, implementation, and analyses were carried out with significant input from SWS partner University of Colorado Boulder and feedback from the stakeholders included in the analysis themselves (see more details in the Method section below).

The report is organized to provide the most important findings and their implications up front, with the detailed analyses included as annexes. This Background section provides information on the project, the RuSH sector in Cambodia, and the collective action activities of the network. This is followed by an explanation of the approach and techniques in the Method section. Next, the How to Read this Report section explains many of the maps, charts and terms used throughout – it may be valuable to keep a

[12] Kania, J. & Kramer, M. 2011, Collective Impact

[13] HanleyBrown, F. Kania, J. & Kramer, M. 2012, Channeling Change: Making Collective Impact Work. https://ssir.org/articles/entry/channeling_change_making_collective_impact_work

[14] MRD 2016, National Action Plan (NAP1) Rural Water Supply, Sanitation, and Hygiene 2014-2018

[15] Examples of major donors: Asian Development Bank, Australian Department of Foreign Affairs and Trade, Global Sanitation Fund, H&M Foundation, The Stone Family Foundation, UNICEF

[16] MRD 2014, National Strategic Plan for Rural Water Supply, Sanitation, and Hygiene 2014-2025

copy of this section easily accessible for reference while reading the remainder of the report. The Key Findings and Recommendations section is the synthesis of the study organized by finding and containing the implications and recommendations arising from each finding. The annexes include the detailed network analysis, the detailed CDSA (comprised of the factor analysis and the system map), the survey instrument used, the initial stakeholder list and a list of the final set of interviews conducted, and some tables with activities and other attributes of the stakeholder organizations interviewed.

Method

Approach

The baseline system assessment was broken into two main components: an ONA and a CDSA. ONA is used to quantify actor relationships by evaluating the degree and strength of organizational connectivity in the RuSH Network. CDSA is an iterative process that engages RuSH stakeholders to generate qualitative information about perceived factors affecting progress toward sector goals (factor analysis), as well as how those factors interact with one another (system map).

By identifying the actors, factors, and interrelationships that currently exist in the system, stakeholders are provided a snapshot understanding of the network and system to help identify and prioritize actions toward achieving sector-wide goals. Using these tools, the system can also be reassessed at designated intervals to track changes in network relationships and system structure, giving stakeholders a critical perspective on shifts in the interdependencies that may be influencing effectiveness and sustainability over time.

Design

This study employed a closed roster approach, meaning that it identified and used a pre-defined list of stakeholder organizations[17] for interviews. LINC and WaterSHED developed the initial roster, with stakeholder input, comprised of 113 organizations. It was determined starting with the list from the World Bank's partner mapping survey exercises conducted in 2013 and 2016 and adding attendance lists from regular RuSH sector meetings and suggestions from participants in the June stakeholder workshop in Phnom Penh (see Annex 4). Recognizing that the initial roster list included all the organizations stakeholders thought might be part of the network, a definition was established for membership in the network to focus the analysis on only those actors most relevant to the objectives. The network membership criteria were:

a) A permanent presence in the capital, Phnom Penh; and

b) A commitment to RuSH as demonstrated by at least one of the following:

   i. Strategy or mission that includes a focus on RuSH, or

   ii. Three or more staff that spend 50% or more time on RuSH issues, or

   iii. An annual budget for RUSH activities that is 25,000 USD or more.

Part one of the interview included four multiple choice questions corresponding to those boundary criteria, to determine which of the interviewed organizations were included (and not included) in the network analysis. The remaining three sections of the interview were as follows:

[17] Note that throughout this report, we refer to organizations or actors. This is the generic term for the entities involved in the survey, the workshops, and the network. It includes NGOs, development partners, private companies, educational institutions, and government offices.

- Closed-ended questions about the respondent organization (attributes or characteristics of the organization such as sector, gender of the organization head, year of establishment in Cambodia);
- Questions about the relationships that the respondent organization had with other actors on the predefined stakeholder list during the previous six-month period; and
- Five open-ended questions about the key success factors and barriers for achieving the sector vision.

The full interview guide can be found in Annex 3. From June through September 2017, a total of 99 interviews were conducted. Of those interviews, 96 provided recorded answers to the open-ended factor questions and were analyzed in the CDSA. The network analysis was conducted for the 88 stakeholder organizations that met the network boundary criteria and had at least one connection to another stakeholder within the boundary.

Analysis

ONA: The network analysis used a range of analytical techniques to evaluate network dynamics and relational patterns by deriving quantitative metrics from responses to Part 2 (organizational attributes) and Part 3 (relationships and their attributes) of the interview. Actor-level metrics were calculated for each respondent organization to determine their individual position and connectedness in the network. These metrics include, for example, the number of connections the actor has, the actor's distance (number of steps removed) from the furthest other network actor, and the actor's betweenness centrality (extent to which the actor is a bridge along the shortest path connecting two other actors). Network-level metrics were calculated to gain insight into the structure of the overall network. These metrics include the density of connections, average number of connections per actor, and diameter (the greatest number of steps between any two actors in the network). Both types of metrics were evaluated at the sub-network[18] level, as well, to provide additional insights and units of comparison. A list of actor- and network-level metrics and what they mean can be found in the following section, How to Read This Report.

The metrics were calculated and analyzed using the following combination of software tools:

- UCINET[19] to derive most network-level (and sub-network) metrics, actor-level metrics, and core/periphery analysis;
- NodeXL[20] to derive communities (clusters) within the network and to visualize the network data; and

[18] Groupings of organizations based on pre-defined attributes like organization type (government, NGO, etc.), sector (water, sanitation, or hygiene) or sub-group membership

[19] See https://sites.google.com/site/ucinetsoftware/home

[20] See https://nodexl.codeplex.com/

- Microsoft Excel to analyze descriptive statistics.

CDSA: Part four of each interview involved five open-ended questions about perceived factors affecting sector progress toward the 2025 Vision. For each question a list of codes was extracted by detecting emergent terms and themes from the interview recordings and transcriptions rather than using a pre-determined list of factors.[21] These codes represent the key factors that respondents identified as playing a role in the RuSH sector. Coded responses were tabulated to reveal, rank, and compare perceptions around success factors, challenges, and priority areas for investment and collective action.

Responses from the factor analysis were also used to identify causal relationships and feedback loops within the network. This involved recognizing areas where respondents referred to specific cause and effect relationships and then working through those to link together multi-factor causal chains, such as Factor A → Factor B → Factor C, etc. Based on those causal chains, a number of feedback loops across a range of themes emerged (e.g., outmigration, policy framework benefits, and proliferation of technical standards).

The data in the form of factors (elements in the map) and relationships (connection arrows in the map) was transferred into an online visualization platform called Kumu (www.kumu.io). On Kumu, the common factors identified between specific feedback loops were then used to merge all the loops into one interconnected map of RuSH factors and the various connections or linkages between them.

Stakeholder Consultation

In November and December 2017, initial findings were shared with stakeholders for their interpretation, local knowledge, feedback, and discussion. The one-on-one and small group meetings in November helped inform the topics, structure, and discussions of the consultative workshop held on December 7. Feedback from stakeholders was used to add local knowledge to the study and has been incorporated in this report. There are still areas for the RuSH Network to interpret and investigate further and many of those are also noted in the report.

One additional important note is a change in terminology based on feedback from the stakeholder consultations. In this report, we use the term "perceived confidence" to describe what we had previously and erroneously called "perceived trust" when sharing results with stakeholders. This is a sensitive but important topic for collaboration and many stakeholders expressed concern over the scores and the term. We decided to make the change to indicate that trust is based on a belief beyond information that is immediately available, while confidence is built over time based on experience. We asked respondents for information on their experience with their partners and used that to calculate the "perceived confidence" score. As described below, the average perceived confidence in the network is quite high and most observations in the report related to perceived confidence note that a below average score is an opportunity for improvement, not necessarily a lack of trust.

[21] Question 1 also included an additional list of predetermined codes based on the five strategic objectives and numerous sub-objectives found in the National Strategy for Rural WASH.

Limitations of this Study

As with any research, there are limitations to the data and analysis which the research team took efforts to mitigate.

Selected Respondents: Interviewees were asked to respond on behalf of their organization, and efforts were made to ensure that respondents were the most appropriate people from the organization to participate (multiple respondents from the same organization were allowed to participate in the interview for an organization). While both respondents and enumerators made a good faith effort to ensure that the responses reflected the organization as a whole, we can assume that not every potential respondent from a given organization would give an identical response. It is worth noting that 83% of the interviews had at least one director, manager, or other clear program decision-maker participate based on reviewing position titles and the title of respondents' supervisors.

Willingness of Participants: In several instances, the data collection team encountered respondents who did not wish to answer specific questions. This was primarily due to a lack of understanding of the analysis or skepticism on the use of the data; in some cases, it was because the respondent did not know the answer for their organization.

Recall Bias: Respondents were asked to indicate the organizations with whom they have had a relevant relationship within the previous six months. Enumerators were trained to provide prompts and ask additional questions to decrease recall bias, and respondents were provided the list of organizations on the roster to help them make selections.

Coding of Open-Ended Responses: The factor analysis codes were not pre-determined, so it was up to the research team to identify common factors from the transcriptions as they reviewed them and to categorize responses into the appropriate codes. This was reduced by having two individuals conduct reviews for most of the transcriptions.

How to Read This Report

Interpreting Network Maps

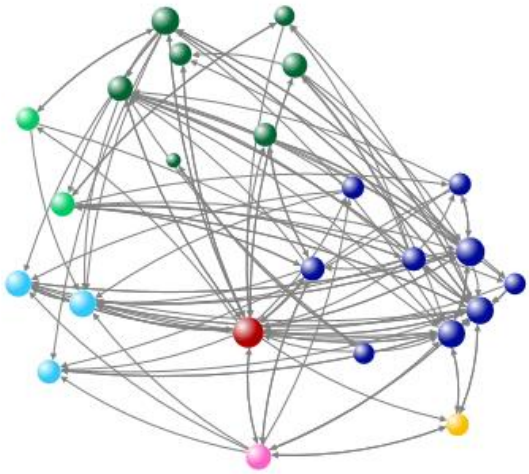
Network maps displayed in this report show nodes – the circles in the map, which each represent an organization – and edges, the lines in the map that represent a connection between two actors. The size of nodes is based on the total number of connections (both out-ties, or connections named by the actor, and in-ties, or connections where the actor was named by another network actor). The maps are automatically generated by NodeXL software, using a standard layout algorithm. The position of nodes in a given map varies depending upon the purpose of the visualization and generally does not reflect distance of specific actors or groups from each other. Ungrouped maps tend to position the largest nodes (those with the highest number of connections) at or near the center, while those with the fewest connections tend to be at the periphery. The coloring scheme for each of the nodes is based on the organization type of the actor (see Table 1). All maps contain directionality (arrows), although this is generally difficult to see in highly populated maps. See Figure 1 for an example network map.

Note: *We do not suggest utilizing maps alone for interpretive purposes, especially those that are the largest and most complex. We suggest referencing the tables and metrics provided within, and annexed to, this report, when conducting in-depth analysis on specific actors. We further suggest that readers print out the How to Read this Report section in color for ease of reference throughout the report.*

Table 1. Color Scheme for Nodes

Organization Type	Code	Color	#	%
International NGO	INGO	Dark Blue	34	39%
Local NGO	LNGO	Dark Green	19	22%
Private Sector	PS	Light Green	13	15%
Development Partner	DP	Light Blue	10	11%
Government	Govt	Dark Red	8	9%
Academic	Acad	Pink	2	2%
Other	Other	Orange	2	2%

Figure 1. Example Network Map Showing Actors and Relationships



Glossary of Network Metrics Terms

Explanatory definitions are provided here for the network metrics referenced throughout this report.

Metric	Explanation
Network-Level Metrics	
Size (# of Nodes)	The number of actors or organizations in a network or sub-network. For example, the size of the RuSH Network is 88, but the size of the sub-network of private sector actors is 13.
Ties (# of Edges)	Number of reported connections among actors. In-degree ties are ties into a given node (named by others); out-degree ties are ties out from a given node (named by the actor). Whole number; can be average or total. For example, in this network there are a total of 615 ties.
Density	The proportion of actual ties relative to all possible ties in a network (or sub-network). The total possible number of relationships among 88 RuSH network members is 7,656, so the density of the network is: 615 ties / 7,656 potential ties = 0.08.
Average Distance	The average steps required for any two actors in a network to reach one another. For example, in this network, on average, network members are just over two steps away from the furthest actor in the network.
Diameter	The maximum steps required for any two actors in a network to reach one another. For example, the two most distant members of this network are only four steps away from one another.
Average Degree	The average number of ties of actors in the network.

Metric	Explanation
Reciprocity	The extent to which directed relationships are reciprocated (reported in both directions, meaning both actors reported the relationship).
Network-Level Metrics	
Desired Ties	Number of relationships that do not currently exist that actors reported as desired. Being named as a desired tie by other actors is often an indication of perceived influence, though could also be that the actor is not currently communicating with many others in the network.
Actor-Level Metrics	
Degree Centrality	A measure of the number of unique ties a given actor has. Serves as an indication of importance or significance of an actor for the network. This can be separated into in-degree centrality (for incoming ties) and out-degree (for outgoing ties) for directed relationships.
Betweenness Centrality	The extent to which a node acts as a bridge along the shortest path between two other nodes. These actors are often influential as either brokers or bottlenecks for collaboration.

Reading a System Map

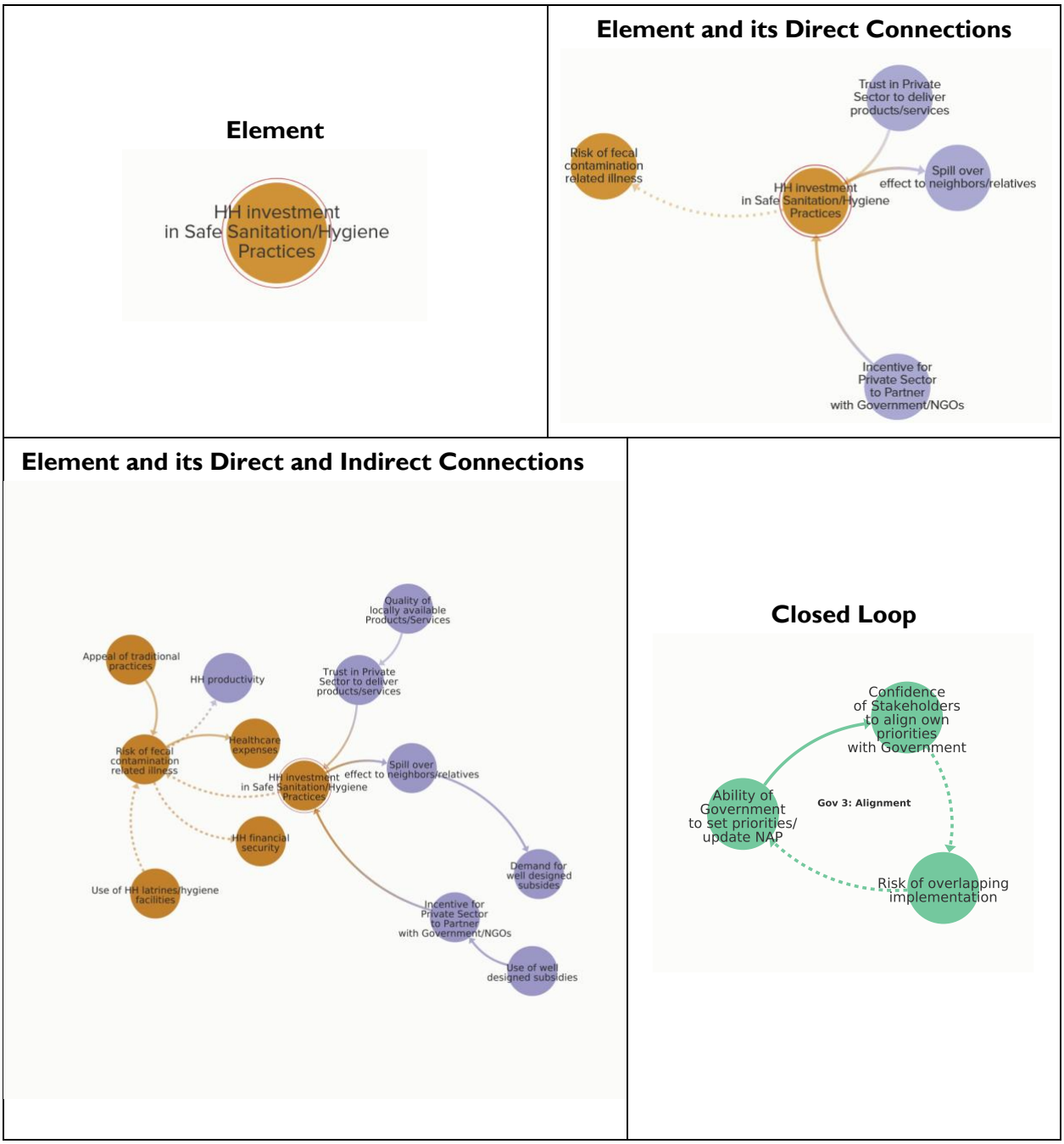
The most basic part of a system map is an element – the labeled circles in the map. In the RuSH Sector System Map, an element represents a factor that a network member identified in the interviews. These can also be thought of as variables that can change over time. See Figure 2 for an example.

A direct connection – represented by an arrow – is a relationship from one element to another showing a direct influence. The point of the arrow running from Element A to Element B means that A influences or causes B. Two kinds of arrows represent connections. A solid arrow means the two elements or variables move in the same direction; in other words as Element A increases, Element B also increases, or as Element A decreases, Element B also decreases. A dashed arrow means that the two elements or variables move in opposite directions; in other words, as Element A increases, Element B decreases, or as Element A decreases, Element B increases. See Figure 2 for an example.

An indirect (or second-degree) connection is a relationship between two elements that are connected through another element in a chain. One element influences the other indirectly, by first influencing the element between them. See Figure 2 for an example.

When the chain of connections comes back to the element it started at, meaning that an element has an indirect influence on itself, this is a closed loop. See Figure 2 for an example. These feedback loops are the core building blocks of the system map. Once assembled, the full system map has many closed loops of different sizes built within it (including loops that overlap with other loops connecting some of the same elements).

Figure 1. Example System Map Pieces Showing Elements, Connections, and Loops



Glossary of System Map Terms

The following table contains a few key terms used in describing and explaining a system map.

Term	Explanation
Element	A unique process, activity, or piece of information that has an effect on other elements that it is connected to. The value or state of the element is usually dynamic, meaning it can change over time. Sometimes referred to as a variable.
Direct Connection	A link between two elements that describes how one directly influences or affects the other. These are also referred to as a first-degree connection.
Indirect Connection	A link between two elements with another element in between them in a chain where A influences B, which in turn influences C. These are also referred to as a second-degree connection.
Direction	Connections can indicate that two elements move in the same direction (as one increases the other increases or as one decreases the other decreases), or in opposite directions (as one increases the other decreases or as one decreases the other increases).
Feedback Loop	The return of information (or consequences) through a series of activities or processes (or degrees or steps from element to element). A feedback loop indicates how an element indirectly (or directly) affects itself. A feedback loop effects an element by accelerating, balancing, or diminishing its condition based on how it is connected to other elements of the system.
System Map	A diagram that shows a series of closed loops of cause-and-effect linkages which visualizes how elements of a system are connected to one another.

Key Findings and Recommendations

LINC conducted detailed analyses of the stakeholder interview data. Those analyses include a network analysis of the relationships among actors, a factor analysis of key themes emerging from the five open-ended questions about success for the sector, and a system mapping of inter-dependencies among success factors creating an initial messy map (both the factor analysis and the system mapping are part of the CDSA approach). Detailed analyses and findings are provided in the annexes to this report (Annex 1: Network Analysis, Annex 2: Constituent-Driven Systems Analysis).

This section of the report highlights the key findings from the analyses and their implications for the RuSH sector, for the RuSH Network, and for the individual stakeholder organizations that are actors in the network. The findings draw on insights across the various analyses and from stakeholder consultations conducted in one-on-one meetings, small group discussions, and the December 7, 2017 consultative workshop held in Phnom Penh with over 100 participants.

Finding 1: Network Connectedness

The RuSH Network is relatively large and well-connected on average, but significant interconnectivity disparities exist.

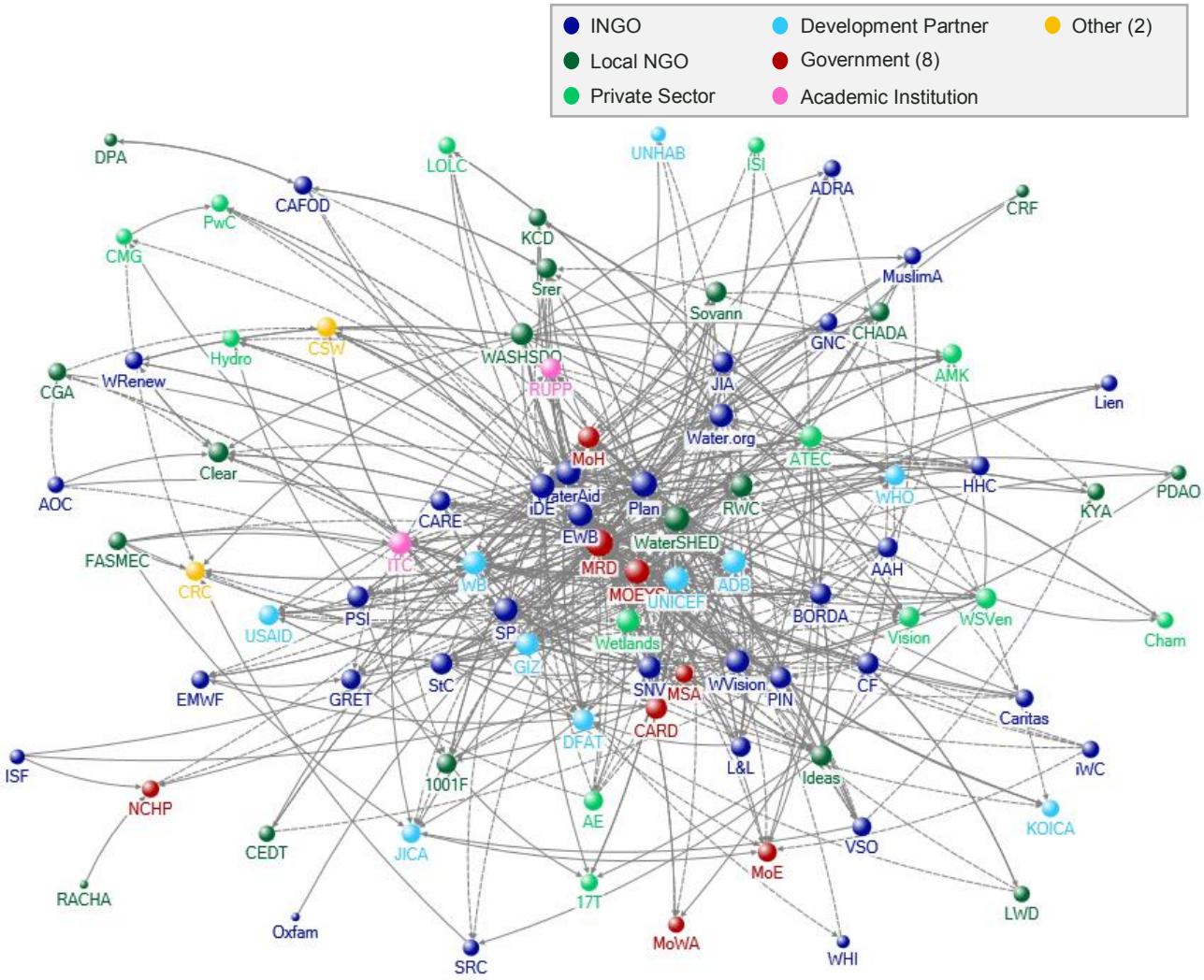
The network is made up of 88 actors and 615 ties. While the average number of ties per actor are quite high (7.0), the wide range (1-75) and high standard deviation (7.6) indicate inequalities within the network. The overall density (proportion of actual to total possible relationships within the network) is 0.08 with some much denser "communities" within the network. The average distance between network actors (number of steps required for information to flow from one actor to another) and the maximum distance between actors are 2.02 and 4 respectively. See Table 2 for overall network metrics. Some of the stakeholders in the network expressed surprise that the distances are so low, but this is probably because a few well-connected actors have such great reach that no one is very far (for example, MRD is connected to 75 of the 88 actors and can reach the entire network in two steps). See Figure 3 on the following page for the overall network map.

Table 2. Overall Network Metrics

Size (# of Actors)	88
Ties (# of Connections)	615
Network Density	0.08
Reciprocal Relationships	26%
Average Distance	2.02
Diameter (Max Distance)	4
Average Degree (Ties/Actor)	6.99
Fewest Ties	1[22]
Most Ties	106
Standard Deviation of # of Ties	7.58

[22] Of the 88 actors included in the analysis, all had at least one connection within the network. There was one additional actor that met the boundary definition but had no connections to other actors that met the boundary definition and was therefore not included in the analysis and maps.

Figure 2: Overall Network Map



Some of the specific network disparities noted include:

Organizational Roles

Each actor in the network was classified by type of organization. The network analysis examined the composition and connectedness of the network based on those organization types (see Network Findings by Organization Type and Ego Analysis in Annex 1). The factor analysis and system mapping also identified stakeholder expectations of the roles of various organization types or specific actors (see Factor Analysis and Systems Map in Annex 2).

Findings

The network analysis shows that government actors (primarily ministries) are very well-connected to one another (see Figure 4 for a network map showing intragroup connections) – more than they are to the rest of the network. Disparities in reported connections with government also exist: NGOs were more likely to report relationships with government than government actors were to report relationships with NGOs, and government actors were more likely to report relationships with

development partners than development partners were to report relationships with government (see the blue boxes in Table 3). The most central actor in the network is a government actor. MRD is extremely well-connected and central and enjoys a high level of perceived confidence from partners. Figure 5 shows MRD's ego network, the network map of MRD and its direct connections (including actors reporting a relationship with MRD and actors that MRD reported a relationship with). This centrality is particularly important given the expectations that network actors have for government to continue to lead the sector.

The network analysis also shows that the private sector is among the least connected groups – both internally to one another and with the rest of the network (see red box in Table 3). However, the NGOs that work with the private sector appear to bridge those relationships. See Network Findings by Organization Type and Network Findings by Cluster in Annex 1 for more detail.

Table 3. Density of Relationships Within and Between Organization Types

From \ To	INGO	LNGO	PS	DP	Govt
INGO (n=34)	0.08	0.07	0.05	0.15	0.21
LNGO (n=19)	0.07	0.03	0.06	0.08	0.14
PS (n=13)	0.07	0.05	0.05	0.05	0.04
DP (n=10)	0.07	0.03		0.13	0.13
Govt (n=8)	0.09	0.06	0.06	0.25	0.32

Figure 3. Network Map Showing Internal Ties by Organization Type

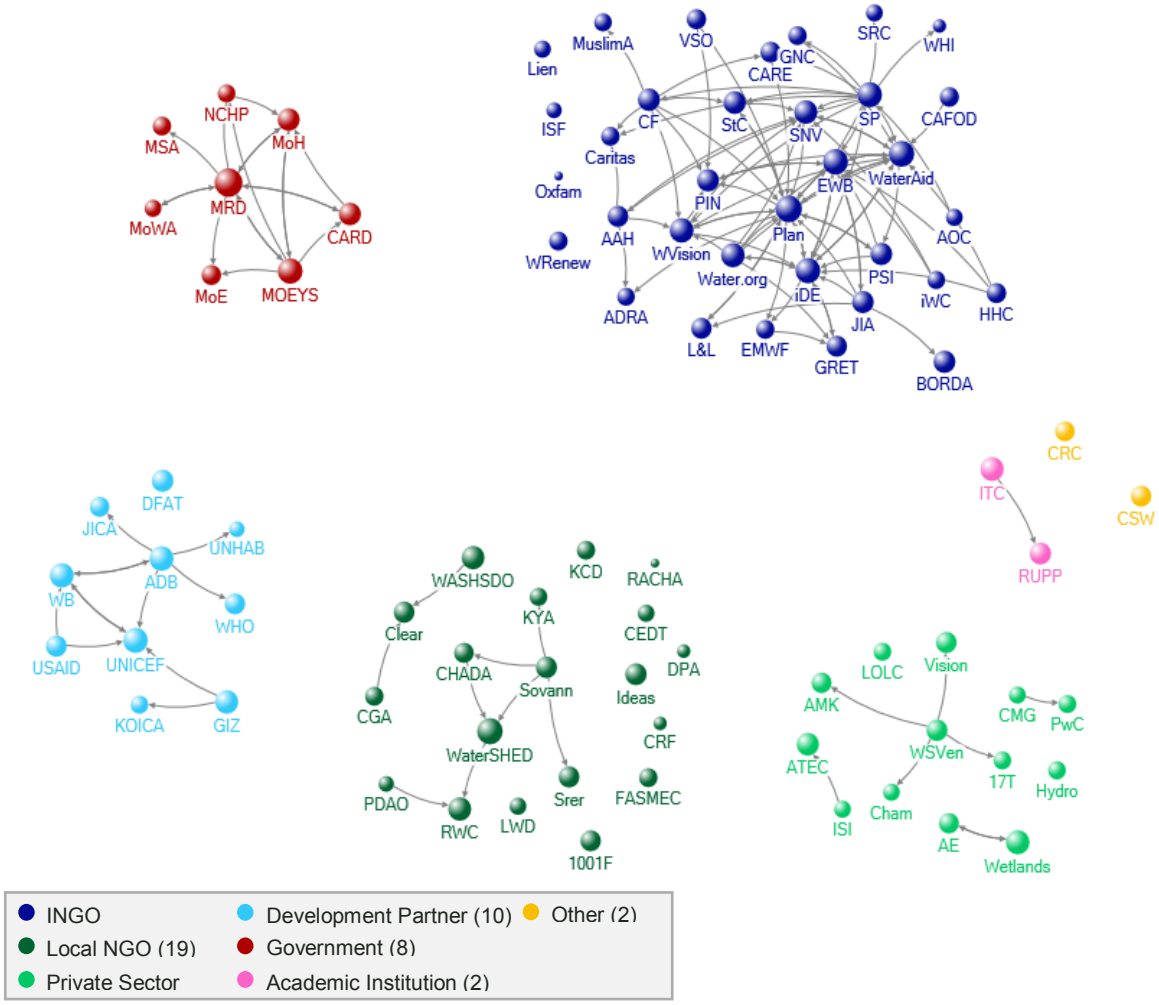
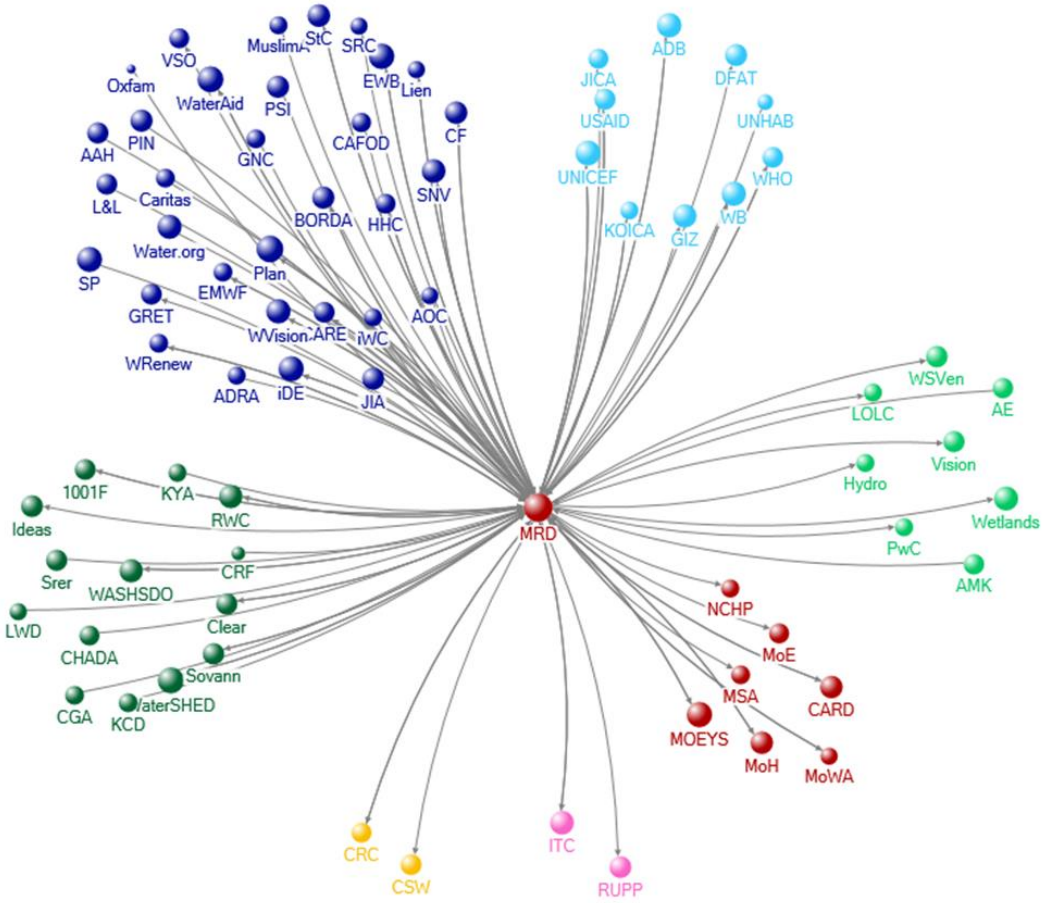


Figure 4: *Ego Network Map of MRD*



Implications and Recommendations

- Given the centrality of MRD and the strong interest from the network to have government continue and further its leadership of the sector, the RuSH Network should work with MRD and other ministries to determine the best way to support government to fulfill its mandated roles and determine how the other actors can partner in capacity development. In particular, INGOs and development partners are well-placed as advisors in the network and can further facilitate government leadership.

- The participation and interconnection disparities imply that the RuSH Network needs to emphasize engaging members more equitably and ensuring more effective representation. The fragmented nature of the private sector sub-network and the local NGO sub-network indicate opportunities to improve connections. The asymmetries in connections, in particular between NGOs and government, are worth investigating further as they could impact the quality of information government has in its leadership of the sector.

Gender-leadership

Respondents were asked to report the gender of the head of their organization, office, or institution. Those data were used to analyze differences in the networks of woman-run and male-run network actors. In the network analysis (see Network Findings by Gender of Organization Head in Annex 1), we specifically examined connectedness of organizations run by men and woman-run organizations, looking at their position in the network, the number of connections, and the perceived confidence partners have in them.

Findings

Woman-run organizations are less connected and less central to the network than their male-run counterparts. On average, woman-run organizations reported just over half as many connections as organizations run by men reported, and they also have lower average centrality scores indicating less influence in the network. The network of woman-run organizations is less densely connected than the network of organizations run by men. Woman-run organizations also averaged slightly lower perceived confidence scores for their reliability, openness, and fairness – especially from other woman-run organizations (see Finding 2. Perceived Confidence for more explanation of the calculation). To test whether other factors may be contributing to this disparity, the composition of the organizations run by men and woman-run organization sub-networks were compared. The composition is quite similar, but organizations run by men are slightly larger in staff and budget, work on more types of activities, and are more likely to be in the existing thematic sub-groups while female run organizations tend to have been established longer and have a higher percentage of female staff working on RuSH activities. Table 4 provides some network comparison of male-run and woman-run organizations.

Table 4. Network Density and Centrality by Gender of Organization Head

	Men	Women
Intragroup Density of Connections	0.10	0.05
Average Number of Out-Ties	8.03	4.75
Average Betweenness Centrality	54.0	23.5
Average Confidence Score	7.05	6.83

Implications and Recommendations

- It is important to note that there are multiple potential proxies to try to understand possible disparities related to gender, especially given that organizations do not actually have gender characteristics, and that there are several factors that could influence the observations found related to gender-leadership in the analysis. Stakeholder feedback indicates that while many stakeholders have noted gender-based differences within the network, many also felt that this observation may not indicate any true causality between the gender of the organization head and network connections. It would be beneficial to the RuSH Network to conduct further analysis to understand the underlying driving factors of gender imbalance.

- The RuSH Network should also consider gender equity in planning, meetings, and interventions (and should encourage discussion of the importance of this type of parity in the sector in the future). In this regard, a women-led initiative that has been forming over the past few months has been bolstered by this finding to solicit feedback from women working in the WASH sector about interest in a Women in WASH Network.

- The network interconnectedness should be analyzed again in two to three years based on gender to measure any change that has taken place. The research team can also work with stakeholders in the RuSH Network to better define the gender attribute rather than the proxy used in this study.)

Language

Interviews were conducted in English or Khmer based on the request of the respondents. The network analysis examined differences in the networks of actors interviewed in each language (see Network Findings by Language of Interview in Annex 1). We specifically analyzed connectedness of actors interviewed in English and in Khmer, looking for differences in their position and influence in the network, the number of connections formed, and the interest of others to form connections with them.

Findings

The differences in the network connectedness of organizations based on the language of the interview were significant. Organizations interviewed in English are a small portion of the overall network but are significantly more densely connected both to one another and to the network overall. They average nearly double the number of connections of the organizations interviewed in Khmer. Organizations who chose to be interviewed in English are also among the most centrally positioned in the network and among the most desired connections. Recognizing that the language of the interview may just be related to whether an organization is international or national, comparisons were made across organization types. For each type of organization (local NGO, international NGO, private sector, or development partner), the organizations interviewed in English had more ties (ranging from just less than two times as many to almost six times as many), larger networks (again ranging from about 1.5 times as large to almost five times as large), and higher betweenness centrality (ranging from more than two times as high to over 30 times as high) than those organizations interviewed in Khmer. Note that no government actors were interviewed in English so a comparison was not possible, but worth observing that some government actors are quite central with others quite peripheral to the network. Table 5 provides network comparisons of organizations interviewed in English and those interviewed in Khmer.

Table 5. Network Density, Centrality, and Desired Connections by Language of Interview

	English	Khmer
Intragroup Density of Connections	0.20	0.06
Average Number of Ties	10.2	5.6
Percentage of Whole Network	31%	69%

	English	Khmer
Number of Actors in Top 10 of Betweenness Centrality	7	3
Average Betweenness Centrality	51.9	41.0
Actors Named as Desired	20	41
Average # of Times Named as Desired[23]	4.7	1.9
Number of Actors in Top 11 of Times Named as Desired	8	3

Implications and Recommendations

- It is important to note that the language of the interview may not be the language primarily used in the organization but is used as a proxy to identify English language biases and expat networks. Stakeholder feedback at the consultative workshop also indicates that this observation is not surprising to network actors, but that not much action had been taken to address this before. The RuSH Network could benefit from further investigation into whether communications in the sector are enabling more English-English collaboration than engaging Khmer speakers.

- Similar to the gender question, the RuSH Network should consider language barriers in future planning, meetings, and activities. The study and the consultative workshop were conducted in both languages. It is also encouraging now to see that the December 12, 2017 RuSH Sub-Group meeting was held primarily in Khmer (for the first time) with simultaneous translation.

- The network interconnectedness should be analyzed again in two to three years based on language to measure any change that has taken place. The research team can also work with stakeholders to better define the language attribute rather than the proxy used in this study.

Finding 2: Perceived Confidence[24]

Overall, network actors indicate relatively high perceived confidence and trust in their partners. This is an important characteristic for the RuSH Network given the interest in structured collaboration, but the subject has been sensitive and difficult to discuss.

As part of the ONA survey, respondent organizations were asked to name organizations with which they had a connection in the previous six months. They were then asked to respond to a series of questions about perceived attributes of the named organizations. Among those, three attributes are used as a proxy for confidence: reliability, fairness, and openness to discussion. The total range for the perceived confidence score is 0 to 9.

[23] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group.

[24] Note that we decided to change this term to perceived confidence from perceived trust due to feedback received in stakeholder consultations.

Findings

This has proven to be a sensitive topic, but one that is important to raise for discussion in the RuSH Network, in particular as willingness to collaborate is often based on the perception that partners are reliable, fair, and open. Within this network, the average scores were relatively high overall, but three particular observations from the analysis are important to note (see Perceived Confidence under each of the Network Findings sections of Annex 1 for more detail):

- When comparing average perceived confidence by organization type, local NGOs scored slightly above the overall network average while private sector and government scored slightly below (see Table 6). Note that a score below average does not mean that a given organization type is not trusted given the overall high scores, but it does represent an opportunity for discussion. It could also be an incentive for individual network actors to further evaluate their own reliability, fairness, and openness.

- The existing sub-groups that have been working together for some time already (RuSH Sub-Group, the SCE Group and the FSM Fan Club) generally scored higher on average perceived confidence (see Table 6).

- There are a number of relationships where the respondent organization did not provide perceptions of their partners (indicating either a lack of knowledge of those attributes or a concern about providing the score).

Table 6. Average Perceived Confidence Scores by Organization Type and for Existing Sub-Groups

	Average Confidence Score	No Score	% No Score
INGO	7.22	6	18%
LNGO	7.43	6	32%
PS	6.36	2	15%
DP	7.19	0	0%
Government	6.13	0	0%
Academia and Other	6.76	0	0%
Whole Network	**6.98**	**14**	**16%**
RuSH Sub-Group	7.31	1	5%
SCE Thematic Group	7.20	0	0%
FSM Fan Club Thematic Group	7.47	0	0%

Implications and Recommendations

- While it is not clear whether the existing sub-groups built confidence through collaboration or whether they began to collaborate because they shared some confidence in one another, it does appear that confidence and collaboration are linked to one another. This is an area for the

network to explicitly focus some attention to strengthen the network and improve collaboration and coordination.

- Although the average perceived confidence scores in the network are relatively high and the differences from one group to another are not large, it will still be valuable for the RuSH Network to reflect on the concept. Further discussion among network members of perceived confidence could improve understanding of its importance for the health of this network, its drivers, and the reasons why some organizations did not want to respond to these questions. Over time, we would expect that if the network actors are able to speak more freely about this concept confidence would continue to increase.

- If the network members agree that confidence is important to the health of the network, the perceived confidence levels should be examined again in two to three years to measure changes over time.

Finding 3: Coordination and Alignment

The RuSH Network actors acknowledge the need for improved coordination and increased alignment to achieve the sector vision, and strong models for coordination already exist within the network.

Models for Coordination

The sector has formed several existing thematic groups that meet on a somewhat regular basis. Membership in these sub-groups are not official or by invitation; organizations self-select to participate. The ONA survey did not ask respondents to indicate their participation, but rather looked at attendance at group meetings over the months before and during the survey to identify which network members have recently participated in each group. The network analysis specifically examined relationships within the RuSH Sub-Group (this is a sub-group of the Wat San Working Group), the Sanitation in Challenging Environments (SCE) Thematic Group (an informal thematic group of organizations and institutions), and the Fecal Sludge Management (FSM) Fan Club Thematic Group (another informal thematic group of organizations and institutions).

Findings

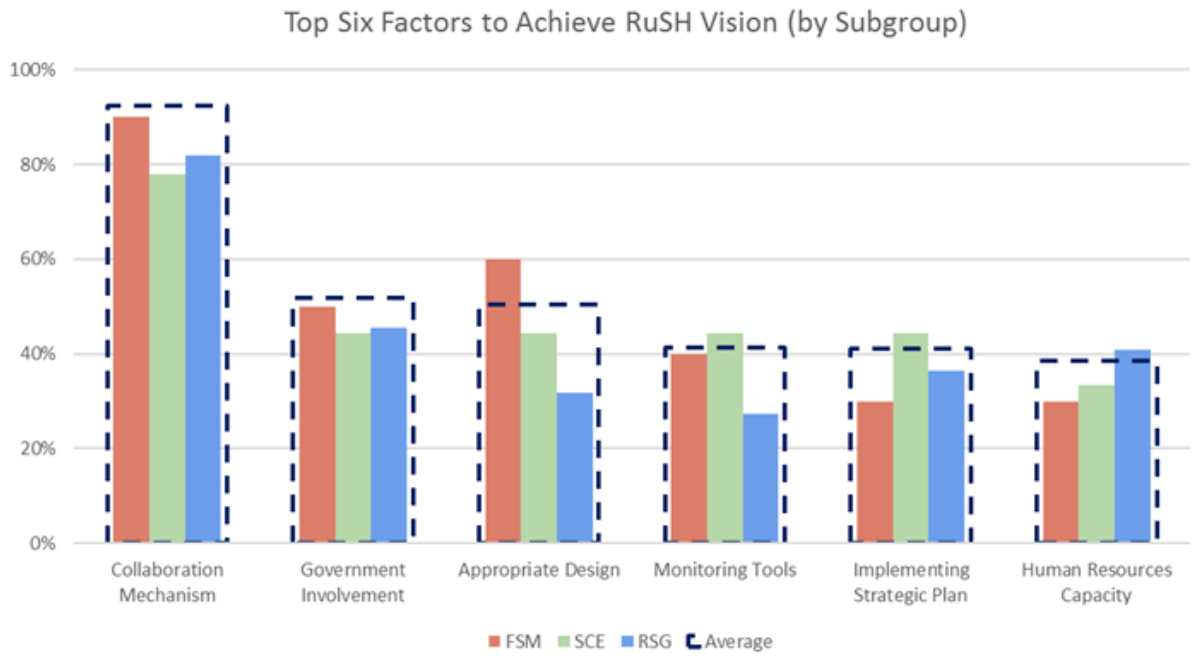
As mentioned above in the perceived confidence finding, the members of the existing sub-groups tend to average higher perceived confidence scores from their partners than the overall network average. The network analysis also indicates that members of these existing groups are much more densely connected to one another and more central to the network than the average (see Network Findings by Existing Sub-Group in Annex I for more detail). Table 7 provides network comparisons of the existing groups with the overall network.

Table 7. Network Density, Centrality, and Desired Connections by Existing Sub-Group

	Overall Network	RuSH Sub-Group	SCE Thematic Group	FSM Fan Club Thematic Group
Number of Actors	88	22	9	10
Density of Connections	0.08	0.35	0.67	0.62
Average Betweenness Centrality	44.3	137.5	275.8	240.2
Average Number of Times Named as Desired[25]	2.8	4.7	5.2	5.2

The factor analysis indicates that these groups showed more interest in collaboration, both as a priority need for the sector and as a factor worth investing more in (see Factor Analysis Question 2 and Question 3 in Annex 2 for more detail). Members of these groups were also more likely than the overall network to include sustainable services in their vision for success of the sector.

Figure 5. Percentage of Each Sub-Group Referencing the Top Six Success Factors Mentioned by Those Groups



[25] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group

However, it is also important to note that the composition of these groups is often more weighted toward INGOs and organizations interviewed in English than the composition of the overall network. The meetings of these existing thematic groups are also usually held in English, potentially contributing to the English language bias observed in Finding 1 above. More detail on the composition of each thematic group and potential gaps they may wish to address are included in Network Findings by Existing Thematic Group in Annex 1.

Implications and Recommendations

- The analysis does not tell us whether the existing sub-groups improved alignment or connectedness through their coordination, or they began to coordinate with one another because they were better aligned and connected. However, as the network grows these existing groups are a potential model for the overall network to strengthen and improve network health and results.

- The existing sub-groups are also a potential organizational mechanism to enable a large network to deal with a diverse array of complex issues. Networks where members derive more value the more they contribute generally continue to grow and maintain health, but large networks cannot always engage all members in every decision, plan, or activity. Sub-networks such as these existing groups that formed based on a perceived need by their members are good examples of how the RuSH Network may be able to manage its growth.

- The RuSH Network can organize around sub-groups like these existing thematic ones which should be engaged in strengthening the overall network. Their specific role can include mentoring nascent working groups and supporting the more decentralized management of the overall network. Additionally, other research may be helpful to understand how the groups formed and how that may be replicated with new groups.

- The existing thematic groups should also have internal discussions about their membership to determine how to be more representative of the sector but still maintain their focus and value.

- These thematic groups and others should be included in a follow-up analysis in two to three years to measure change in how they compare to the overall network over time.

Alignment

The National Strategy[26] contains five strategic objectives, addressing the themes of access, behavior change, and sustainability in the Cambodian WASH sector. Four of the five strategic objectives are directly related to the RuSH sector and were used as the basis for understanding the network's alignment toward the 2025 Vision: Strategic Objective 1. Sustainable Services, Strategic Objective 2. Sector Financing, Strategic Objective 4. Sanitation Access, and Strategic Objective 5. Hygienic Practices. Strategic Objective 4 focuses primarily on access, Strategic Objective 5 on behavior change, and Strategic Objectives 1 and 2 on sustainability.

[26] National Strategic Plan for Rural Water Supply, Sanitation, and Hygiene 2014-2018

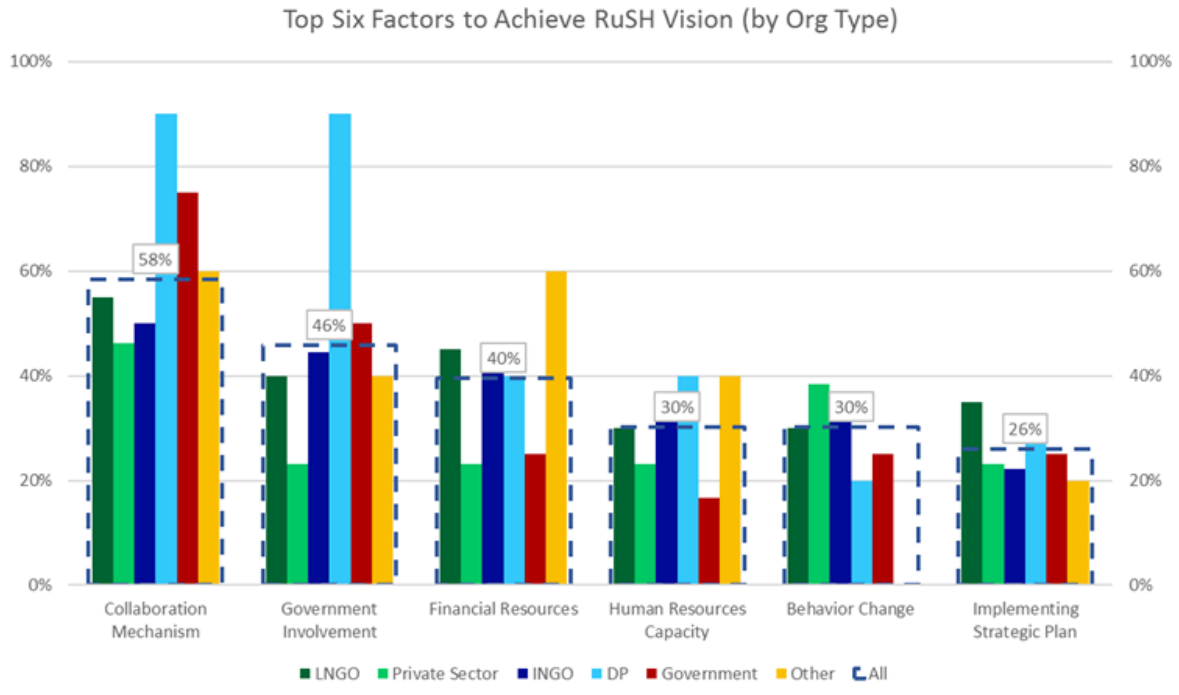
Findings

The factor analysis identified that network members are most likely to include access to sanitation in their vision, to a slightly lesser extent to include behavior change, and much less likely to mention sustainability (see Factor Analysis Question 1 in Annex 2 for more detail). This is understandable since until recently, sanitation access in rural Cambodia was extremely low (23% coverage in 2008 – NIS 2009) and obtaining a toilet is the primary entry point for most households. Over time however, a continued focus on access may lead to neglect of other critical factors such as adequate RuSH budget allocation by government, fecal sludge management solutions, and household level maintenance.

Though we did not ask respondents whether they thought the 2025 Vision would be achieved, many respondents still provided their opinion. The factor analysis revealed that 52% of all respondents (approximately two-thirds of those that provided an opinion) considered the vision will not be fulfilled or that it will only be partially fulfilled by that time. Only 25% of all respondents (approximately one-third of those that provided an opinion) expressed confidence that the sector vision would be met by 2025. The remaining 23% did not provide their opinion.

The factor analysis (see Factor Analysis Question 2 in Annex 2 for more detail) also examined gender-related issues identified as key factors influencing success for the sector. Despite the importance given to the role of women and girls in the NAP, the factor analysis revealed a generally low rating of gender issues as a success factor for the sector.

Figure 6. Percent of Organizations Mentioning the Four Strategic Objectives by Organization Type



Implications and Recommendations

- While it is not expected (nor efficient) that all the strategic objectives receive the same level of focus from the RuSH Network actors, it is important that all actors recognize the importance of sustainability and plan for it in their work. The lower percentage of actors mentioning sustainability factors in their vision of success is a point for discussion of the sector to understand why those factors are less likely to be included and how to bring them into the thinking of more stakeholders.

- The NAP has concrete timeframes, outputs, and outcomes that the government and stakeholders have determined are necessary and were deemed achievable when they were established. The RuSH Network should have a frank conversation with network members about the role of the vision in their collective efforts and determine if they should put resources into fostering conditions that will provide greater conviction in the feasibility of achieving the vision by 2025.

- To aid in that effort the RuSH Network should consider a framework for structured collaboration to not only build the strength of the network but more specifically to frame, communicate, coordinate, and measure their efforts to align membership with the vision.

- In two to three years' time, the RuSH Network should revisit this question of whether network members' alignment with and belief in the 2025 Vision has changed.

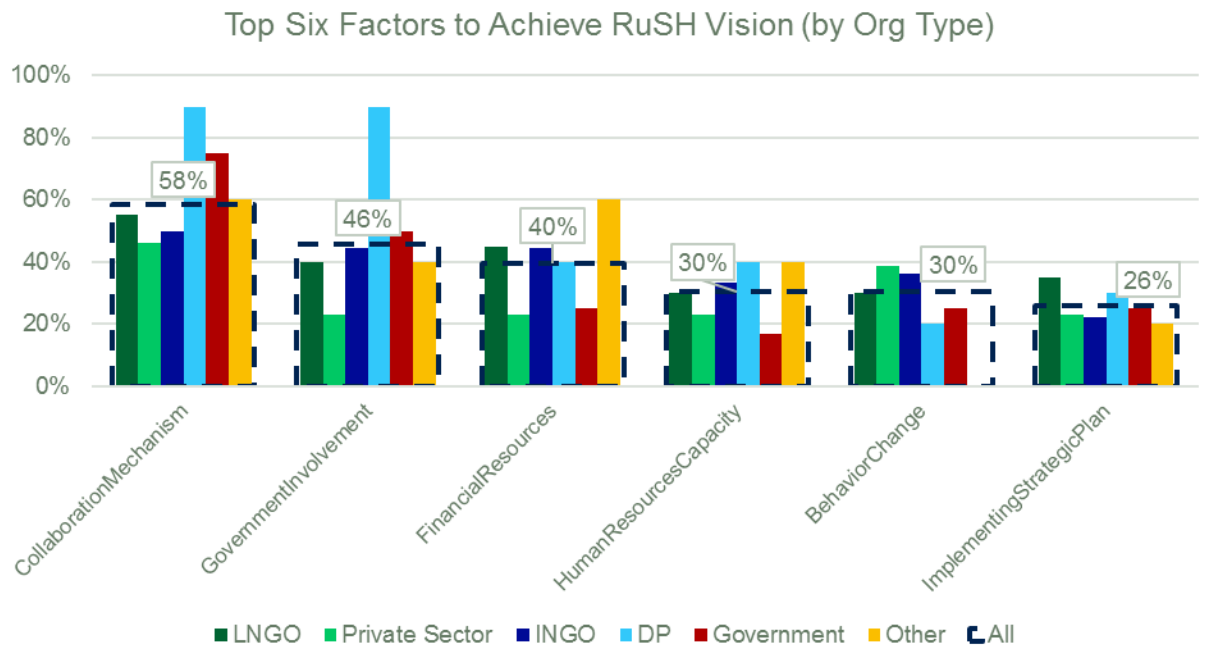
Coordination

The multiple choice survey questions asked about a number of organizational attributes such as types of activities the organization implements, the provinces where the organization works, and budget range allocated to RuSH, allowing analysis of several coordination issues. The open-ended factor questions were also analyzed to understand how coordination and collaboration are viewed by network actors.

Findings

The factor analysis revealed that network members felt that a collaboration mechanism was the most important success factor for achieving the 2025 Vision. However, when asked about what to invest time and effort in, collaboration and coordination mechanisms dropped to the sixth most frequently named factor, and when asked about the challenges to achieve the vision, collaboration was the seventh most frequently named factor (see Factor Analysis Question 2, Question 3 and Question 4 for more detail). Stakeholder consultations and discussion about collective action also indicated that the terms coordination and collaboration do not have a clear or commonly understood definition within the sector. It is notable that the existing thematic sub-groups that have already been coordinating regularly still named collaboration and coordination most frequently as a factor to invest in (and third most frequently as a challenge). At the same time, some stakeholders in the wider network stated that there is already enough coordination and collaboration happening in the sector.

Figure 7. Percentage of Each Organization Type Referencing the Top Six Success Factors



Network members also expressed a strong interest in using collaboration mechanisms for joint planning and to avoid overlapping efforts. In spite of this, on average, each organization is implementing 5.6 of the 13 activity types[27] asked in the survey, with some NGOs implementing 11 activity types and a total of 26% of the network (23 organizations) implementing eight or more activity types (see Table 7).

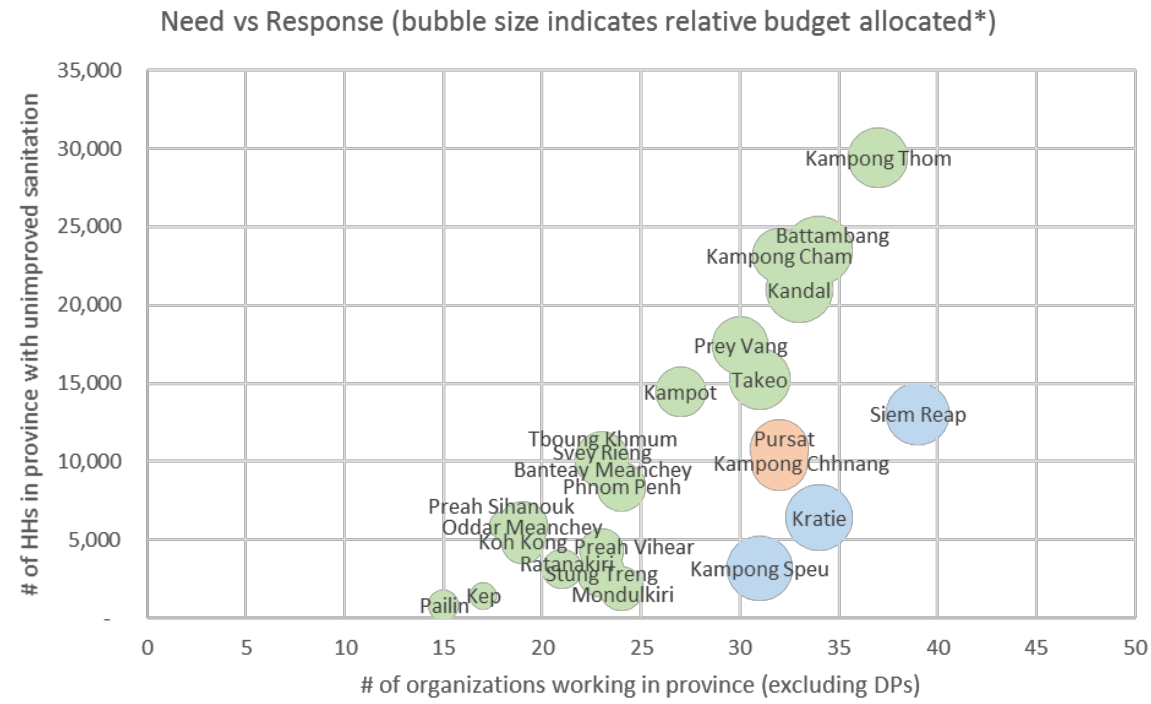
Table 2. Number of Activities Reported by Organization Type

	Average # of Activity Types	Minimum # of Activity Types	Maximum # of Activity Types	# of Organizations Working on 8 or More Activities	% of Organizations Working on 8 or More Activities
LNGO	5.4	1	10	4	21.1%
PS	3.8	1	11	1	7.7%
INGO	6.4	1	11	13	38.2%
DP	5.9	2	13	2	20.0%
Govt	6.3	2	13	3	37.5%
Other	2.8	2	3	0	0.0%
OVERALL NETWORK	**5.6**	**1**	**13**	**23**	**26.1%**

[27] The 13 activity types asked in the survey are listed in question 18 in Annex 3 of this report. Some examples include: CLTS, household latrine subsidy, financing sanitation, market development activities, infrastructure activities, capacity building, policy development, research.

The data also revealed possible overlap of effort in provinces, highlighting some provinces with many stakeholders working and relatively low numbers of households with unimproved sanitation. Data from the RGC on the number of households with unimproved sanitation in each province was compared to the number of organizations (excluding development partners) reporting that they work on RuSH. This showed a fairly clear alignment of more organizations working in provinces with more need, with a few exceptions. This included more organizations than seems appropriate working in Siem Reap, Kratie, and Kampong Speu (see Figure 9).

Figure 8. Alignment of Need and Response in Provinces[28]



* Assuming even distribution of organizational budgets across all provinces an organization works in

Implications and Recommendations

- It appears that organizations across the network do not have an issue engaging one another on discrete collaborative efforts, but there may be a gap in larger, strategic coordination efforts. There is a strong interest in reducing overlapping efforts, which is an incentive for the RuSH Network to identify how to bring into alignment new and existing interventions in the sector. Working together, members can develop a perspective on how their programs and activities can better support the sector vision, and how they can evolve to become mutually reinforcing.

- There are some contradictory findings from the factor analysis, discussions with stakeholders, and in the level of coordination reported. This implies that stakeholders with different

[28] RGC 2015, Commune Data Base sanitation data (unofficial) – # of HHs in province with unimproved latrines

perspectives and experiences have formed differing opinions on the value of coordination and collaboration. It presents another incentive for discussion among RuSH Network members about where coordination would be valuable and how best to encourage it.

Finding 4: RuSH Sector System Map

A product of the CDSA factor analysis was a RuSH Sector System Map which can be found at: https://embed.kumu.io/11cab1cdd663aba677c6cd60809bfa50. This initial, and incomplete, messy map was created by reviewing the answers to the five open-ended questions for relationships or interdependencies between the key enabling and inhibiting factors for success in achieving the sector vision. The map is designed to help members of the RuSH Network better understand the forces that drive the RuSH system in Cambodia and thus identify where and how to effect change in the system that will accelerate progress toward the 2025 Vision. The system map captures the most important factors of the RuSH sector according to stakeholders interviewed, and how these factors influence each other. This version is considered a messy map because it is a starting point of a living system – as practitioners use it and interact with the system, they will be able to refine it, remove pieces that are inconsequential, and add new sections that influence the progress to achieving the vision. The map was created in Kumu (www.kumu.io) and will be transferred to members of the RuSH Network to manage, refine and update over time. (See RuSH Sector System Map in Annex 2 for more details. The current version of the map is available at: https://embed.kumu.io/11cab1cdd663aba677c6cd60809bfa50.

Findings and Reflections

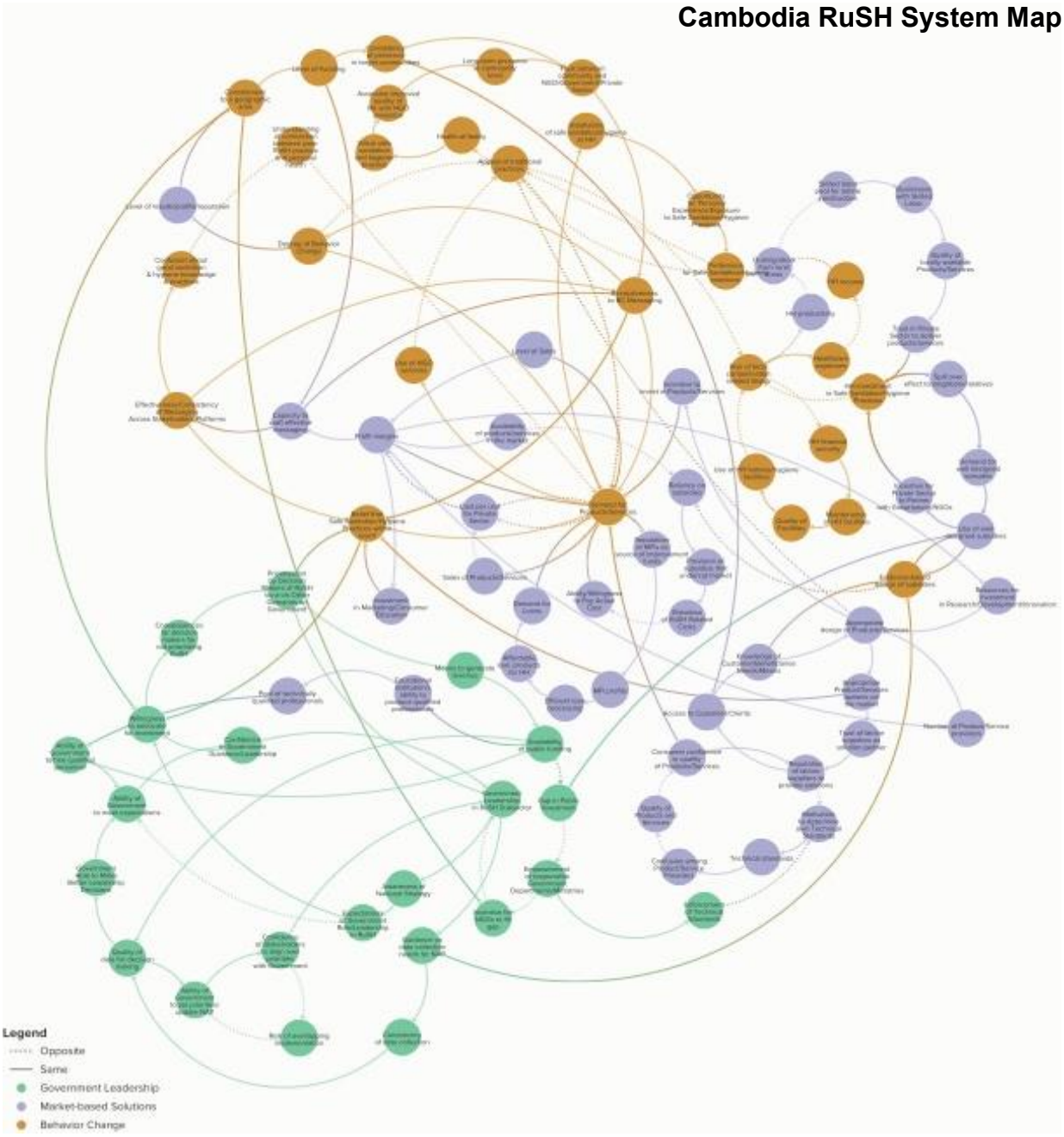
As we integrated the initially identified feedback loops into one large, coherent set of linkages and loops to represent the overall RuSH system, three interdependent themes familiar to the sector began to emerge.

Behavior Change (represented in the map in gold): Focuses on factors that affect efforts to improve hygiene practices at the household level. Some of the key issues identified under that theme are receptiveness to behavior change messaging, belief that safe practices are within reach, risk of fecal contamination-related illnesses, and demand for RuSH products and services.

Products and Services (represented in purple): Focuses on factors that demonstrate the role of the private sector and NGOs in delivering sanitation products and services. Some of the key issues identified under that theme are reputation of latrine suppliers, motivation to determine standards, use of well-designed subsidies, and knowledge of customer or beneficiary needs or means.

Sector Leadership (represented in green): Focuses primarily on the role of government in leading the sector and other actors in supporting that leadership. Some of the key issues include confidence of stakeholders to align priorities with government, willingness to advocate for investments in RuSH, and prioritization by decision makers of RuSH regarding other demands on government.

Figure 9. Snapshot of Cambodia RuSH System Map (November 2017)



The map was presented at the December 2017 consultative workshop. Stakeholders divided into small groups, with each group focusing on loops within one of the three thematic areas above to discuss perspectives and roles and to identify refinements to the map. These were incorporated into the current version of the messy map.

Some notable topics are missing or not well-represented in the map. This is because in the interviews and the consultative workshop stakeholders did not talk about them or how they influence progress

toward the 2025 vision. Some specific examples that are notably under-represented or absent from the map include human resources development, donor funding, and political will. The topics that are missing, as well as the topics that are over-represented, are a product of the perspectives included in the interviews. With the RuSH Network composed of more NGOs than other groups, the map tends to be more "NGO-centric" overall. As noted below, we would like to see the systems map refined and put to more use for the good of the RuSH Network, and this would include engaging the stakeholders in more discussion around the stories that explain the behavior patterns visible in the system.

Implications and Recommendations

- The members of the RuSH Network should determine how and at what level they can and will use the RuSH Sector System Map for decision making. While it could be very useful to make it publicly available for the membership to reference, it will likely be necessary for one entity to take ownership of the map on behalf of the sub-sector and make updates as it evolves. While the collective action effort has not had the opportunity to facilitate follow-up discussions on the map, the feedback loops, or the results of the system, even smaller groups of interested stakeholders could work to improve this. An important caveat here is to recognize that stakeholders with different perspectives will perceive the system in different ways and the map becomes more relevant and valuable when those diverse perspectives are incorporated.

- If and when a group steps forward to take ownership of the system map, they should socialize it within the RuSH Network by modeling how it is used as a tool in decision making and deliberation (e.g., activity design, joint action planning), as well as hold periodic consultations to gather feedback and make updates. The map is just a visualization of the way we perceive the system to work and can be refined and updated based on continued interaction with the system.

- As a follow-on step, the group that takes ownership of the map should engage network members to identify possible leverage points, such as prioritization of RuSH by government actors or designing evidence-based smart subsidies. One consideration is to work with stakeholders to identify specific vicious cycles that spiral downward and what concrete actions can be taken to turn them into virtuous cycles that build the sector. [29]

[29] Vicious and virtuous cycles are chains of events that reinforce themselves over time. A vicious cycle has negative results that get worse over time; a virtuous cycle has positive results that get better over time.

Annexes

Annex 1: Network Analysis

Legend

Interpreting Network Maps: Maps displayed in this report show nodes – the circles in the map, which each represent an organizational or institutional actor – and edges, the lines in the map that represent a connection between two actors. The size of nodes is based on the total number of connections (both out-ties named by the actor, and in-ties where the actor was named by another network member). The maps are automatically generated by NodeXL software, using a standard layout algorithm. The position of nodes in a given map varies depending upon the purpose of the visualization and generally does not reflect distance of specific actors or groups from each other. Ungrouped maps tend to position the largest nodes (those with the highest number of connections) at or near the center, while those with the fewest connections tend to be at the periphery. The coloring scheme for each of the nodes is based on the organization type of the actor according to the colors shown in Table 0-1. In cases where nodes are grouped by a specific attribute, this grouping has also been indicated in the map headings. All maps contain directionality (arrows), although this is generally difficult to see in highly populated maps.

Note: *We do not suggest utilizing maps alone for interpretive purposes, especially those that are the largest and most complex. We suggest referencing the tables and metrics provided within, and annexed to, this report, when conducting in-depth analysis on specific actors. We further suggest that readers print out this legend in color for ease of reference throughout the report.*

Table 1-3: Color Scheme for Nodes

Organization Type	Code	Color	#	%
International NGO	INGO	Dark Blue	34	39%
Local NGO	LNGO	Dark Green	19	22%
Private Sector	PS	Light Green	13	15%
Development Partner	DP	Light Blue	10	11%
Government	Govt	Dark Red	8	9%
Academic	Acad	Pink	2	2%
Other	Other	Orange	2	2%

Metrics: Explanatory definitions are provided here for metrics referenced throughout this report.

Metric	Explanation	Metric in Context
	Network-Level Metrics	
Size (# Nodes)	The number of actors or organizations in a network or sub-network	The number of organizations and institutions within the RuSH Network boundary or a specific sub-network
Ties (# of Edges)	Number of reported connections among actors. In-degree ties are ties into a given node (named by others); out-degree ties are ties out from a given node (named by the actor). Whole number; can be average or total.	The number of information sharing relationships among Cambodia RuSH Network members within the six months prior to the interview
Density	The proportion of actual ties relative to all possible ties in a network (or sub-network)	The number of relationships among RuSH Network members, as a percentage of total possible relationships (for the whole network of 88 members, the total possible number of relationships is 7,656)
Average Distance	The average steps required for any two actors in a network to reach one another	The average number of steps for information to be shared between any two RuSH Network members
Diameter	The maximum steps required for any two actors in a network to reach one another	The maximum number of steps for information to be shared between the two most separated RuSH Network members
Average Degree	The average number of ties of actors in the network	The average number of relationships among all network members or members of a sub-network
Reciprocity	The extent to which directed relationships are reciprocated (reported in both directions)	The extent to which a network member that reported a connection to another member, was also reported as a connection by that other member (both actors reported the relationship)
Desired Ties	Number of relationships that do not currently exist that actors reported as desired	The number of times that a given actor was named by a respondent for a relationship they would like to establish

Metric	Explanation	Metric in Context
	Actor-Level Metrics	
Degree Centrality	A measure of the number of unique ties a given actor has. Serves as an indication of importance or significance of an actor for the network. This can be separated into in-degree centrality (for incoming ties) and out-degree (for outgoing ties) for directed relationships.	The actors with the most connections in the RuSH Network have the highest degree centrality and those with the fewest connections have the lowest degree centrality
Betweenness Centrality	The extent to which a node acts as a bridge along the shortest path between two other nodes	The actors serving as important information sharing "go-betweens" in the network

Overall Network Findings

In the RuSH sector, the overall network is relatively large and composed of a diverse set of actors in terms of organization type, activities, and size. The network analyzed is made up of 88 actors and 615 ties. While the average number of ties per actor are relatively high (6.99), the range (1 to 75) and standard deviation (7.6) are also wide, indicating interconnectedness inequalities within the network.

Table 1-2: Overall Network Metrics

Size (# of Actors)	88
Ties (# of Connections)	615
Network Density	0.08
Reciprocal Relationships	26%
Average Distance	2.02
Diameter (Max Distance)	4
Average Degree (Ties or Actor)	6.99
Fewest Ties	1[30]
Most Ties	106
Standard Deviation of # of Ties	7.58

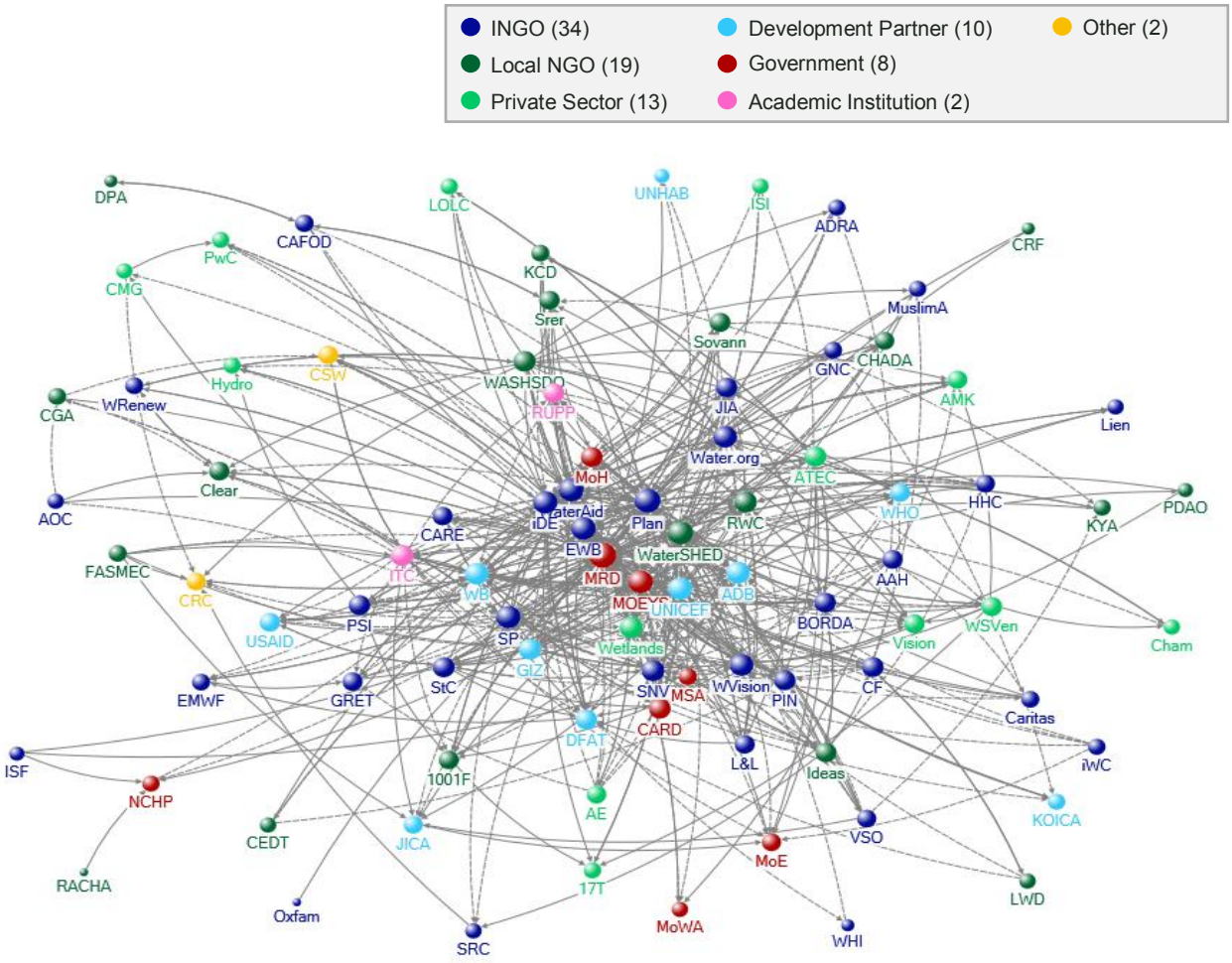
The network is predominantly composed of NGOs (more than 60% of the network is international and local NGOs combined). Private sector, development partners, and government departments make up the bulk of the remainder, with very few network members in other categories (including academic institutions and actors who did not identify with another category).

The overall density, or proportion of actual to possible relationships within the network, is 0.08 with some much denser sub-communities within the network. Twenty-six percent of relationships were named by both parties. A high reciprocity of ties (relationships named by both parties to the relationship) is generally a positive sign of connection in the network, though this does mean that 359 relationships were only acknowledged by one party. The average distance between any two organizations of 2.02 and the maximum distance (diameter) of 4 are quite low, especially given the number of actors with relatively few connections. This is likely because a few well-connected actors

[30] Of the 88 actors included in the analysis, all had at least one connection within the network. There was one additional actor that met the boundary definition but had no connections to other actors that met the boundary definition and was therefore not included in the analysis or maps.

have such great reach that no one is very far apart (MRD is connected to 75 actors and can reach the entire network of 88 in two steps, so four is the maximum possible diameter).

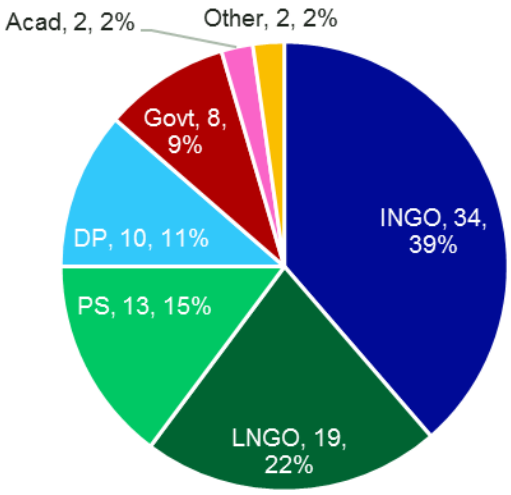
Figure 1-1: Overall Network Map



Network Findings by Organization Type

Each actor in the network was classified by type of organization or institution. This often provides insights into the positions of organizations that typically play different roles. The network analysis examined the bonding (within) and bridging (across) relationships of each group to highlight patterns in connectedness, disparities, and perceived confidence. There are seven organization types observed in the network, but because two of those categories – academic institutions and other – are very small, for some analyses they are treated as one group.

Figure 1-2: Organization Type



Connectivity

Bonding Relationships

Bonding relationships are those between actors within a given group, in this case, of the same organization type (INGO to INGO, government to government, etc.). For the Cambodia RuSH Network, these bonding relationships may be particularly important to track in order to understand the ability of each actor group to coordinate and align efforts and to advocate for their priorities. Some organization types, such as government, are very-well connected within their own group while others, such as local NGOs, are not.

Government is the most densely intra-connected organization type. All government actors in the network (n=8) are connected to one another in a single component with 18 internal ties and a density of 0.32. Reciprocal relationships and average degree for internal government ties is also quite high. This is seen as quite positive given the high expectations that the network members have for government coordination and leadership.

International NGOs (INGOs) are the largest group of organizations in the network (n=34) and are moderately connected with 90 internal ties and a density of 0.08 (similar to the overall network). There are four INGOs that are not connected to any other actor in this group and all of the remaining actors are connected to a single common component. Reciprocity for INGOs is also reasonably high with 18% of INGO to INGO relationships named by both parties. The average degree of 2.6 internal ties per actor is the highest of any group. This stronger communication among INGOs may be related to the language findings (see below) and an indication that international actors are better organized and better resourced than their local counterparts.

Local NGOs (LNGOs) and Private Sector (PS) actors are two groups that are relatively weakly connected within each respective group. Each group has an average degree of less than one tie per actor, and both are highly fragmented with many isolated members (no connections within the group)

and multiple smaller disconnected groups of actors. While it is not uncommon for private sector actors to communicate less due to the nature of market competition, there are strong expectations from the network on engaging the private sector in sustainable solutions. The lack of communications among LNGOs is also potentially a constraint to long-term solutions and support if these are the organizations that remain behind if and when INGOs close local operations.

Table 1-3: Bonding Relationship Metrics by Organization Type

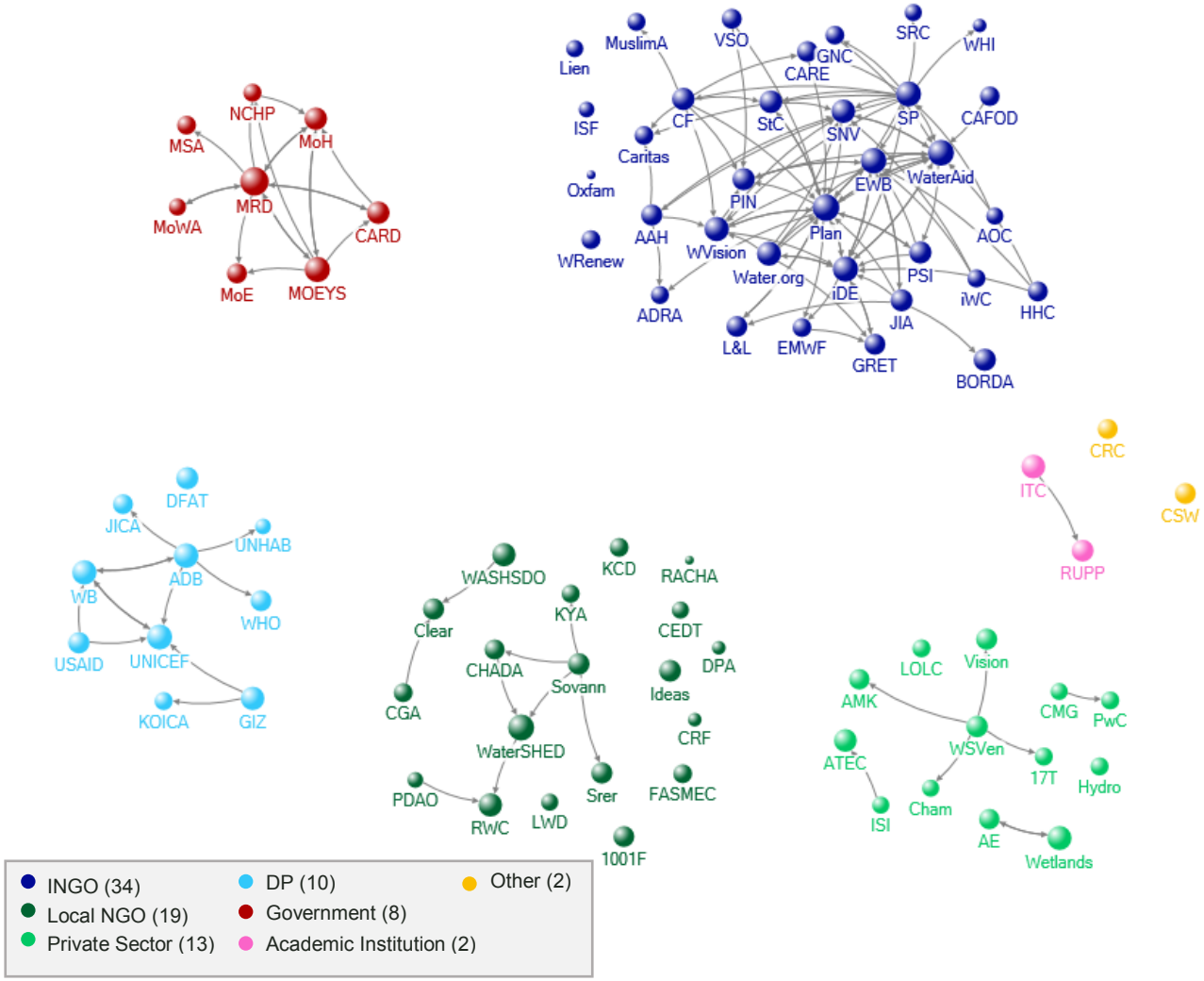
	Actors	Internal Ties	Connected Components (Non-Isolate)	Isolates	Density	Average Degree	Reciprocity
INGO	34	90	1	4	0.08	2.6	0.18
LNGO	19	9	2	9	0.03	0.5	0.00
PS	13	8	4	2	0.05	0.6	0.14
DP	10	12	1	1	0.13	1.2	0.20
Govt	8	18	1	0	0.32	2.3	0.39

Bridging Relationships

Bridging relationships are those connecting actors of one group to actors of another group, in this case, relationships across organization types. These types of relationships will be particularly useful to coordinate efforts and to ensure alignment to the shared vision for the sector. Of interest in this analysis are some interesting disparities in perceived bridging connections across groups.

Government and Development Partners (DPs) were often cited as partners with average in-degree (average number of times named by others) of 14.6 and 11.3 respectively, with the next highest average in-degree significantly lower at 6.5. This may indicate a higher perceived value of having relationships with these two groups.

Figure 1-3: Network Map Showing Internal Ties by Organization Type



Government and INGOs named many partners with average out-degree (average number of relationships named) of 10.3 and 8.4 respectively. The government out-degree was driven largely by MRD which indicated relationships with approximately half of the network. These high out-degree numbers may indicate a tendency for more outgoing, partnership-oriented behavior.

Private Sector is generally less connected within the entire network than other groups. Their primary relationships are with NGOs, which may be an effective way to coordinate and align the private sector moving forward by bridging their relationships through NGOs rather than expecting them to coordinate directly.

There are also some asymmetries in the relationships across organization types. INGOs and LNGOs reported many relationships and relatively high density of relationships with government and development partners, while government and development partners reported much fewer relationships with NGOs. Also, government reported many more relationships with development partners than development partners reported with government.

Table 1-4: Number of Bridging Relationships by Organization Type

From \ To	INGO	LNGO	PS	DP	Govt	Acad & Other	Total (Out-Ties)	Avg Out-Degree
INGO	90	48	25	52	60	10	**285**	**8.4**
LNGO	44	9	14	15	21	5	**108**	**5.7**
PS	30	12	8	6	4	1	**61**	**4.7**
DP	23	5		12	10	1	**51**	**5.1**
Govt	25	9	6	20	18	4	**82**	**10.3**
Acad & Other	8	2	1	8	4	5	**28**	**7.0**
Total (In-Ties)	**220**	**85**	**54**	**113**	**117**	**26**	**615**	
Avg In-Degree	**6.5**	**4.5**	**4.2**	**11.3**	**14.63**	**6.5**		**6.99**

Table 1-5: Density of Bridging Relationships by Organization Type

From \ To	INGO	LNGO	PS	DP	Govt	Acad & Other
INGO	0.08	0.07	0.05	0.15	0.21	0.07
LNGO	0.07	0.03	0.06	0.08	0.14	0.07
PS	0.07	0.05	0.05	0.05	0.04	0.02
DP	0.07	0.03		0.13	0.13	0.03
Govt	0.09	0.06	0.06	0.25	0.32	0.13
Acad & Other	0.06	0.03	0.02	0.2	0.13	0.42

Desired Ties

Respondents were asked to name up to five relationships that they currently do not have but would like to establish. This gives an indication of the potential for change in the network, as well as the types of

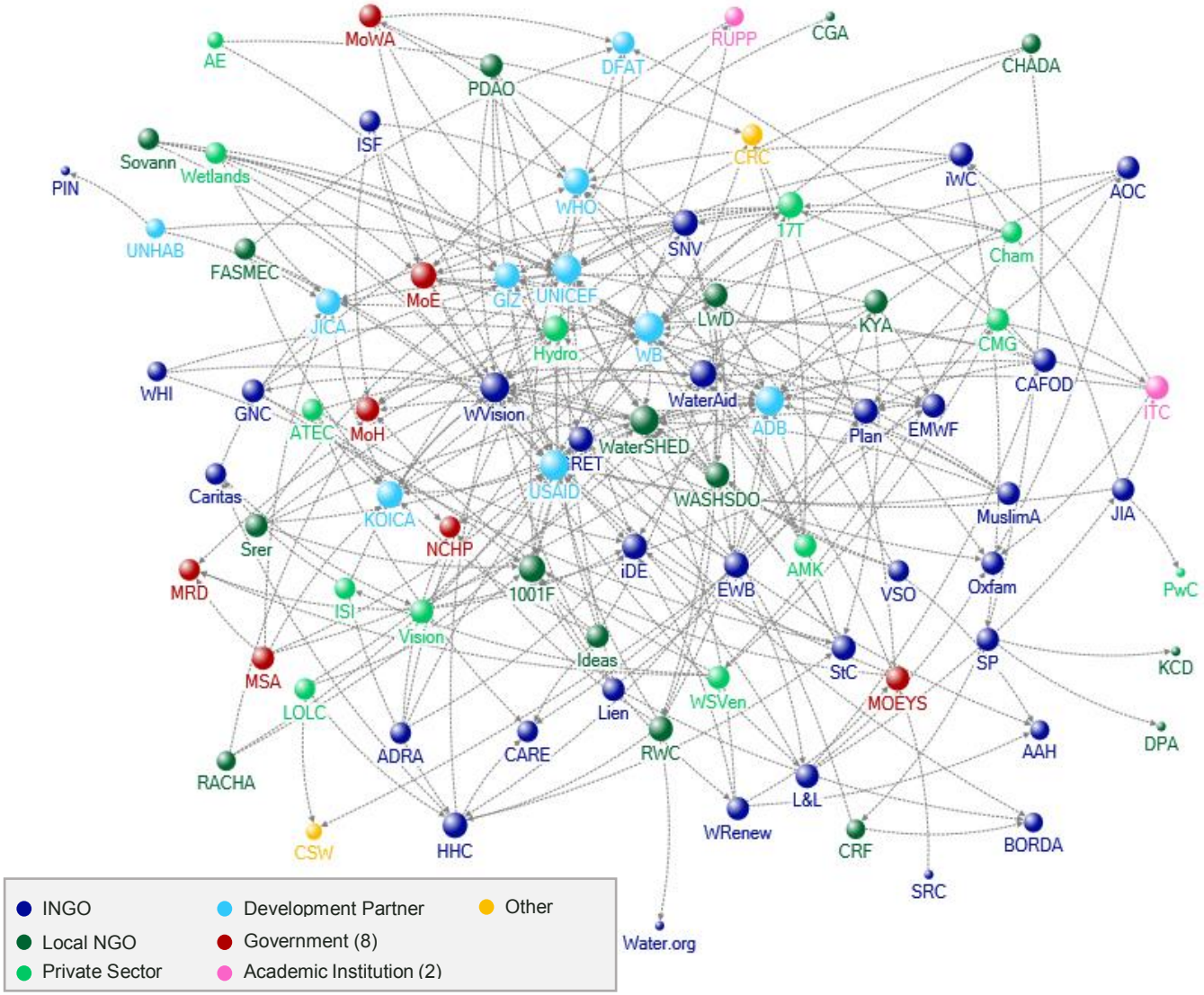
partners perceived to be influential and possible bridges for increasing coordination. Respondents reported on 245 desired relationships among 83 actors (2.95 ties on average per actor).

If all the desired relationships were formed, the network would see a moderate increase in density (from 0.08 to 0.11) and a decrease in average distance and diameter. Average degree (ties per actor) also increases, but the standard deviation of number of ties increases significantly, indicating that the desired relationships are primarily with a smaller set of specific actors. This is also supported by the very low reciprocity of desired ties and a decrease in reciprocity of ties for the potential network (unsurprising to see that desired ties are not reciprocated as they are usually named for actors that have been difficult to connect with in the past).

Table 1-6: Desired Relationship Metrics and Network Potential

	Current Network	Desired Network	Current Plus Desired Network
Size (Number of Actors)	88	83	88
Ties (Number of Connections)	615	245	860
Network Density	0.08		0.11
Reciprocal Relationships	26%	0.4%	21%
Average Distance	2.02		1.85
Diameter (Max Distance)	4		3
Average Degree (Ties/Actor)	6.99	2.95	9.77
Standard Deviation of # of Ties	7.58		16.76

Figure 1-4: Network Map Showing Only Desired Ties Reported



Development partners were the most often named as a desired connection (average of 10 times per actor and 90 overall ties), and all development partners except one were named as a desired tie (90% of their group). Also, seven of the nine development partners named were among the top 11 actors as ranked by number of times named as a desired connection. This may be due to the interest of many actors to connect with financial resources.

LNGOs and Private Sector were least frequently named as desired connections, with 54% and 53% of their groups being mentioned respectively. Still, two of the LNGOs were among the most commonly named desired connections. It may be surprising that the private sector was so rarely named as a desired connection given the high stated interest of network members in engaging them.

Government is the most connected group in the current network, so it is not surprising to see that the group was not named as a desired connection as often as development partners.

Table 1-7: Actors Named as a Desired Partner by Organization Type

	INGO	LNGO	PS	DP	Govt	Acad & Other
Actors Named as Desired	25	10	7	9	6	4
% of Group Named as Desired	74%	53%	54%	90%	75%	100%
Total # of Times Named as Desired	79	31	14	90	22	9
Average # of Times Named as Desired[31]	2.3	1.6	1.1	9.0	2.8	2.3
# of Actors in Top 11 of Named as Desired[32]	2	2	0	7	0	0

Centrality Measures

The network analysis software used, UCINET, analyzed relationships in the network to calculate several metrics of centrality and to determine a group of "core" actors (most centrally and densely connected to one another) and a peripheral group of actors. The software uses only the existence or lack of a relationship and no other characteristics of the actors to determine the centrality metrics and breakdown of core or periphery. The primary metric used for centrality is "betweenness" which is a normalized value for the number of times an actor lies on the shortest path between two other actors in the network. In the core-periphery analysis, the software also identified 19 actors to be members of the core group.

Development Partners are more represented in the core group than in the network overall (21% of the core compared to 11% of the network). As a group, they are also quite central having the second highest average betweenness centrality and with two members in the top 10 ranked by betweenness centrality. This may indicate that development partners are playing a significant role in the sector.

Government is not over-represented in the core group but has the highest betweenness centrality by far (due to MRD's extremely central position in the network) with three members of the group in the top 10 as ranked by betweenness. It is not surprising to see this given the government's significant role in the sector but is a good sign that this is not entirely dependent on one government actor.

[31] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group.

[32] Four actors each had the eighth highest number of times named as desired (8 times).

LNGOs and Private Sector are under-represented in the core group (16% versus 22% and 5% versus 15% respectively) and among the most central actors by betweenness (1 and 0 in the top 10 respectively). Once again, this is an area the network may want to examine further to determine whether these actors need to be more engaged or central, and if so, how they might work to improve that.

Table 1-8: Core Membership and Betweenness Centrality by Organization Type

	INGO	LNGO	PS	DP	Govt	Acad & Other
# of Actors in Core	8	3	1	4	2	1
% of Core	42%	16%	5%	21%	11%	5%
% of Whole Network	39%	22%	15%	11%	9%	4%
Avg Betweenness Centrality	30.8	20.1	7.5	31.9	246	21.2
# of Actors in Top 10 of Betweenness Centrality	4	1	0	2	3	0

Perceived Confidence[33]

Actors were asked to score the organizations they reported a relationship with on several dimensions. An average "perceived confidence score" was calculated by adding an actor's average scores for reliability, openness to discussion, and fairness to other organizations (the total ranging from 0 to 9). Overall, perceived confidence was relatively high with an average score of 6.98 across the entire network.

LNGOs were among the most trusted by their partners, but nearly one-third of LNGOs did not receive a score (some respondents did not answer either because they did not want to score partners or were not sure of the answer). LNGOs were also among the least intra-connected groups and moderately connected to the rest of the network, primarily through INGOs. For improved sustainability of the RuSH Network, it may be important to build on this high level of perceived confidence in LNGOs.

Private Sector and Government actors scored below the network average on perceived confidence. It is worth noting that among government actors, MRD scored well above average. This is of particular interest due to their centrality in the network, and the significant role MRD plays in the sector overall.

Disparities in perceived confidence also exist between groups. Private sector tends to score other organization types higher than they are scored by those organizations, but scores other private sector

[33] Note that we decided to change this term to perceived confidence from perceived trust due to feedback received in stakeholder consultations. This is a sensitive topic, but we feel that confidence is a better description of this data.

actors well below average. Development partners were scored above average by all groups except LNGOs who scored them below average.

Table 1-9: Average Perceived Confidence Scores by Organization Type

	Avg Confidence Score	No Score	% No Score
INGO	7.22	6	18%
LNGO	7.43	6	32%
PS	6.36	2	15%
DP	7.19	0	0%
Govt	6.13	0	0%
Acad & Other	6.76	0	0%
Whole Network	**6.98**	**14**	**16%**

*Table 1-10: Perceived Confidence Scores Ranges by Organization Type**

From \ To	INGO	LNGO	PS	DP	Govt	Acad & Other
INGO	▲	▲	▼	▲	▼	▼
LNGO	▲	–	▼	▼	▼	▼
PS	▲	▲	▼	▲	▼	
DP	–	▲		▲	▲	
Govt	▼	▲		▲	▲	
Acad & Other	▲	▲	▼	▲	▲	▼

* - ▲indicates an average score above the network average, ▼indicates an average score below the network average, and – indicates a score near the network average.

Potential Considerations for the Network

The network analysis by organization type raises some questions for the RuSH Network, in particular, given the goal of improving collaboration to accelerate progress toward the 2025 Sector Vision:

- *Would the sector benefit from increased communication and collaboration internally among LNGOs?* The survey results, as well as stakeholder feedback during the December 2017 workshop, indicate that there are high expectations for LNGOs to be the long-term implementers of sustainable RuSH services. As collaboration and coordination are high-priorities for the network, this may be a crucial group to have communicating efficiently and often.

- *Is there a value to increasing connectedness of private sector actors?* From survey results and stakeholder feedback, again, there are high expectations of private sector actors taking a lead role in sustainable solutions.
- *Why might LNGOs and private sector appear far less central to the network than other groups?* As with the previous two points, both groups appear to be less central to the network than others. If this is perceived as an issue for the success of the sector, the network may want to examine why that is the case and how the two groups may be further engaged over time.
- *Is it surprising that NGOs feel more connected to development partners and government than the other way around?* This may indicate that NGOs value their relationships with the financial resource providers and the central power of the network more than the other way around. This may be related to the NGOs tending to score development partners and government lower on perceived confidence, while development partners and government showed more confidence toward LNGOs than INGOs.
- *Is the network highly dependent on development partners?* Development partners are both highly desired connections and highly central to the network. This may indicate some dependence on them as a group. The network should examine this further to determine if that is the case, if it is important for progress in the sector, and how that might change over time.
- *Are the perceived confidence scores valuable feedback within the network and something we can expect to see change over time?* The scores are just a proxy, and there were quite a few actors who chose not to respond to these questions. This may indicate that the network does not yet feel comfortable with one another. It may be a cultural barrier that is difficult to overcome.

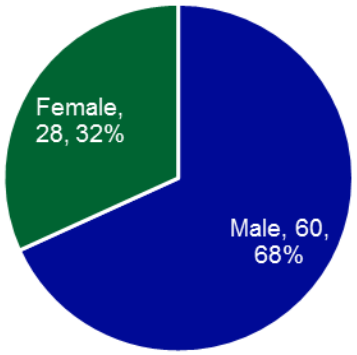
Network Findings by Gender of Organization Head

Each actor in the network was asked to report the gender of the head of their organization, office or institution. Network analysis used those responses to examine differences in the networks of organizations run by men and woman-run organizations. It is important to note that this is just a proxy for gender-related issues, that the interview respondent(s) may or may not have been the organization or office head, and that the networks of organizations of different sizes, types, or management structures may be influenced in quite different ways by the leadership.

Connectivity

Network metrics show clear disparities in connectedness between the two groups. On average, organizations run by men named more partners (out-degree) and were named by more partners (in-degree) than woman-run organizations. The difference in out-degree is quite large with organizations run by men, having nearly 70% more connections than woman-run organizations.

Figure 1-5: Gender of Head of Organization



Woman-run organizations are least connected to other woman-run organizations with a density of relationships below the density of the overall network. There are seven woman-run organizations with no connections to other woman-run organizations (isolates), compared to only one organization run by a man with no connections to other organizations run by men. In the sub-network of woman-run organizations, reciprocal relationships are also quite low compared to the overall network with only 16% of relationships reported by both parties.

The connectivity disparities are echoed in the core-periphery analysis, where woman-run organizations are under-represented in the core group (21% versus 32% of the overall network). In terms of betweenness centrality, organizations run by men average more than double woman-run organizations (this is skewed by MRD being run by men, though even removing MRD from the average, organizations run by men are on average more central). On the contrary, in terms of desired relationships, a higher portion of woman-run organizations were named as a desired connection than organizations run by men (82% of organizations run by women versus 63% of organizations run by men).

Table 1-11: Number of Bonding and Bridging Relationships by Gender of Organization Head

To / From	Men	Women	Total (Out-Ties)	Avg Out-Degree
Male	350	132	**482**	**8.03**
Female	97	36	**133**	**4.75**
Total (In-Ties)	**447**	**168**	**615**	
Avg In-Degree	**7.45**	**6.00**		**6.99**

Table 1-12: Density of Bonding and Bridging Relationships by Gender of Organization Head

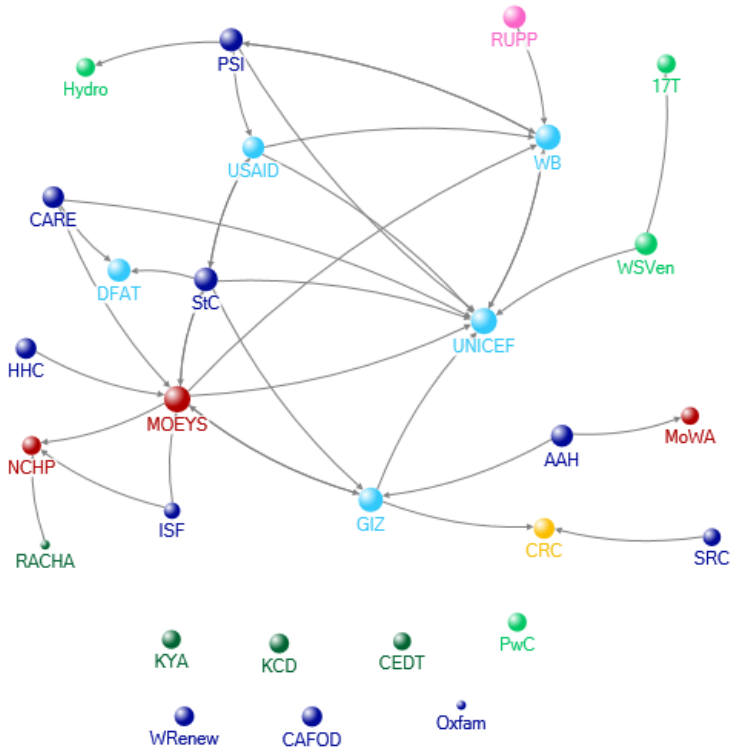
To / From	Men	Women
Male	0.10	0.08
Female	0.06	0.05

Table 1-13: Desired Ties, Core Membership, and Betweenness Centrality by Gender of Organization Head

	Men	Women
# of Actors in Core	15	4

	Men	Women
% of Core	79%	21%
% of Whole Network	68%	32%
Average Betweenness Centrality	54.0[34]	23.5
Actors Named as Desired	38	23
% of Group Named as Desired	63%	82%
Total # of Times Named as Desired	149	96
Average # of Times Named as Desired[35]	2.5	3.4

Figure 1-6: Sub-Network Map of Woman-Run Organizations



[34] This is skewed by MRD with an extremely high betweenness centrality, however, even removing MRD from the calculation, organizations run by men averaged 27.0.

[35] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group.

Perceived Confidence

The differences in perceived confidence between these two groups was small, but organizations run by men averaged higher confidence scores than woman-run organizations. Organizations run by men scored other organizations run by men higher than average on confidence attributes while woman-run organizations generally scored other woman-run organizations slightly below the network average.

Table 1-14: Average Perceived Confidence Scores by Gender of Organization Head

	Average Confidence Score	No Score	% No Score
Men	7.05	10	17%
Women	6.83	4	14%
Whole Network	**6.98**	**14**	**16%**

*Table 1-15: Perceived Confidence Scores Ranges by Gender of Organization Head**

From \ To	Men	Women
Men	▲	–
Women	▲	▼

* - ▲indicates an average score above the network average; ▼indicates an average score below the network average; and – indicates a score near the network average.

Potential Considerations for the Network

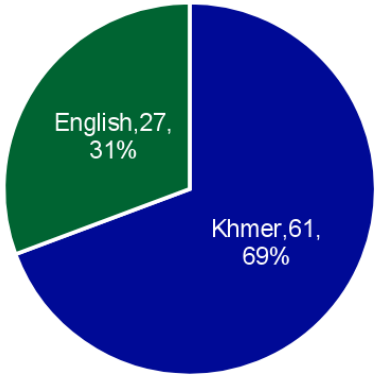
The network analysis by gender of the organization or office head indicates some interconnectedness disparities that would be valuable for the sector to further understand and consider in developing the RuSH Network:

- *Is it surprising that organizations run by men are more connected than organizations run by women?* The feedback during the December 2017 workshop indicates there are mixed interpretations of this finding. Keeping in mind that it is based simply on the gender of the head of the organization and not necessarily indicative of the staff, leadership for RuSH activities, or relationships with other organizations, there are additional questions about how to address the differences identified. However, there are also actors within the RuSH Network who believe this finding is indicative of a broader need for focus in the sector. Combined with the generally lower rating of gender issues as a success factor, this may be a topic that requires more focus.
- *Is the disparity in connectedness something that the RuSH Network can reasonably expect to change over time?* If there are actors within the network interested in addressing these differences, there may still be a number of factors that limit the ability for the network to change in the short-term. However, the network should consider whether this is an issue worth monitoring over time to improve inclusion and equity within the group.

Network Findings by Language of Interview

Interviews were conducted in English or Khmer, based on respondents' request. Network connectedness and perceived confidence were analyzed based on the language of the interview as a proxy for national and expat networks. It is important to note that the language of the interview may not be the language primarily used in the organization or may indicate a preference of an individual respondent even if there were multiple respondents in the interview.

Figure 1-7: Language of Interview



Connectivity

The differences in network connectedness based on language of the interview were striking. On average, organizations interviewed in English both named more partners (out-degree) and were named by more partners (in-degree) than organizations interviewed in Khmer. In each metric, English interviewees were nearly double the average ties of Khmer interviewees. This indicates that the organizations interviewed in English are likely seen as leaders looked to as a source of information and experience and more able to spark the flow of information in the network.

Organizations interviewed in English are very well-connected to other organizations interviewed in English with a density of 0.20, while those interviewed in Khmer are weakly connected to one another with a density of 0.06 – below that of the whole network. Also, organizations interviewed in Khmer are better connected to those interviewed in English than they are to other organizations interviewed in Khmer. Organizations interviewed in English were also more likely to have reciprocated relationships with 34% of "English to English" relationships reported by both parties.

The centrality, core-periphery, and desired ties metrics also show that organizations interviewed in English are generally more central to the network than those interviewed in Khmer. English language interviewees are over-represented in the core group (58% of the core group versus 31% of the overall network). In terms of betweenness centrality, organizations interviewed in English average more than organizations interviewed in Khmer and are over-represented in the top 10 as ranked by betweenness. In terms of desired relationships, a slightly higher portion of organizations interviewed in English were named as a desired connection than those interviewed in Khmer (74% versus 67%), and more were ranked in the top 10 as a desired connection.

Table 1-16: Number of Bonding and Bridging Relationships by Language of Interview

From \ To	English	Khmer	Total (Out-ties)	Avg Out-Degree
English	139	129	**268**	**9.93**
Khmer	145	202	**347**	**5.69**
Total (In-Ties)	**284**	**331**	**615**	
Avg In-Degree	**10.52**	**5.43**		**6.99**

Table 1-17: Density of Bonding and Bridging Relationships by Language of Interview

From \ To	English	Khmer
English	0.20	0.08
Khmer	0.09	0.06

Table 1-18: Desired Ties, Core Membership and Betweenness Centrality by Language of Interview

	English	Khmer
# of Actors in Core	11	8
% of Core	58%	42%
% of Whole Network	31%	69%
Average Betweenness Centrality	51.9	41.0
# of Actors in Top 10 of Betweenness Centrality	7	3
Actors Named as Desired	20	41
% of Group Named as Desired	74%	67%
Total # of Times Named as Desired	127	118
Average # of Times Named as Desired[36]	4.7	1.9
# of Actors in Top 11 of Times Named as Desired	8	3

Perceived Confidence

The differences in perceived confidence between these two groups was small, but organizations interviewed in English averaged slightly higher confidence scores than those interviewed in Khmer. On

[36] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group.

average, each group scored the organizations interviewed in English a bit above the network average, while each group scored the organizations interviewed in Khmer very close to the network average.

Table 1-19: Average Perceived Confidence Scores by Language of Interview

	Average Confidence Score	No Score	% No Score
English	7.09	2	7%
Khmer	6.93	12	20%
Whole Network	**6.98**	**14**	**16%**

*Table 1-20: Perceived Confidence Scores Ranges by Language of Interview **

From \ To	English	Khmer
English	▲	–
Khmer	▲	–

* - ▲indicates an average score above the network average; ▼indicates an average score below the network average; and – indicates a score near the network average.

Potential Considerations for the Network

The network analysis by language of the interview highlights large inequalities in connectedness, raising some questions for the RuSH Network to consider in defining ways to improve collaboration and information sharing:

- *Is it possible that communications in the RuSH sector are enabling more English to English collaboration and coordination?* It is not uncommon for a community of expats to create a deep network with one another and to more easily connect with local power structures. The network will have to examine more closely the cost of such stark differences in interconnectedness to long-term collaboration. While feedback during the December 2017 workshop suggests this observation may not be surprising to network members, not much action was taken prior to the workshop. The first meeting of a sub-group within the sector after the workshop was held in Khmer with translation, an indication that this observation was taken to heart.
- *Are there other external factors that might be influencing this observation?* It may be that this situation is more complicated to address than simply agreeing to create more materials in Khmer and hold more meetings in Khmer. The network would be well-served to further investigate the causes and effects of the disparities in language in order to determine what may be able to change differences in interconnectedness over time.

Network Findings by Cluster

The network analysis identified five unique "clusters" within the RuSH Network. A cluster is a densely connected community, identified by looking only at the existence or lack of relationships between actors without considering any quantitative or qualitative characteristics of the actors themselves. The clusters were identified using the Clauset-Newman-Moore algorithm[37] and are mutually exclusive, collectively exhaustive, meaning that each actor is assigned to one cluster with none excluded and none repeated.

Table 1-21: Bonding Relationship Metrics by Cluster

	Actors	Internal Ties	Connected Components (Non-Isolate)	Isolates	Density	Average Degree	Reciprocity
Cluster 1	25	90	1	0	0.15	3.6	0.30
Cluster 2	22	77	1	0	0.17	3.5	0.33
Cluster 3	21	61	1	0	0.15	2.9	0.13
Cluster 4	15	51	1	0	0.24	3.4	0.34
Cluster 5	5	4	1	0	0.20	0.8	0.00

Clusters are indicative of the types of ongoing collaboration and communication in the network. Although they may not reflect groupings that the members would normally consider themselves to be a part of, reviewing the composition of clusters based on other characteristics often reveals a deeper understanding of the network structure and existing relationships.

Table 1-22: Desired Ties, Core Membership and Betweenness Centrality by Cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
# of Actors in Core	4	6	6	3	0
% of Core	21%	32%	32%	16%	0%
% of Whole Network	28%	25%	24%	17%	6%
Avg Betweenness Centrality	90.5[38]	34.5	27.8	16.9	7.8
# of Actors in Top 10 of Betweenness Centrality	4	3	3	0	0

[37] Clauset-Newman-Moore clustering algorithm iteratively selects and merges the best pair of actors to increase "modularity" of the network overall, until no pairs improve the modularity further. Modularity is a measure of the strength of division of a network into modules (or clusters). Networks with high modularity have dense connections between the actors within modules but sparse connections between actors in different modules.

[38] With MRD as a member of this cluster, the average betweenness is very high. If MRD is removed from the calculation, the average betweenness decreases significantly to 25.7.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Actors Named as Desired	18	16	13	10	4
% of Group Named as Desired	72%	73%	62%	67%	80%
Total # of Times Named as Desired	51	76	83	22	13
Average # of Times Named as Desired[39]	2.0	3.5	4.0	1.5	2.6
# of Actors in Top 11 of Times Named as Desired	0	5	6	0	0

Figure 1-8: Cluster Composition by Organization Type

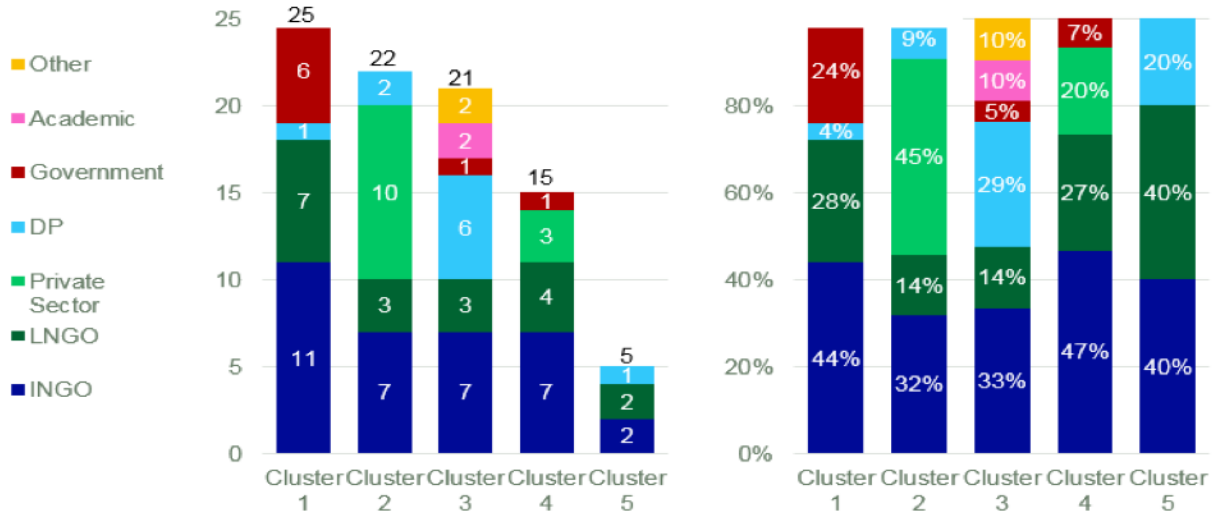


Table 1-23: Cluster Participation in the Existing Sub-groups

	RuSH Sub-Group	SCE Group	FSM Group
Cluster 1	3	1	2
Cluster 2	8	3	5
Cluster 3	6	1	1
Cluster 4	5	4	2
Cluster 5	0	0	0

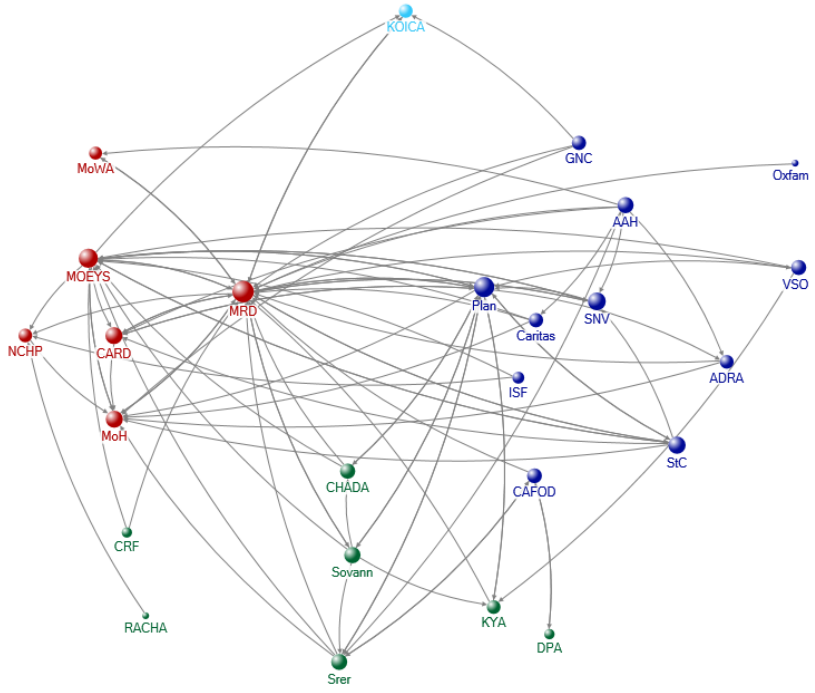
[39] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group.

Cluster 1 – Government and Partners

Cluster 1 has 25 members, an internal density of 0.15, and high reciprocity with 30% of all internal relationships reported by both parties. Six of the eight government actors are in this cluster, and INGOs and LNGOs are also well-represented. The cluster's members reported primary activities that are at the community-level, with a high portion conducting behavior change communications (BCC, 52%) and Community-Led Total Sanitation (CLTS, 20%). Most of the members of this cluster reported annual RuSH budgets in the mid-sized range (44% between $100,000 to $500,000 and 24% between $25,000 to $100,000).

The defining characteristics of this cluster are a high portion of government actors as members and focus on behavior change communications and CLTS. This cluster highlights other network members most closely working with government and the close communication among government actors.

Figure 1-9: Network Map of Cluster 1 – Government and Partners



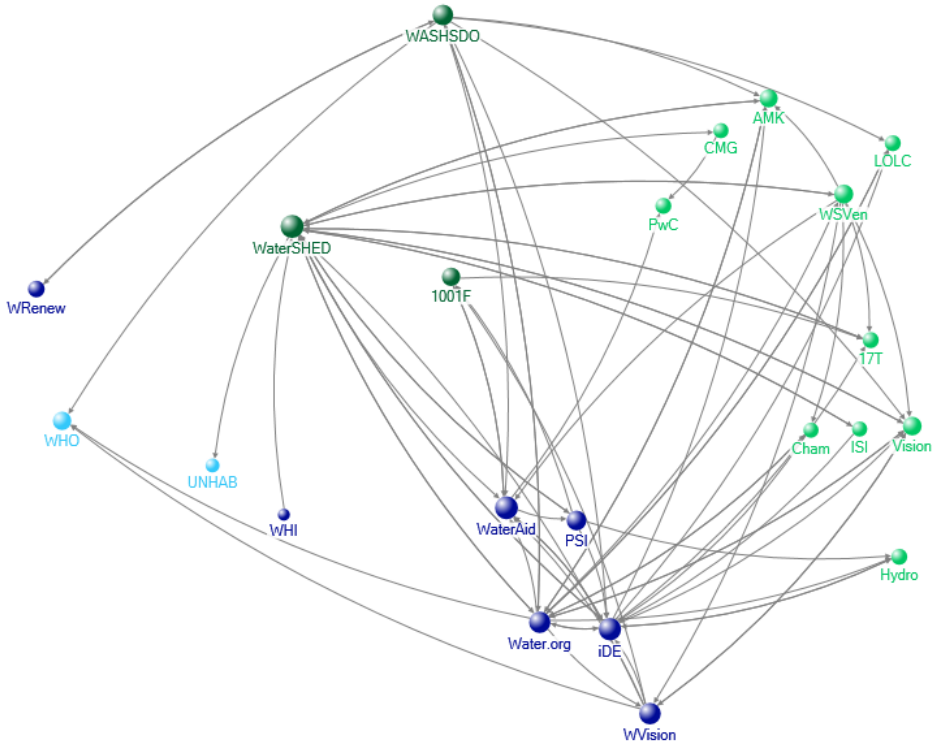
Cluster 2 – Private Sector, Market-Based

Cluster 2 has 22 members, an internal density of 0.17, and high reciprocity with 33% of all internal relationships reported by both parties. Ten of the thirteen private sector actors are in this cluster, while government is not represented. NGOs are in this cluster, but at a lower proportion than in the overall network. The cluster's members reported primary activities that fit with the nature of the private sector, with a high portion working on sanitation financing (23%) and market development (14%). This

cluster also has a high number of the core group actors and half of the top 10 organizations as ranked by number of times named as a desired connection.

The defining characteristics of this cluster are a high portion of private sector actors and focus on related activities. Given that the private sector is generally weakly connected internally and to the rest of the network, this cluster shows which other network members are most closely working with the private sector and acting as bridges for this fragmented group.

Figure 1-10: Network Map of Cluster 2 – Private Sector, Market-Based

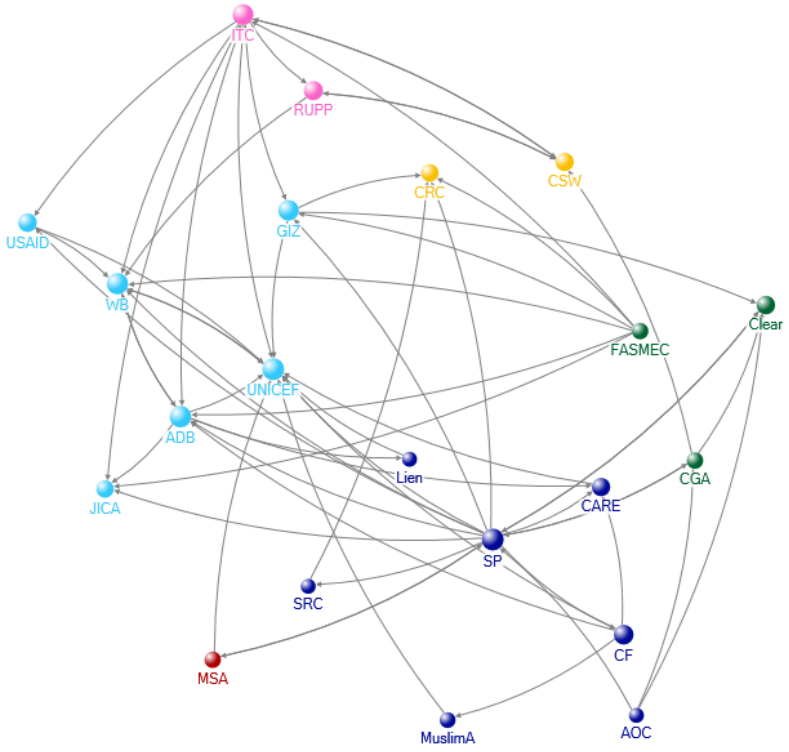


Cluster 3 – Development Partners, Infrastructure, National Issues

Cluster 3 has 21 members, an internal density of 0.15, and a relatively low reciprocity with 13% of all internal relationships reported by both parties. Six of the ten development partners are in this cluster. There is no private sector representation and only one government actor. NGOs are present in this cluster, but at a lower proportion than in the overall network. The cluster's members reported primary activities include infrastructure (33%). Also, the two network actors that named advocacy and research as their primary activity and one of the two actors that named government decentralization as their primary activity are in this cluster. This cluster has a high number of core group actors and more than half of the top 10 organizations as ranked by number of times named as a desired connection.

The defining characteristic of this cluster is the high portion of development partners. The low reciprocity of relationships and high proportion of desired connections indicates that development partners are more sought out by others than reaching out to others.

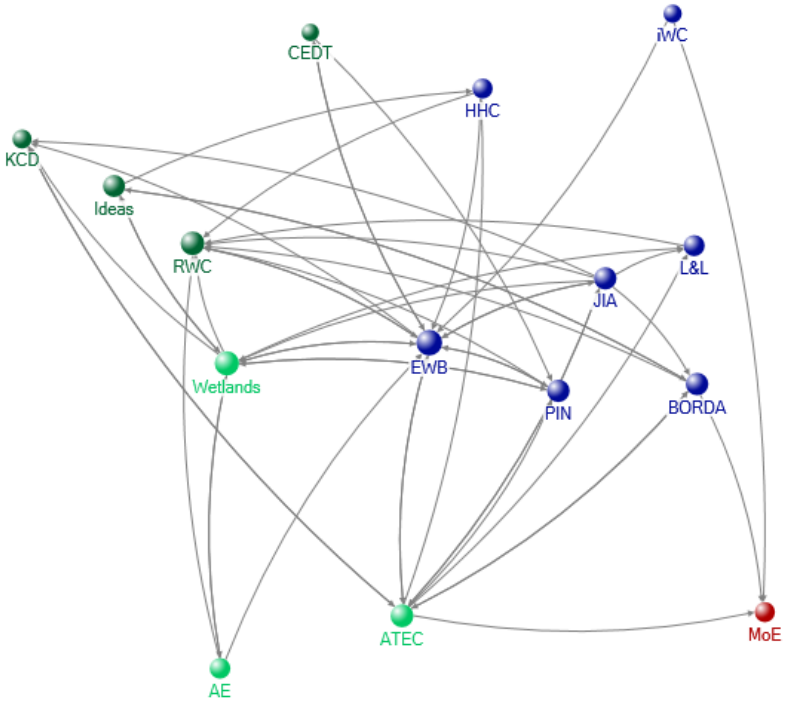
Figure 1-11: Network Map of Cluster 3 – Development Partners, Infrastructure, National Issues



Cluster 4 – NGOs, Mixed Activities

Cluster 4 has 15 members, an internal density of 0.24, and a high reciprocity with 34% of all internal relationships reported by both parties. NGOs and private sector actors are slightly more represented in this cluster than the overall network. The primary activities reported are mixed and include infrastructure, capacity building, marketing or selling RuSH products and services, and government decentralization.

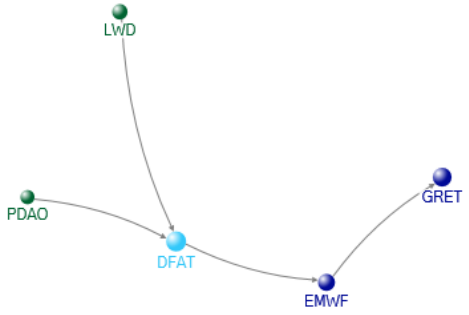
Figure 1-12: Network Map of Cluster 4 – NGOs, Mixed Activities



Cluster 5 – Small, Undefined

Cluster 5 has five members, an internal density of 0.20, and no internal relationships reported by both parties. While this cluster was identified by the network analysis software, it is small enough to be disregarded and is likely made up of the organizations that did not fit into the other clusters. It is nonetheless included in the metrics.

Figure 1-13: Network Map of Cluster 5 – Small, Undefined



Potential Considerations for the Network

The clustering algorithm appears to have identified some thematic groups that may not have been observed before. The network could find this useful as a point of departure for several discussions:

- *Are these clusters indicative of sub-groups that the network should be supporting? Or bridging?* With a network of about 100 members, it is difficult to have equitable participation and build consensus with the whole group at once. In addition to existing sub-groups (see the next section), it may be valuable to build on groups that have formed organically such as these clusters. This may increase opportunity to collaborate, share experience, and support organizations with similar approaches or programmatic focuses. In that case, it is also important to maintain efforts to bridge these clusters to ensure opportunities to learn from different approaches.
- *Looking at Cluster 2 in particular, is this structure of private sector communicating through NGO intermediaries effective?* Given the strong interest of the overall network to engage private sector and to have market-based options for sustainable RuSH products and services, this is an important question to address. The private sector is not well-connected, either internally or to the rest of the network, but this cluster implies that there is communication happening through others. Still, other structures or more intentional actions may be more effective.

Network Findings by Existing Thematic Group

The sector has formed several existing thematic groups that meet on a somewhat regular basis. Membership in those sub-groups are not official or by invitation; organizations self-select to participate. The ONA survey did not ask respondents to indicate their participation, but rather looked at attendance at group meetings over the months before and during the survey to identify which network members recently participated in each group. The network analysis specifically examined relationships within the RuSH Sub-Group, the Sanitation in Challenging Environments (SCE) Group, and the Fecal Sludge Management (FSM) Fan Club.

These self-selected affinity groups can shed some light on the potential for improved network coordination, communication, and confidence over time, and are a good contrast or comparison to clusters that were identified based on existing relationships alone. There has been an ebb and flow of other sub-groups in the past, including groups focused on CLTS, financing, and WASH in schools. The establishment of the RuSH Sub-Group helped replace a number of groups that were placing a high demand on people's time.

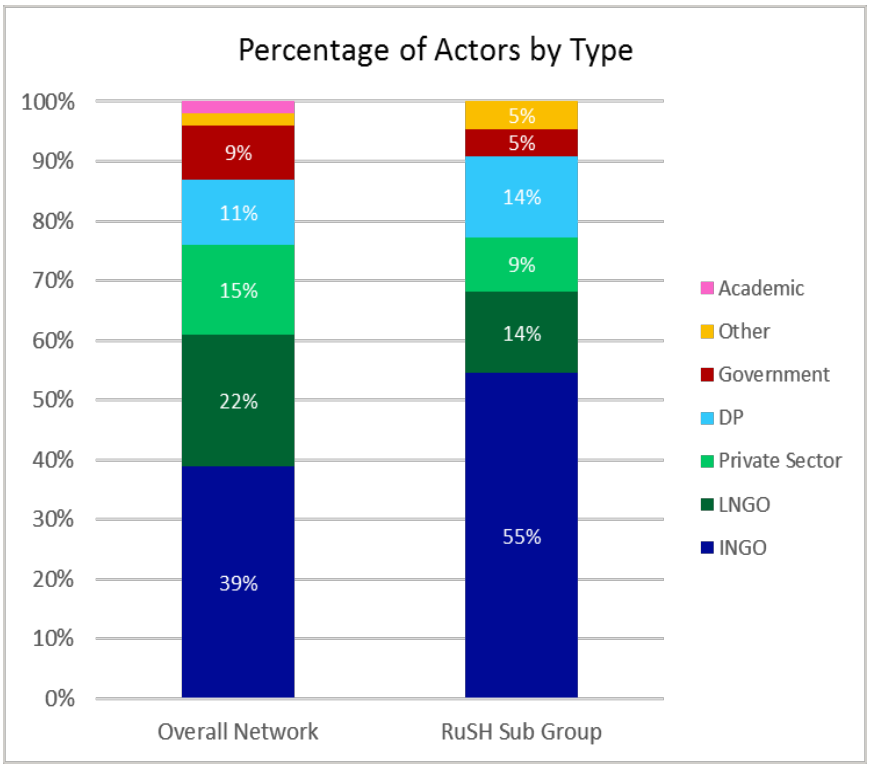
RuSH Sub-Group

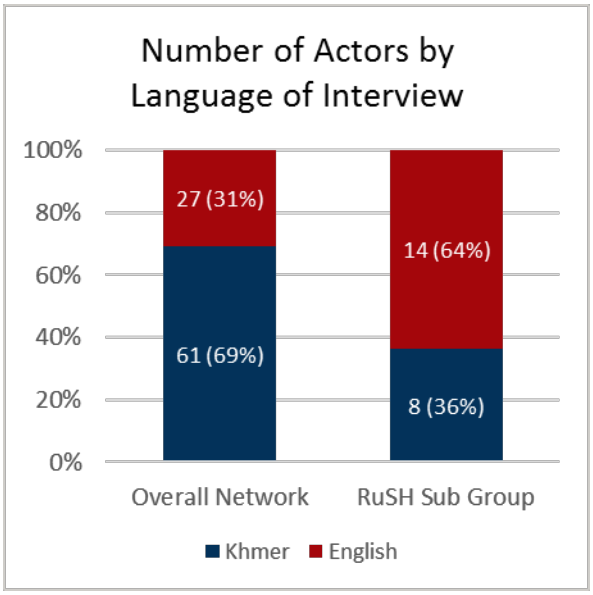
The RuSH Sub-Group is comprised of organizations, institutions, and government offices that meet regularly to share information and coordinate on sector planning. Based on attendance at meetings in the months before and during the ONA survey, 22 of the 88 network members participate in the RuSH Sub-Group.

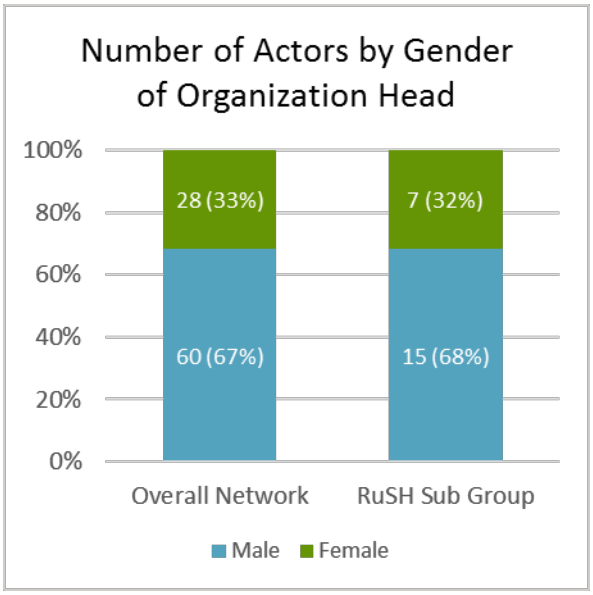
The composition of the group is more heavily weighted toward INGOs and development partners than the overall network with particularly low participation from LNGOs and private sector. The actors interviewed in English are also more highly represented in the group than in the overall network (64%

versus 31%), though the gender of the head of the organization is similar (32% versus 33% in the overall network).

Figure 1-14: Comparisons of Composition of RuSH Sub-Group to Overall Network

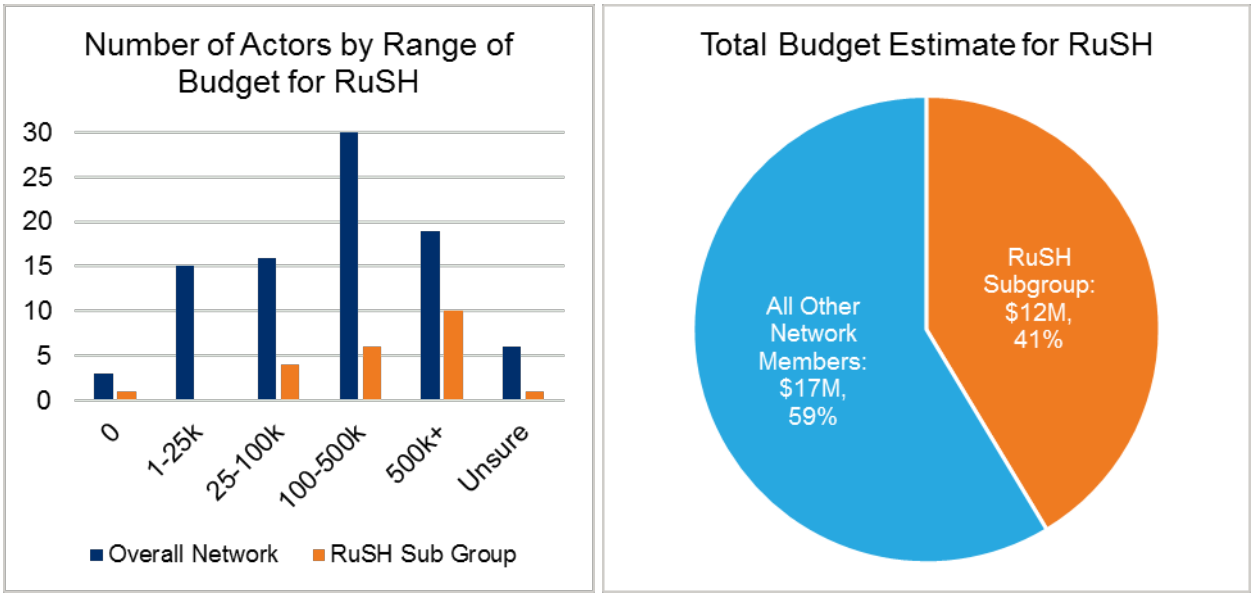






The ONA survey also asked respondents about their annual budget for RuSH. The RuSH is generally composed of actors with larger budgets for RuSH activities but is still missing a significant portion of the total RuSH funding in Cambodia.

Figure 1-15: Budget Comparison for RuSH Sub-Group and Overall Network



The current RuSH Sub-Group is very well-connected to one another and is well-positioned and central within the overall network. In the RuSH Sub-Group internal network, the density of 0.35 is significantly higher than the overall network, and 37% of all relationships within the group were reported by both parties. Fifteen of the 22 sub-group members are among the core group identified by the network analysis software, the sub-group members have a higher average betweenness centrality, and they are more desired as future connections.

Table 1-24: Network Metrics Comparison of Overall Network to RuSH Sub-Group Network

	Overall Network	RuSH Sub-Group Network
Size (# of Actors)	88	22 (25%)
Ties (# of Connections)	615	160 (26%)
Network Density	0.08	0.35
Reciprocal Relationships	26%	37%
Average Distance	2.02	1.49
Diameter (Max Distance)	4	2
Average Degree (Ties/Actor)	6.99	7.27

Figure 1-16: Network Map of RuSH Sub-Group

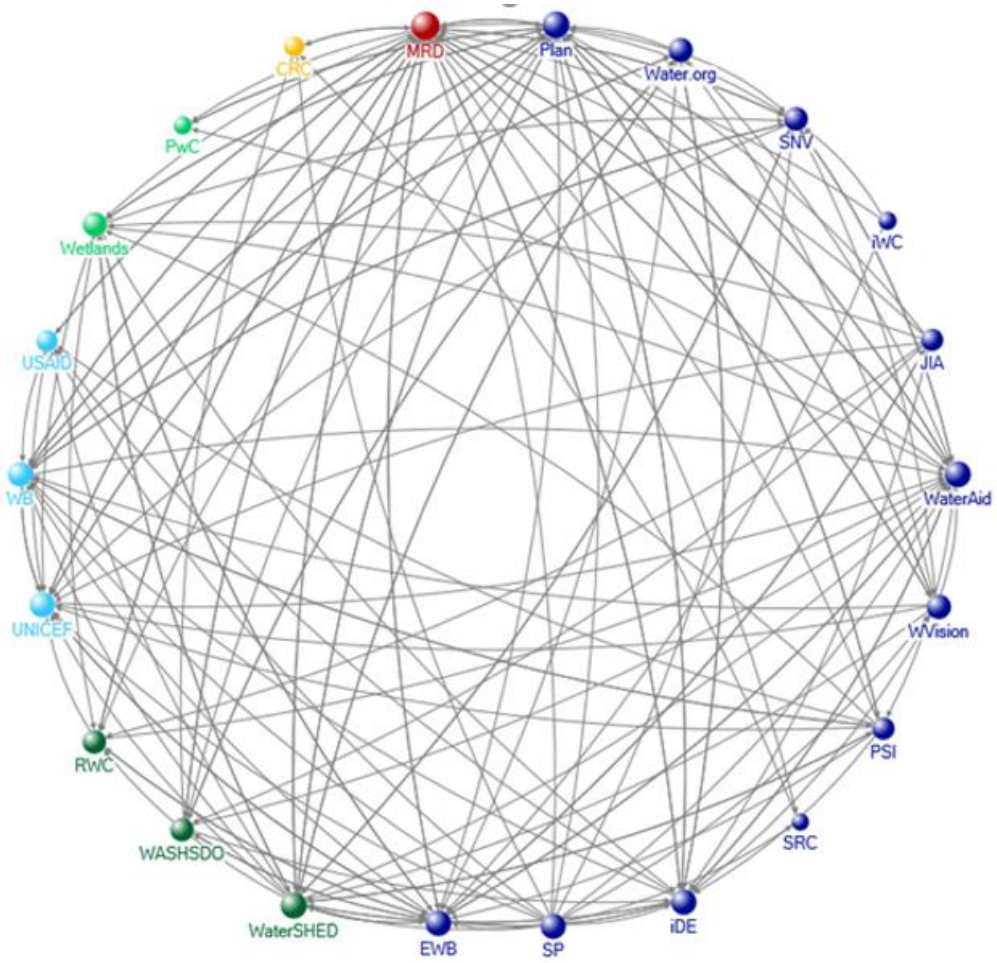


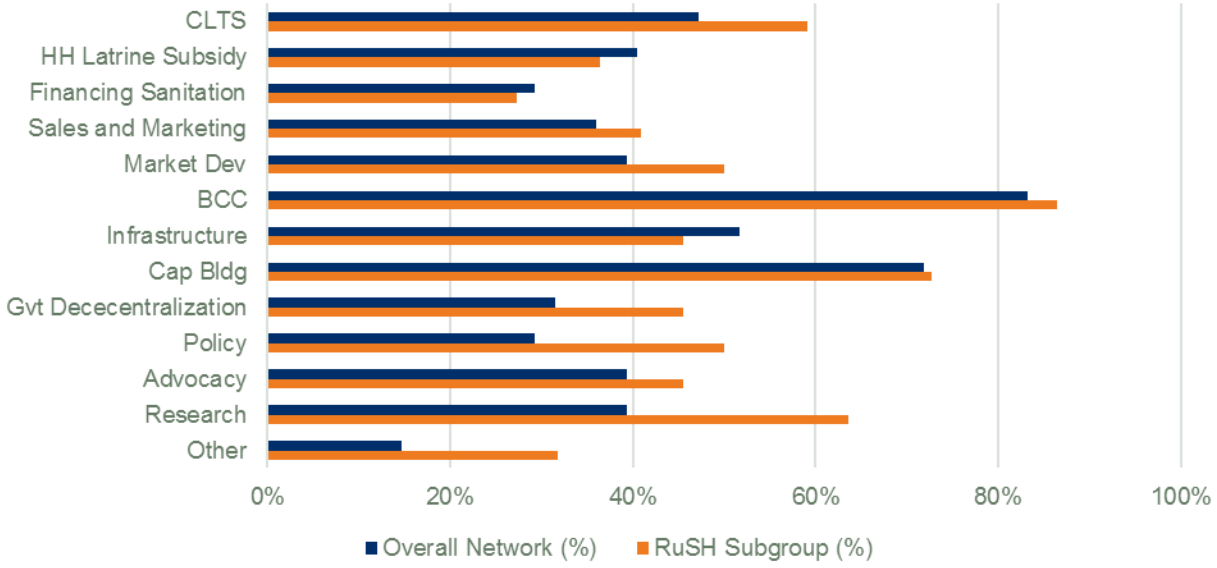
Table 1-25: Desired Ties, Core Membership, Betweenness Centrality, Confidence for RuSH Sub-Group

	Overall Network	RuSH Sub-Group
# of Actors in Core	19	15 (79%)
% of Sub-Group in Core Group		68%
Average Betweenness Centrality	44.3	137.5
Actors Named as Desired	61	19
% of Group Named as Desired	69%	86%

	Overall Network	RuSH Sub-Group
Total # of Times Named as Desired	245	104
Average # of Times Named as Desired[40]	2.8	4.7
Average Perceived Confidence Score	6.98	7.31

RuSH Sub-Group members are involved in every activity asked about in the survey. The largest numbers are involved in behavior change communications, capacity building, research, and CLTS. RuSH Sub-Group members are involved in more activities on average than the overall network (6.6 activities per RuSH Sub-Group actor versus 5.5 in the overall network).

Figure 1-17: Comparisons of Activities of RuSH Sub-Group to Overall Network



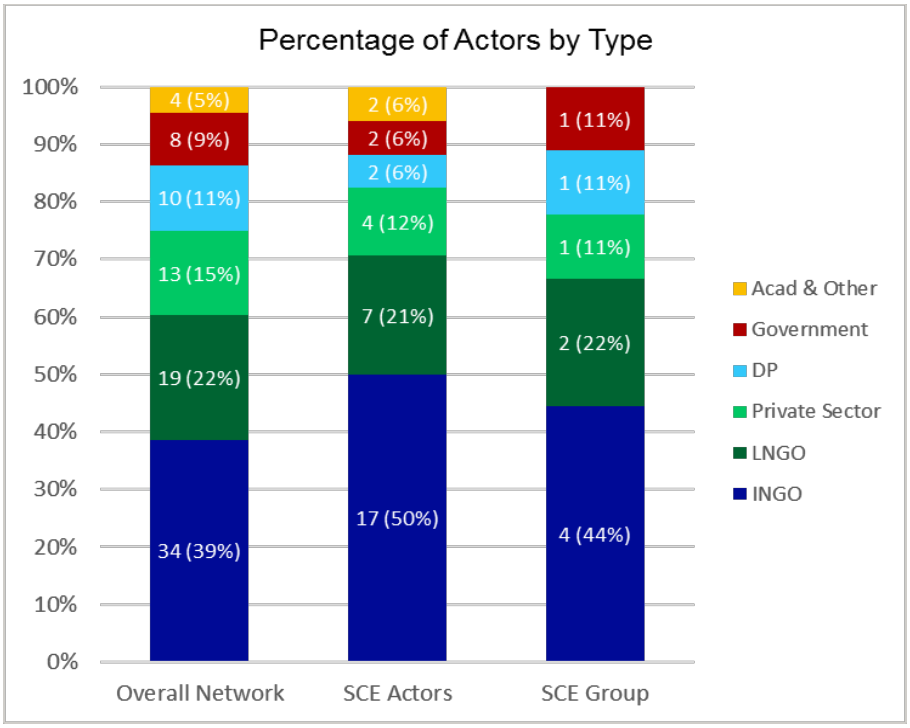
SCE Group

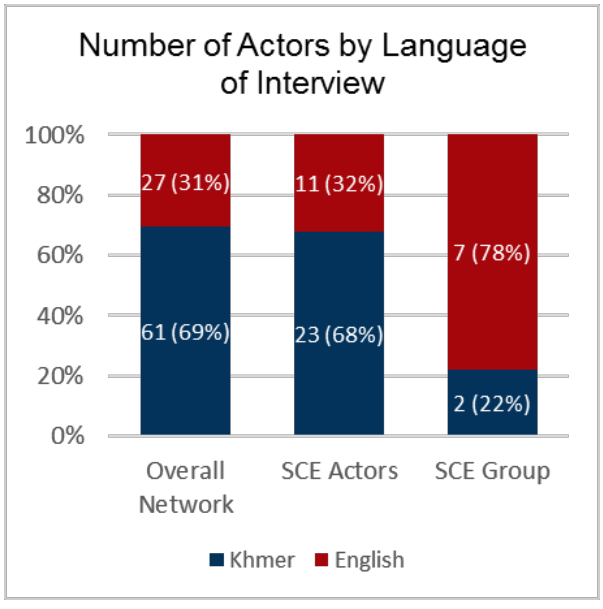
The SCE Group is a sub-set of the RuSH Sub-Group that is focused on the SCE thematic area. Based on attendance at meetings in the months before and during the ONA survey, nine members of the overall network of 88 members participate in the SCE Group. In the ONA survey, respondents were asked which populations the organization focuses on for RuSH activities, with challenging environments listed as one of the options. The analysis below compares the SCE Group members based on attendance at meetings (SCE Group) to the full set of survey respondents who indicated that they work on SCE (34 actors, SCE actors) and to the overall network as well.

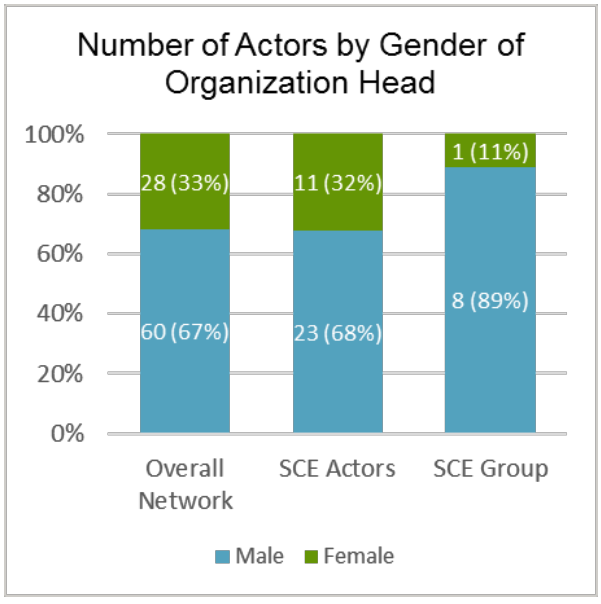
[40] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group

The composition of the SCE Group is relatively proportional to the full group of SCE actors and slightly more INGO-heavy than the overall network. The actors interviewed in English are also more highly represented in the group than in the full set of SCE actors or in the overall network (78% versus 32% among SCE actors and 31% in the overall network), and the SCE group has a higher proportion of organizations run by men than the SCE actors or the overall network (89% versus 68% in both the SCE actors and in the overall network).

Figure 1-18: Comparisons of Composition of SCE Group to SCE Actors and Overall Network

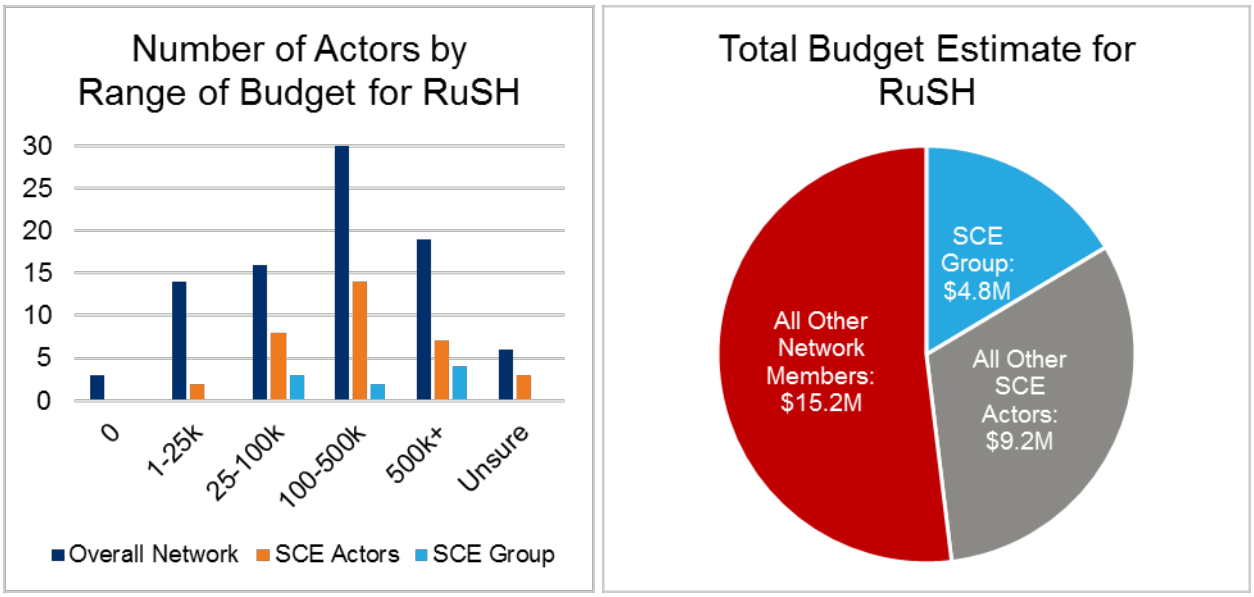






The SCE Group is a small set of actors, none of whom fall into the two lowest budget ranges. The SCE actors in the network are generally of a similar composition to the overall network in terms of budget range. Still, the SCE Group is missing a significant portion of the total RuSH funding for actors involved in SCE in Cambodia.

Figure 1-19: Comparisons of Budgets of SCE Group to SCE Actors and Overall Network



The SCE Group is a small but very densely connected sub-network (density of 0.67) and has a very high reciprocity with 55% of relationships reported by both parties. SCE actors are also better connected to one another than to the overall network with a higher reciprocity. However, there are four actors not connected to any others working in SCE. The SCE Group is also composed of actors who are highly central to the overall network.

Table 1-26: Comparison of Overall Network, SCE Actors in Network, SCE Group Network

	Overall Network	SCE Actors Network	SCE Group Network
Size (# of Actors)	88	34	9
Ties (# of Connections)	615	117	48
Network Density	0.08	0.10	0.67
Reciprocal Relationships	26%	35%	55%
Average Distance	2.02	2.17	1.01
Diameter (Max Distance)	4	5	2
Average Degree (Ties/Actor)	6.99	3.44	5.33

Figure 1-20: Network Maps of SCE Actors and SCE Group

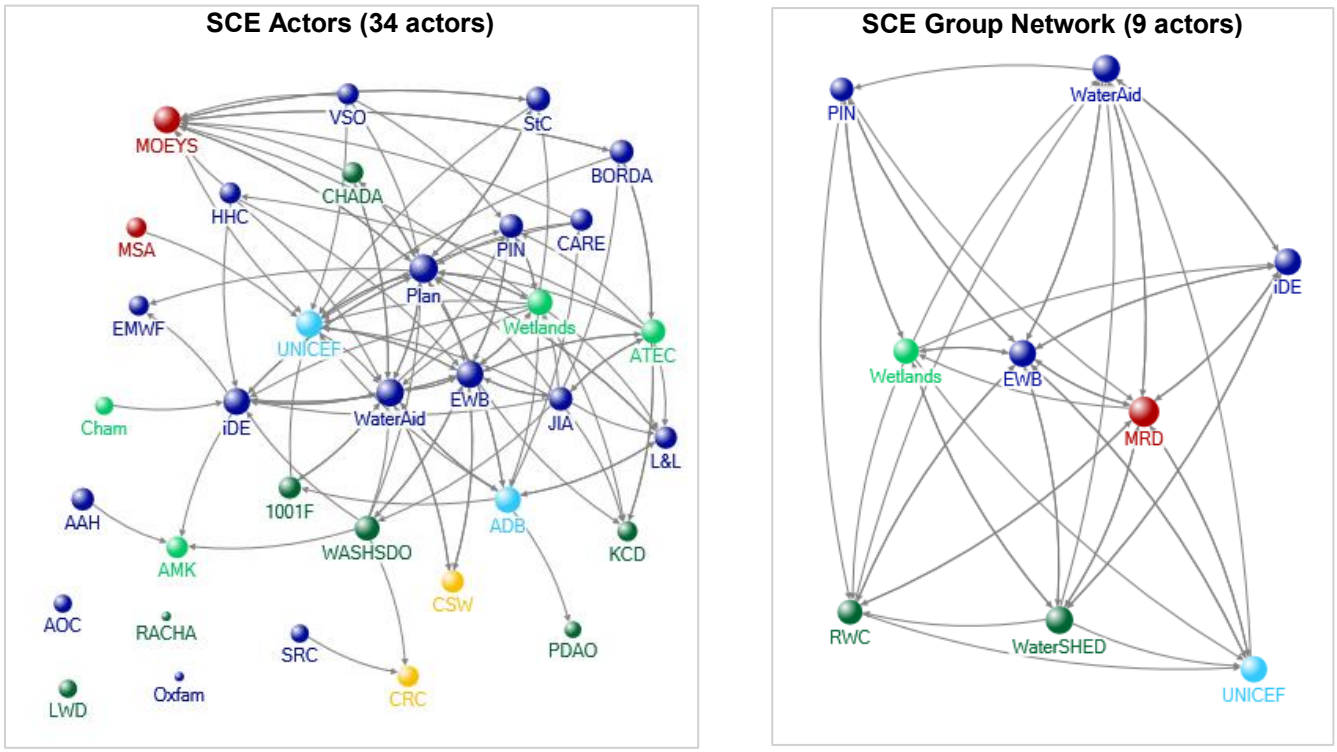


Table 1-27: Desired Ties, Core Membership, Betweenness Centrality, and Confidence for SCE Actors and Group

	Overall Network	SCE Actors	SCE Group
# of Actors in Core	19	9 (47%)	8 (42%)
% of Sub-Group in Core Group		27%	89%
Average Betweenness Centrality	44.3	33.8	275.8
Actors Named as Desired	61	25	8
% of Group Named as Desired	69%	74%	89%
Total # of Times Named as Desired	245	99	47
Average # of Times Named as Desired[41]	2.8	2.9	5.2
Average Perceived Confidence Score	6.98	7.56	7.20

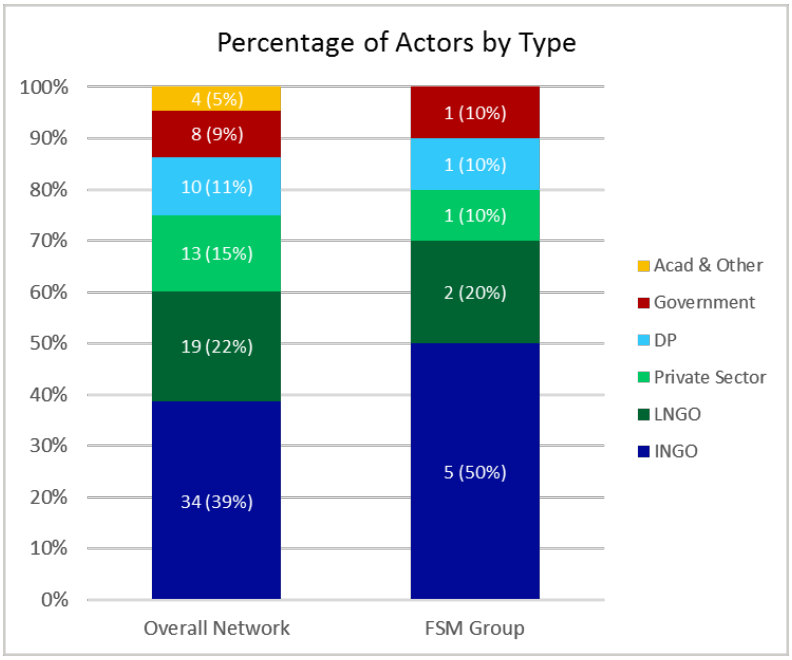
[41] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group.

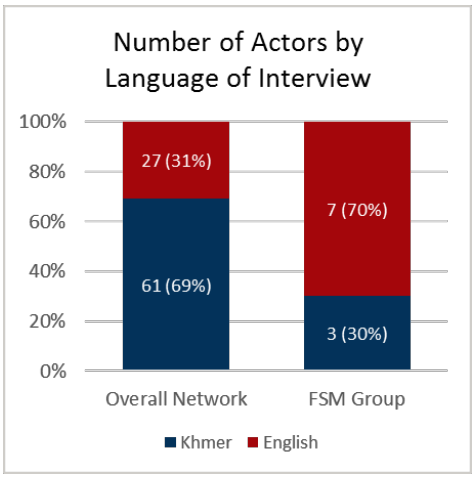
FSM Fan Club

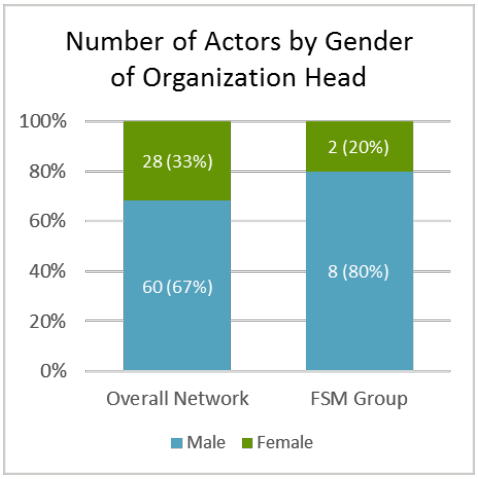
The FSM Fan Club is a sub-set of the RuSH Sub-Group that is focused on the FSM thematic area. Based on attendance at meetings in the months before and during the ONA survey, 10 members of the overall network of 88 members participate in the FSM group.

INGOs are slightly over-represented in the group's composition relative to the overall network. The actors interviewed in English are much more highly represented in the FSM Group than in the overall network (70% versus 31% in the overall network), and the FSM Group has a slightly higher proportion of male-run organizations than the overall network (80% versus 68% in the overall network).

Figure 1-21: Comparisons of Composition of FSM Group to Overall Network

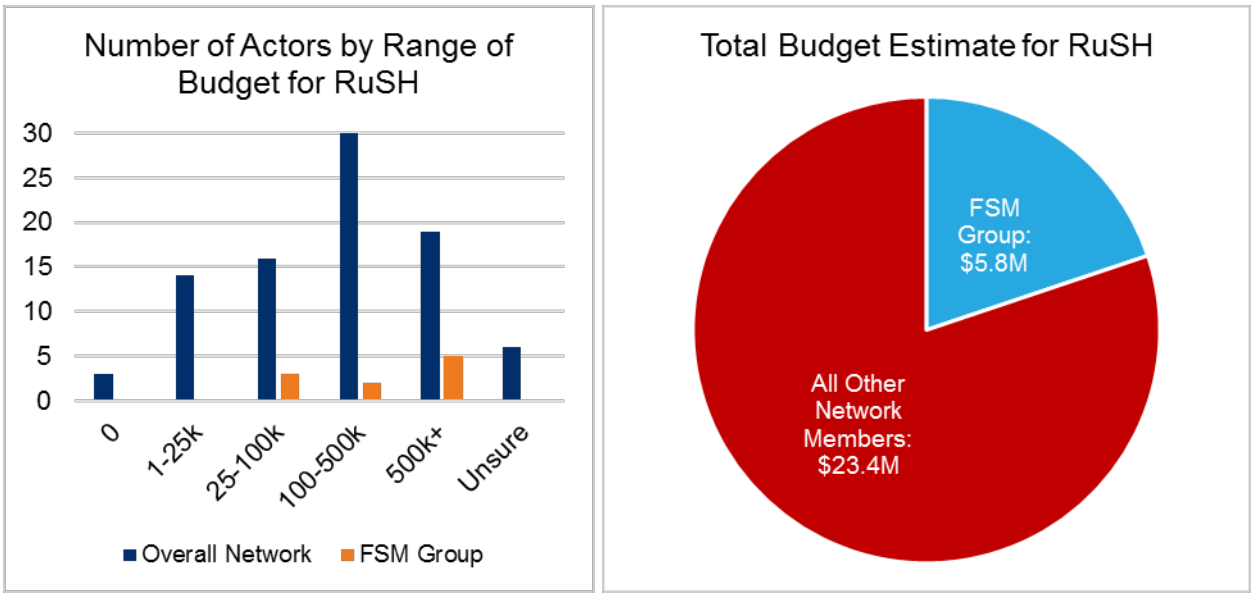






The FSM Group is a small set of actors, none of whom fall into the two lowest budget ranges.

Figure 1-22: Comparisons of Budget of FSM Group to Overall Network



The FSM Group is a small but very densely connected sub-network (density of 0.62) and has very high reciprocity with 56% of relationships reported by both parties. The FSM Group is also composed of actors who are highly central to the overall network.

Table 1-28: Network Metrics Comparison of Overall Network and the FSM Group Network

	Overall Network	FSM Group Network
Size (# of Actors)	88	10
Ties (# of Connections)	615	56
Network Density	0.08	0.62
Reciprocal Relationships	26%	56%
Average Distance	2.02	1.08
Diameter (Max Distance)	4	2
Average Degree (Ties/Actor)	6.99	5.60

Figure 1-23: Network Map of FSM Group (10 actors)

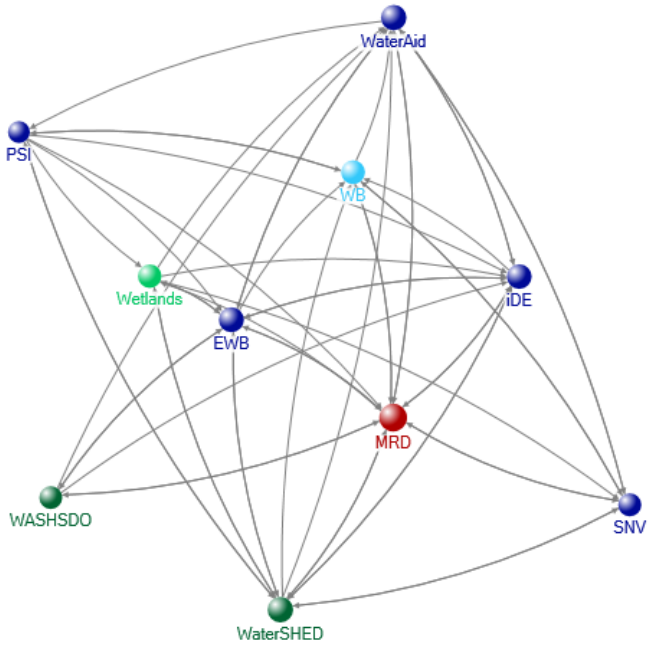


Table 1-29: Desired Ties, Core Membership, Betweenness Centrality, and Confidence for FSM Group

	Overall Network	FSM Group
# of Actors in Core	19	9 (47%)
% of Sub-Group in Core Group		90%
Avg Betweenness Centrality	44.3	240.2
Actors Named as Desired	61	8
% of Group Named as Desired	69%	80%
Total # of Times Named as Desired	245	52
Average # of Times Named as Desired[42]	2.8	5.2
Average Perceived Confidence Score	6.98	7.47

Potential Considerations for the Network

The existing sub-groups are important examples and learning opportunities for the overall network. They demonstrate the potential for the overall network to strengthen over time given that they have been coordinating and collaborating for longer already. As smaller affinity groups, they are also a

[42] Calculated for each group as the total number of times a member was named as a desired tie divided by the total number of members in the group

potential mechanism for increasing structured collaboration of the overall network. Some questions for consideration around these groups include:

- *Are these sub-groups a model to be replicated for other topics within the network?* As discussed above with clusters, a network of almost 100 members is difficult to manage equitably and to engage with the whole group at once. If these sub-groups are proving to be valuable mechanisms for coordination and collaboration, perhaps others should be formed around other thematic or interest topics.
- *Should these sub-groups be more representative of the overall network?* The sub-groups generally seem to over-represent INGOs and English-speaking participants and under-represent woman-run organizations and private sector actors (this is a general trend that is not true of all of the sub-groups). It may be valuable for the sub-groups to make a concerted effort to engage other members to improve representation. If that is of interest to the network, it is worth further understanding why those other organizations are not currently engaged.
- *Are the sub-group members more central due to their participation or are they participating because they are well-connected?* The network analysis is not able to determine the reasoning behind the higher centrality of sub-group members. This may be something the network itself can answer or seek to understand better. Perhaps the groups formed because well-connected organizations were already coordinating and established the platform in the process. Or perhaps the regular meetings for group members have improved coordination through increased communication opportunities.

Ego Analysis

Ego analysis examines the networks and centrality of individual actors within the overall network. Ego networks are an important component to understand the overall network and the position of actors within the network. Strong ties (redundant, reciprocal, dense) are important for building collective values, creating consensus and coordinating activities. Weak ties (unique, bridging, one-way) are critical for accessing new information and resources and creating change.

Communication Flow and Coordination

The following tables provide information on the actors with the largest ego networks, highest density (for ego networks of a size of five or greater), highest reciprocated relationships, and highest reach within two steps. These indicate organizations with the type of networks that allow for good communication flow and coordination.

Table 1-30: Actors with the Largest Ego Networks

Rank	Organization	Size of Ego Network	Organization Type
1	Ministry of Rural Development (MRD)	75	Government
2	Plan International	38	INGO

Rank	Organization	Size of Ego Network	Organization Type
3	WaterAid	34	INGO
4	WaterSHED	33	LNGO
5	Samaritan's Purse (SP)	32	INGO
6	Ministry of Education, Youth, and Sport (MOEYS)	30	Government
7	UNICEF	30	DP
8	iDE	28	INGO
9	Engineers Without Borders (EWB) Australia	25	INGO
10	Asian Development Bank (ADB)	24	DP

Table 1-31: Actors with the Highest Ego Network Density (Actors with an ego net size of five or greater)

Rank	Organization	Density	Size	Organization Type
1	Community Health and Development Action (CHADA)	0.77	6	LNGO
2	Khmer Community Development (KCD)	0.65	5	LNGO
3	Centre for Sustainable Water - Enrich Institute (CSW)	0.60	6	Other
3	East Meets West Foundation (EMWF)	0.60	5	INGO
5	Advanced Engineering Cambodia (AE)	0.59	8	PS
6	Sovann Phum	0.54	9	LNGO
7	VisionFund	0.54	8	PS
8	Population Services International or Population Services Khmer (PSI or PSK)	0.53	12	INGO
9	Royal University of Phnom Penh (RUPP)	0.52	10	Academic
10	AMK	0.50	7	PS
10	Muslim Aid Cambodia	0.50	5	INGO

Table 1-32: Actors with the Highest Reciprocity (Percentage of ties reported by both parties)

Rank	Organization	Reciprocity	Organization Type
1	Development for Partnership in Action (DPA)	100%	LNGO
1	World Renew	100%	INGO
3	Centre for Sustainable Water - Enrich Institute (CSW)	67%	Other
4	Engineers Without Borders (EWB) Australia	60%	INGO
5	Plan International	53%	INGO
6	BORDA	50%	INGO
7	WaterSHED	46%	LNGO
8	Water.org	44%	INGO
9	Ministry of Rural Development (MRD)	41%	Government
10	The Catholic Agency for Overseas Development (CAFOD)	40%	INGO
10	World Bank (WB)	40%	DP

Table 1-33: Actors with the Highest Two-Step Reach (Percentage that can be reached in two steps)

Rank	Organization	Two Step Reach %	Organization Type
1	Ministry of Rural Development (MRD)	100%	Government
2	World Bank (WB)	97.7%	DP
2	SNV Netherlands	97.7%	INGO
2	Wetlands Work! Ltd	97.7%	PS
2	RainWater Cambodia (RWC)	97.7%	LNGO
2	UNICEF	97.7%	DP
2	WaterAid	97.7%	INGO
2	Plan International	97.7%	INGO
2	Samaritan's Purse (SP)	97.7%	INGO
10	Advanced Engineering Cambodia (AE)	96.55%	PS
10	Council for Agricultural and Rural Development (CARD)	96.55%	Government
10	WaterSHED Ventures	96.55%	PS

Rank	Organization	Two Step Reach %	Organization Type
10	World Vision Cambodia	96.55%	INGO
10	Australian Department of Foreign Affairs and Trade (DFAT)	96.55%	DP
10	Engineers Without Borders (EWB) Australia	96.55%	INGO
10	Asian Development Bank (ADB)	96.55%	DP
10	iDE	96.55%	INGO
10	WaterSHED	96.55%	LNGO

Centrality and Leadership

The following tables provide information on the actors with high betweenness, in-degree, number of times named as a desired connection, perceived confidence score, and membership in the core group as identified by the network analysis software. These indicate actors that are central to the network and seen as leaders or advisors by the network.

Table 1-34: Actors with the Highest Betweenness Centrality

Rank	Organization	Betweenness Centrality	Organization Type
1	Ministry of Rural Development (MRD)	1647	Government
2	WaterSHED	238	LNGO
3	Ministry of Education, Youth, and Sport (MOEYS)	175	Government
4	Plan International	171	INGO
5	Samaritan's Purse (SP)	171	INGO
6	WaterAid	163	INGO
7	iDE	158	INGO
8	Asian Development Bank (ADB)	105	DP
9	National Center for Health Promotion (NCHP)	95	Government
10	UNICEF	87	DP

Table 1-35: Actors with the Highest In-Degree Centrality (Times named by others as a connection)

Rank	Organization	In-Degree	Organization Type
1	Ministry of Rural Development (MRD)	57	Government
2	Plan International	30	INGO
3	WaterAid	30	INGO
4	UNICEF	29	DP
5	Engineers Without Borders (EWB) Australia	22	INGO
6	WaterSHED	22	LNGO
7	iDE	21	INGO
8	Ministry of Education, Youth, and Sport (MOEYS)	21	Government
9	World Bank (WB)	19	DP
10	RainWater Cambodia (RWC)	17	LNGO

Table 1-36: Actors Most Named as a Desired Connection

Rank	Organization	Times Named as a Desired Connection	Organization Type
1	Asian Development Bank (ADB)	15	DP
2	WaterSHED	13	LNGO
2	World Bank (WB)	13	DP
2	US Agency for International Development (USAID)	13	DP
5	World Vision Cambodia	12	INGO
6	UNICEF	11	DP
7	World Health Organization (WHO)	10	DP
8	iDE	8	INGO
8	GIZ	8	DP
8	1001 Fontaines Teuk Sa'at	8	LNGO
8	Japan International Cooperation Agency (JICA)	8	DP

Table 1-37: Actors with the Highest Average Perceived Confidence Score

Rank	Organization	Average Perceived Confidence Score	Organization Type
1	The Catholic Agency for Overseas Development (CAFOD)	9.00	INGO
1	Johanniter International Association (JIA)	9.00	INGO
1	Ideas at Work	9.00	LNGO
4	Centre for Sustainable Water - Enrich Institute (CSW)	8.75	Other
5	WaterSHED Ventures	8.50	PS
6	Khmer Community Development (KCD)	8.33	LNGO
7	WaterAid	8.17	INGO
8	ATEC*International	8.08	PS
9	Habitat for Humanity Cambodia	8.00	INGO
9	Development for Partnership in Action (DPA)	8.00	LNGO
11	Engineers Without Borders (EWB) Australia	7.94	INGO
12	World Bank (WB)	7.93	DP
13	RainWater Cambodia (RWC)	7.91	LNGO
14	Australian Department of Foreign Affairs and Trade (DFAT)	7.83	DP
15	UNICEF	7.81	DP
16	BORDA	7.80	INGO
17	WASH Skills Development Organization (WASH SDO)	7.79	LNGO
18	WaterSHED	7.73	LNGO
19	Group de Recherces et d'Echanges Technologiques (GRET)	7.70	INGO
20	Live and Learn Environmental Education Cambodia	7.68	INGO
21	Clear Cambodia	7.67	LNGO
22	Plan International	7.66	INGO
23	Ministry of Rural Development (MRD)	7.56	Government
24	Water.org	7.50	INGO
24	Cambodia Global Action CHE Program	7.50	LNGO

Rank	Organization	Average Perceived Confidence Score	Organization Type
24	Swiss Red Cross (SRC)	7.50	INGO

Table 1-38: Actors in the Core Group (Identified by the network analysis software)

Organization	Ego Network Size	Betweenness Centrality	Organization Type
Ministry of Rural Development (MRD)	75	1647.243	Government
Plan International	38	171.189	INGO
WaterAid	34	163.161	INGO
WaterSHED	33	238.985	LNGO
Samaritan's Purse (SP)	32	171.133	INGO
UNICEF	30	87.821	DP
Ministry of Education, Youth, and Sport (MOEYS)	30	175.253	Government
iDE	28	158.274	INGO
Engineers Without Borders (EWB) Australia	25	78.286	INGO
Asian Development Bank (ADB)	24	105.121	DP
World Vision Cambodia	23	48.116	INGO
World Bank (WB)	20	31.311	DP
RainWater Cambodia (RWC)	19	61.998	LNGO
Wetlands Work! Ltd	19	23.388	PS
Institute of Technology Cambodia (ITC)	19	60.282	Academic
Water.org	18	44.703	INGO
GIZ	18	46.273	DP
SNV Netherlands	17	18.88	INGO
WASH Skills Development Organization (WASH SDO)	16	36.184	LNGO

Figure 1-24: Network Map Showing Top Ten Actors Ranked by EgoNet Size

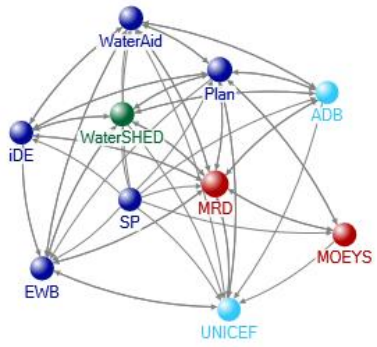


Figure 1-25: Network Map Showing Top Eleven Actors Ranked by EgoNet Density (Actors with an EgoNet size of five or greater)

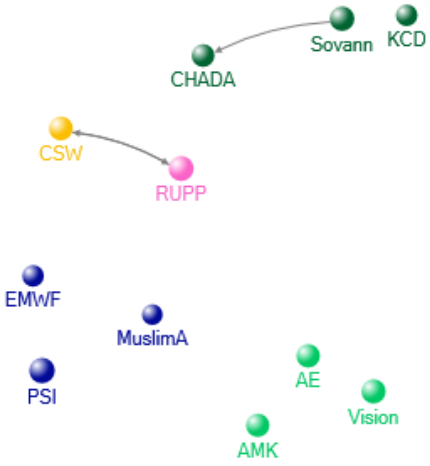


Figure 1-26: Network Map Showing Top 11 Actors Ranked by Reciprocity

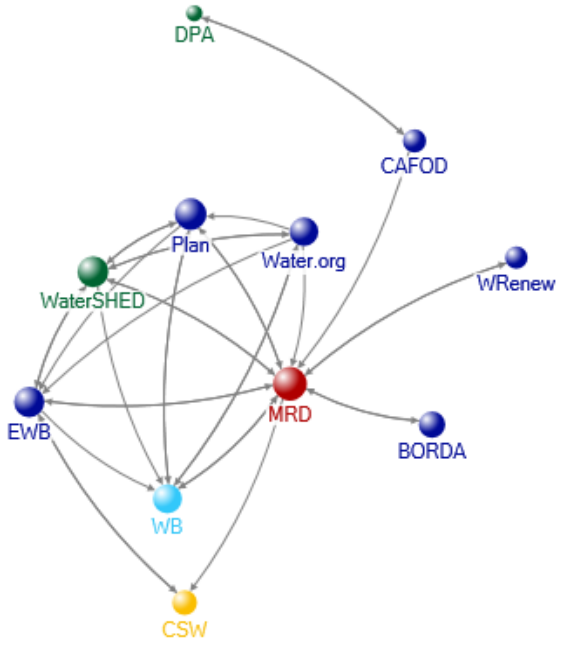


Figure 1-27: Network Map Showing Top 18 Actors Ranked by Two-Step Reach Percentage

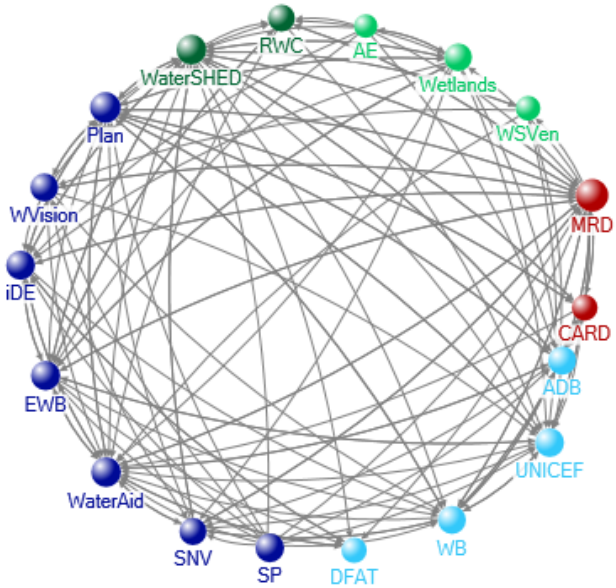


Figure 1-28: Network Map Showing Top 10 Actors Ranked by Betweenness Centrality

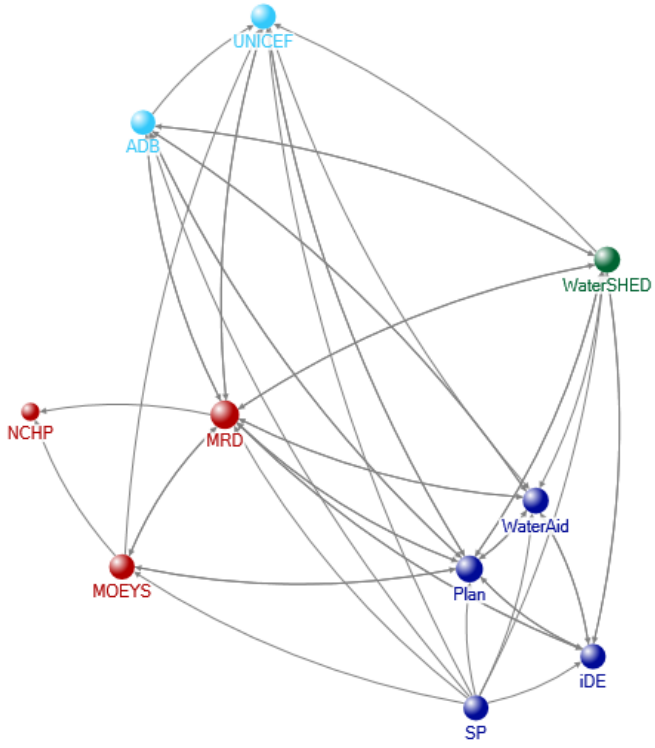


Figure 1-29: Network Map Showing Top 10 Actors Ranked by In-Degree

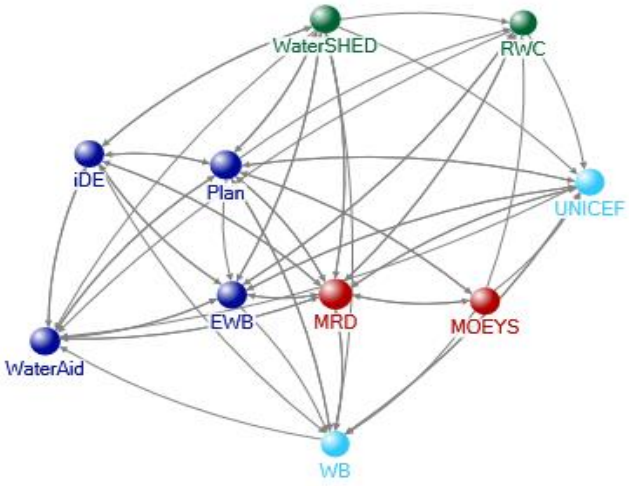


Figure 1-30: Network Map Showing Top 11 Actors Ranked by Times Named as a Desired Connection

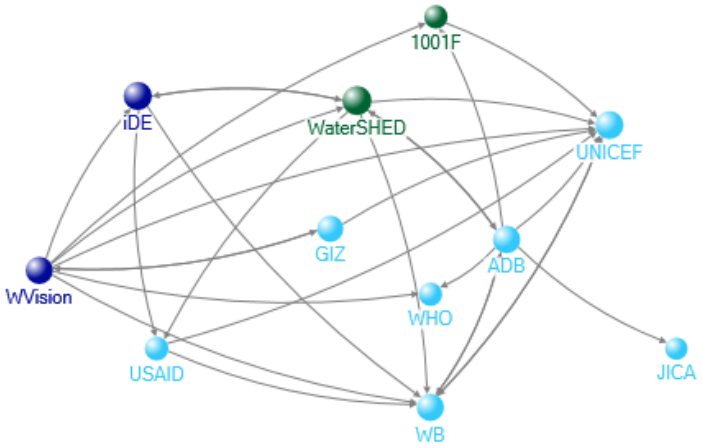


Figure 1-31: Network Map Showing Top 26 Actors Average Perceived Confidence Score

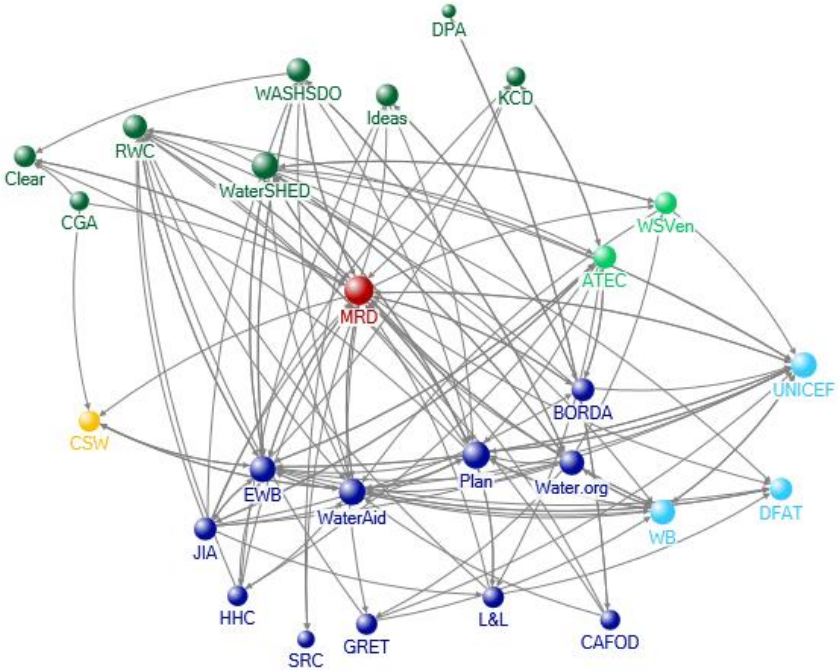
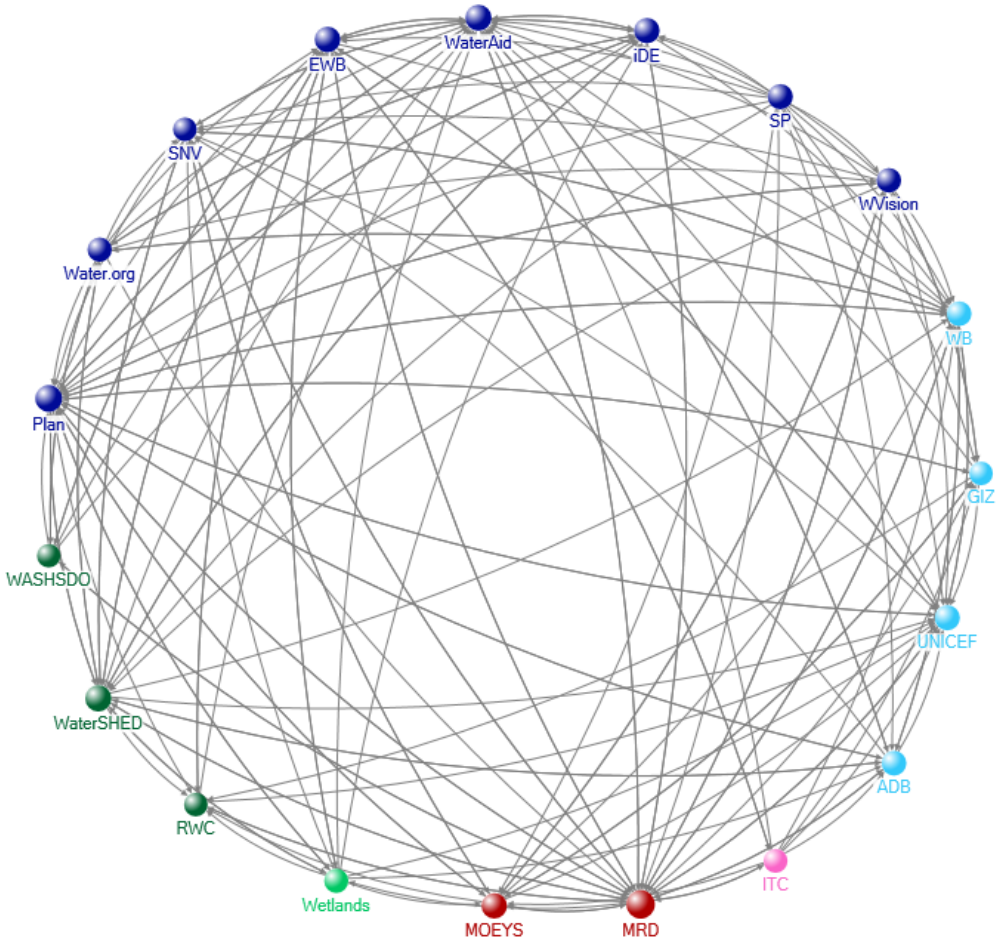


Figure 1-32: Network Map Showing Members of the Core Group Identified by UCINET Software



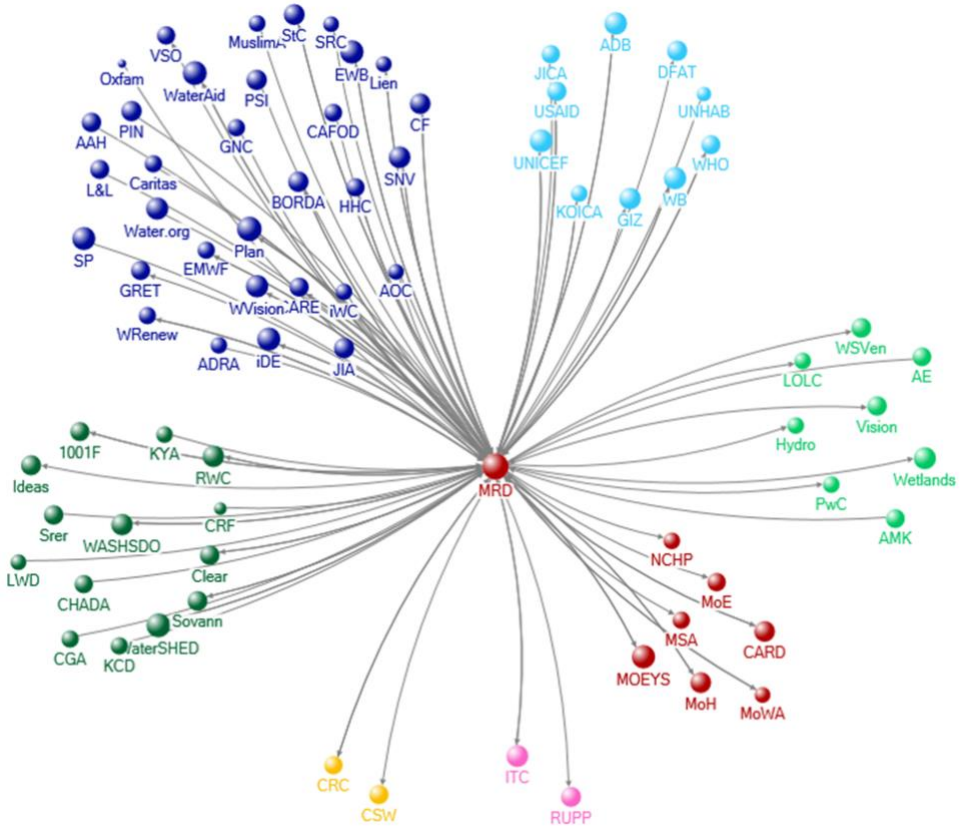
Ministry of Rural Development

MRD is highly central to the network with twice as many connections as the next most connected actor and a betweenness centrality of almost seven times the next highest score. It reaches every actor in the network within two steps. This connectivity brings great opportunity for communication flow and coordination to the network but also poses a potential risk of a change in MRD's involvement or a shift in priorities. Examining the network without MRD, average ties per actor decreases significantly and distance increases. One actor would become disconnected from the network as its only connections was to MRD. While MRD represents a very large number of connections, the network appears to have some resilience and redundancy of communication flows.

Table 1-39: Network Metrics Comparison of Overall Network and the Network Without MRD

	Overall Network	Network without MRD
Size (# of Actors)	88	87
Ties (# of Connections)	615	509
Network Density	0.08	0.07
Reciprocal Relationships	26%	24%
Average Distance	2.02	2.27
Diameter (Max Distance)	4	5
Average Degree (Ties/Actor)	6.99	5.85

Figure 1-33: Ego Network Map of MRD



Potential Considerations for the Network

Understanding the ego networks of individual actors can support the collective action goals for the network and the sector overall. There are a number of potential ways to interpret and use this information:

- *Who is crucial to or can support improved communication flow, coordination, and collaboration within the sector?* Well-connected actors that can reach the whole network within a few steps are generally in an advantageous position for improving communications. As the collective action network continues to work to strengthen the network, and to align actors toward a common agenda, these are the actors that can facilitate outreach.
- *Who are seen as leaders or advisors in the network?* Actors with high centrality, in-degree, desired connections, or perceived confidence may be especially important for the collective action network. These are the actors that others in the network look to for leadership, advice, and examples (and resources in this case). This will be important to consider in engaging members in the network and in establishing or strengthening sub-groups to make progress on specific tasks or themes.
- *What is the role of government and specifically MRD in leading this group?* The analysis shows that MRD is extremely central in the network but does not explain the reason for that centrality. It may be due to its authority in the sector or to its leadership. This may also indicate that MRD is under a significant burden to deliver and lead, which could suggest that coordination and delegation to other network members would be valuable. It is also important to consider how the network can benefit most from MRD's centrality to strengthen communications in the sector.

Annex 2: Constituent-Driven Systems Analysis

The Constituent-Driven Systems Analysis (CDSA) was conducted based on examining the responses to five open-ended questions at the end of each stakeholder interview. The analysis is divided into two sections. The Factor Analysis section covers observations and patterns from the key enabling and inhibiting factors that arose based on the interviews. The System Map section explains the process and observations in creating a visualization that incorporates inter-dependencies among the key factors.

Factor Analysis

Factor analysis was conducted on responses to the open-ended interview questions about success for the sector. Each interview was transcribed (and translated into English if it was originally conducted in Khmer). The analysis of the transcripts identified common phrases and themes based on the way respondents answered the questions. It is important to reiterate that these phrases and themes were not pre-determined by the research team. Each response was then coded according to whether the respondent referenced the phrases and themes emerging from the full set of data. The factor analysis examines patterns in these codes (or factors).

Respondents were asked five open-ended questions about (1) their vision of success for the sector, (2) the key factors necessary to achieve the sector vision, (3) the factors that would make the most impact if the sector invested triple its current effort in them, (4) the challenges preventing success, and (5) the areas that would most benefit from collaboration. This chapter of the report is organized by question, analyzing the responses to each one in turn. The final section examines patterns across the questions.

Analysis of Factor Question 1

Question 1: *What does success look like for the RuSH sector by 2025?*

Purpose of Question 1: The purpose of Question 1 was to establish what the respondents envisioned as a successful sector. It also served as a means of laying out in broad terms possible factors present in the sector, and to understand the alignment of the vision of sector actors with the national vision set in the National Action Plan.

Question 1 responses were coded and analyzed against two sets of factors. The first set is a list of 21 organically identified codes based on what respondents said during their answer to the question. The second set is a list of 25 pre-determined codes that are based on the strategic objectives and sub-objectives from the National Action Plan.

Using the list of organic codes to make a word cloud demonstrating the frequency of these codes gives a quick indication of what respondents most commonly associated with the vision of the RuSH sector in 2025. The most prominent elements are "sanitation access," "coordination and collaboration," "clean water access," and "hygiene practices" while lesser mentioned were elements related to "affordable," "sanitation safely managed," and "economic political context." These results seem to indicate that access

issues and collaboration and coordination are more top of mind than ongoing management of the sector.

Figure 2-1: Word Cloud for Vision of the RuSH Sector in 2025

This impression is reinforced when the codes related to the strategic objectives and sub-objectives are analyzed. If we remove the strategic objective for water because it falls outside of the RuSH sector mandate; look just at the strategic objectives for sanitation, hygiene, sustainable services, and sector financing; and equate sanitation with access, hygiene with behavior change, and sustainable services and sector financing with sustainability, then it becomes clear network members put greater focus on access (sanitation), a lesser focus on behavior change (hygiene), and the least attention to sustainability (sustainable services and sector financing). Across all organization types, sanitation was most frequently referenced with 75% of all organizations mentioning it, and a relatively narrow range of 60% to 80% of organization types mentioning it. Hygiene was mentioned by 60% of all organizations, with consensus across most organization types (60% to 70% of each type mentioned it, with the exception of private sector, but only 23% of private sector actors included hygiene as part of the vision for success). The two sustainability-oriented strategic objectives were only named by 10% and 14% of all organizations. It is worth noting that NGOs were more likely to mention sector financing and development partners and LNGOs were more likely to mention sustainable services.

The strong focus on providing or acquiring access to sanitation is understandable since access is an essential building block to the sector. At the same time building a sustainable sector demands upfront investment, planning and capacity building.

Figure 2-2: Percent of All Organizations Mentioning the Four Strategic Objectives

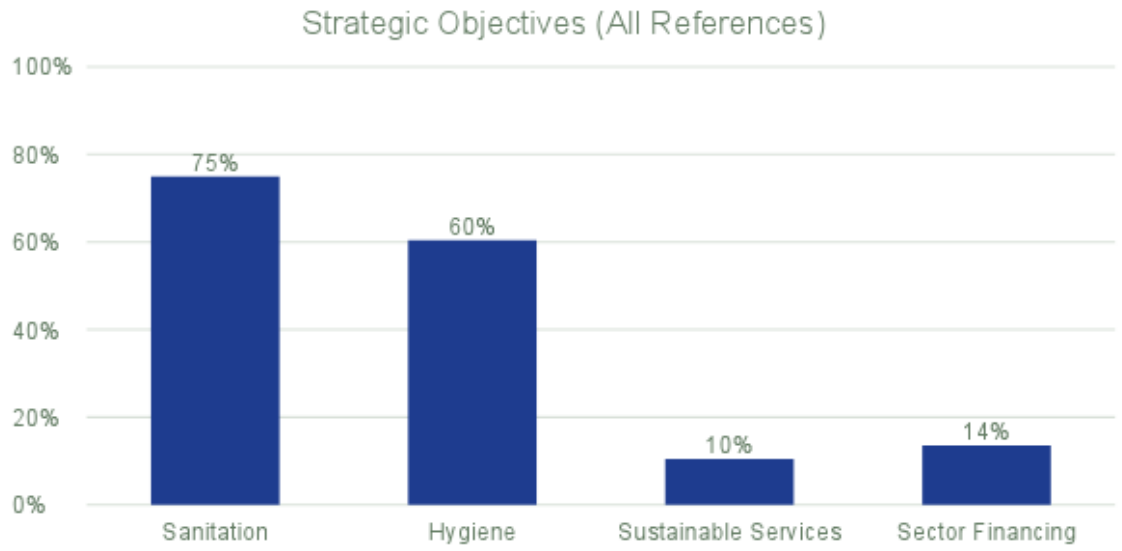
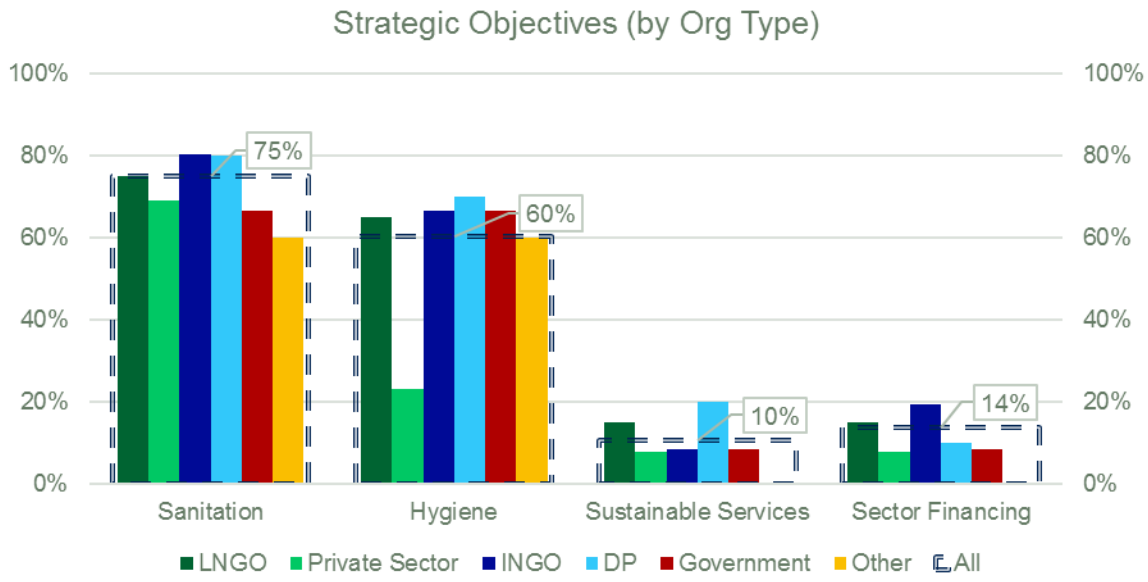
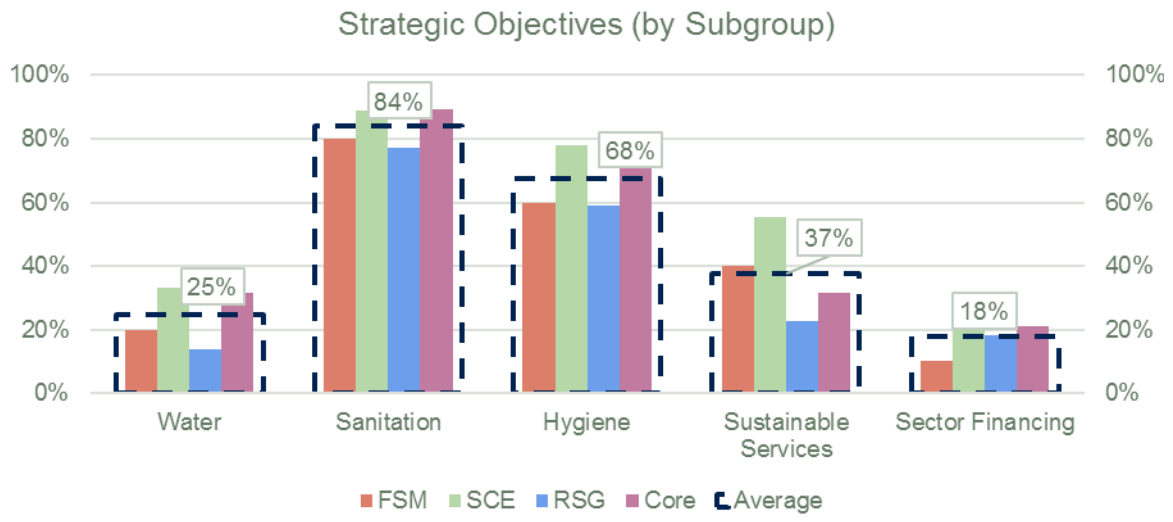


Figure 2-3: Percent of Organizations Mentioning the Four Strategic Objectives by Organization Type



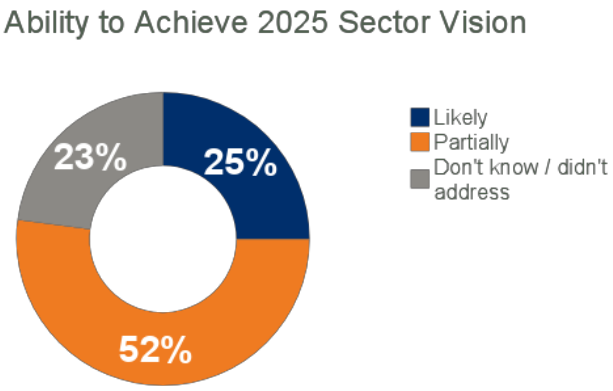
As with the network analysis, some of the factor analyses examine how the existing sector sub-groups responded to questions. The sub-groups examined are the RuSH Sub-Group (n=22), the SCE Group (n=9), and the FSM Fan Club (n=10). Additionally, the core group as identified by the network analysis software is compared. While the bias toward access over sustainability is reflected in the sub-groups, as shown in Figure 2-4, these groups were more than twice as likely to name sustainable services than the overall network was.

Figure 2-4: Percent of Organizations Mentioning the Four Strategic Objectives by Sub-Group



One of the most interesting findings to emerge from Question 1 responses was how likely the respondent organizations thought the 2025 RuSH Sector Vision could be achieved in the time frame and under current circumstances. Interviewers did not ask this question; many respondents simply expressed their opinion. Therefore, we added three additional codes, "likely" (belief that the goal will be met), "partially" (belief the vision will only be partially met or not met), and "don't know or didn't address" (respondents who did not give an opinion or only expressed that they did not know). Overall, 77% of respondents expressed an opinion, one-quarter of all respondents expressed confidence that the 2025 Sector Vision could be achieved, while more than half of all respondents expressed doubt that it could be achieved or only partially achieved.

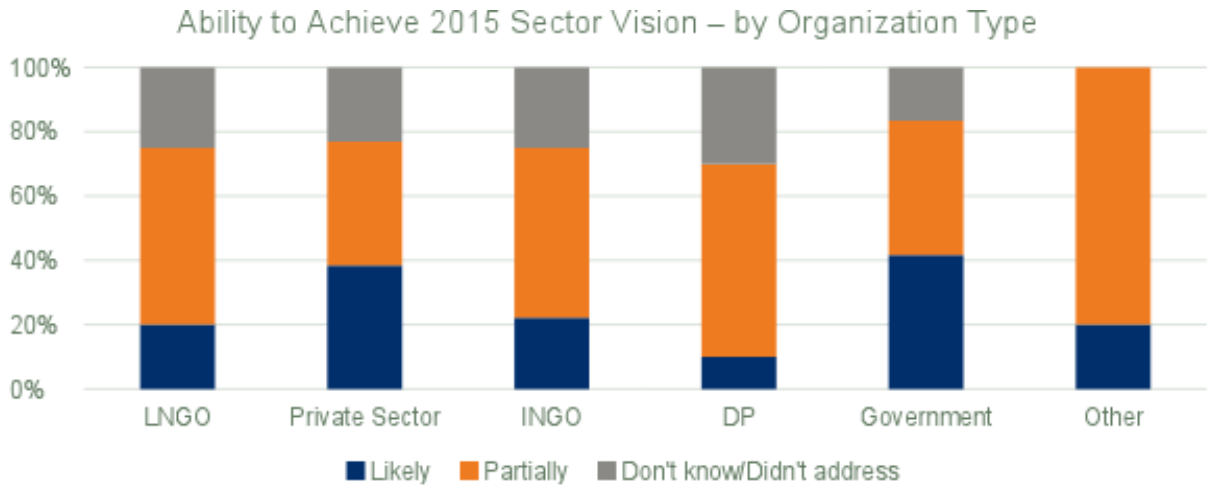
Figure 2-5: Respondents Belief in the Likelihood of Achieving the Sector Vision



When looking at how different organization types tended to respond, some interesting trends emerge. The most optimistic group were government entities that expressed almost equal parts "likely" and "partially" whereas, development partners expressed doubt at a significantly higher rate as shown in

orange in Figure 2-6. Similarly, LNGOs and INGOs expressed similar rates of confidence and doubt while the private sector entities were more similar to the government in their responses.

Figure 2-6: Belief in the Likelihood of Achieving the Sector Vision by Organization Type



Potential Considerations for the Network

Two key takeaways from the analysis of Question 1 raise some considerations for the network to discuss:

- *Is greater emphasis on sustainability an important priority for the sector?* Historically access has been more important in Cambodia, but great progress has been made in recent years to emphasize sustainability. Sustainability is a component of the national vision and will require a concerted effort. The results of the analysis indicate that in general organizations are focusing more on access and behavior change than sustainability. There is potential that organizations engaged in the existing sector working sub-groups or highly connected in the network are more likely to include sustainability in their vision.
- *What might encourage actors in the sector to believe more in the likelihood of achieving the sector vision?* A significant portion of respondent organizations shared their opinion that the vision will be partially met or not met. This does raise the question of whether such a goal is useful when such large percentages do not think it is realistic. It may also be worth investigating whether this is an indication of organizations that are pessimistic, which could dampen efforts in the RuSH sector, or an indication of well-informed, realistic optimists who will keep working their hardest to achieve as much of the vision as possible.

Analysis of Factor Question 2

Question 2: *Based on the Government of Cambodia's sector vision for RuSH, what are all the things that need to happen in order to achieve that vision?*

Purpose of Question 2: The purpose of Question 2 was to have network members identify a comprehensive set of factors that they deem necessary to achieve the sector vision.

As shown in Figure 2-7, the four most frequently mentioned factors were collaboration mechanism (63% of respondents), government involvement (48%), financial resources (40%), and human resources or capacity (31%), with prioritizing RuSH and implementing strategic plan (26%) tied in fifth place. It is striking how many respondents cited collaboration as critical above all other factors and that the role of government was mentioned more often than financial resources. It is also important to note which factors were mentioned the least frequently. These were improved infrastructure (6%), challenging environments (7%), waste management (8%), maintenance and repair (10%), toilet access (11%), and income generating opportunities (13%). So, while access was overwhelmingly referenced in Question 1, respondents seemed to prioritize more strategic, cross-cutting factors for success and many of the factors related to access are among the least mentioned. That said, sustainability issues such as maintenance, waste management, monitoring tools, and income generation opportunities are in the lower third of the ranking while factors such as behavior change and hygiene practices are in the mid-range.

Figure 2-7: Percentage of All Organizations Referencing Each Success Factors

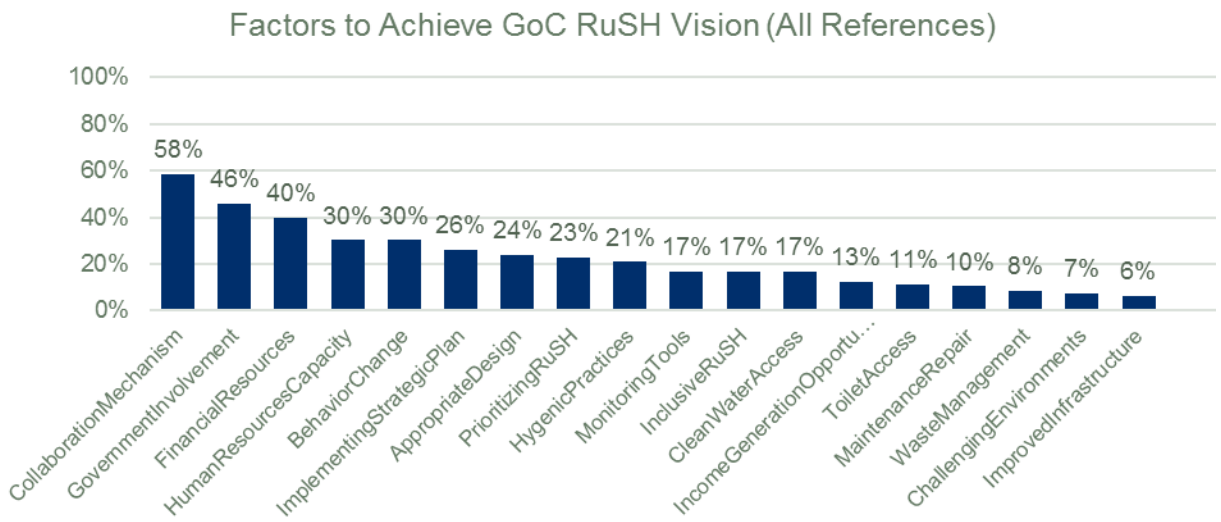
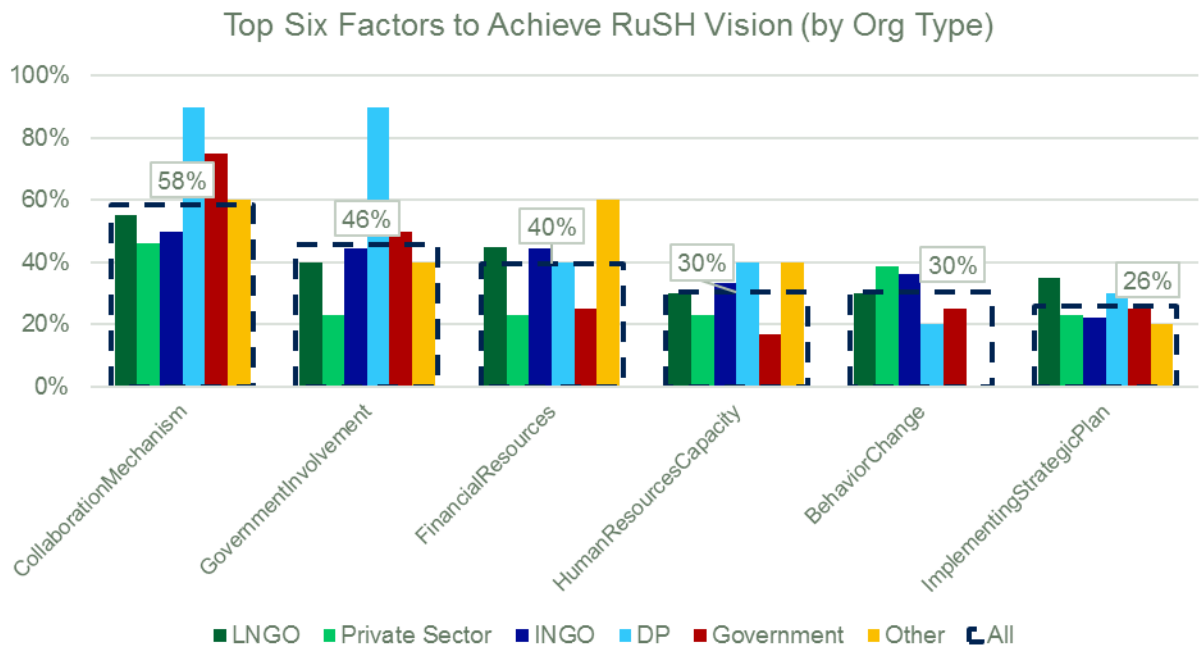


Figure 2-8 provides a graphic representation of the degree of consensus by organization type within and across the top six success factors that respondents mentioned. What really stands out is the high degree of consensus on collaboration mechanism which ranges from about 45% up to 90% and the fact that this factor has the highest percentage of each organization type named. Additionally, the perspective of development partners clearly emphasizes the importance of government involvement and prioritizing

RuSH over other demands placed on government. Both factors are clearly related to political will through progress in the RuSH sector. Also, noteworthy is government's proportional emphasis put on collaboration mechanism even ahead of financial resources.

Figure 2-8: Percentage of Each Organization Type Referencing the Top Six Success Factors



Analysis of the responses of organizations in the existing sub-groups and the core network group provides some additional insight. All the groups mention "collaboration mechanism" as a success factor at a higher rate than the overall network (ranging from 78% to 90%). This is encouraging as it may indicate that those who are currently collaborating in the sector value that collaboration and perhaps would work to increase collaboration. After collaboration, other factors were named much less frequently by all groups, but we also see a change in the top five factors as named by these groups. While mentions of "government involvement" are very similar for these groups and the overall network, "appropriate design" and "monitoring tools" were among the top factors mentioned by these groups, and "implementing a strategic plan" averaged higher among these groups than in the overall network.

Figure 2-9: Average Percentage of Sub-Group Members Referencing Each Success Factor

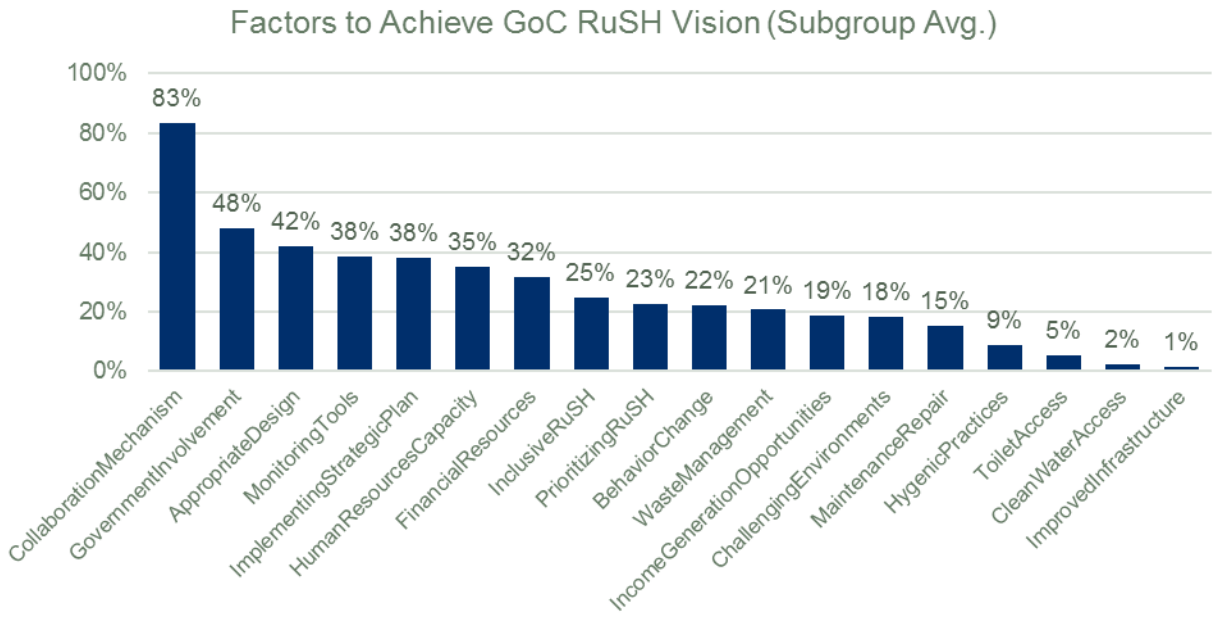
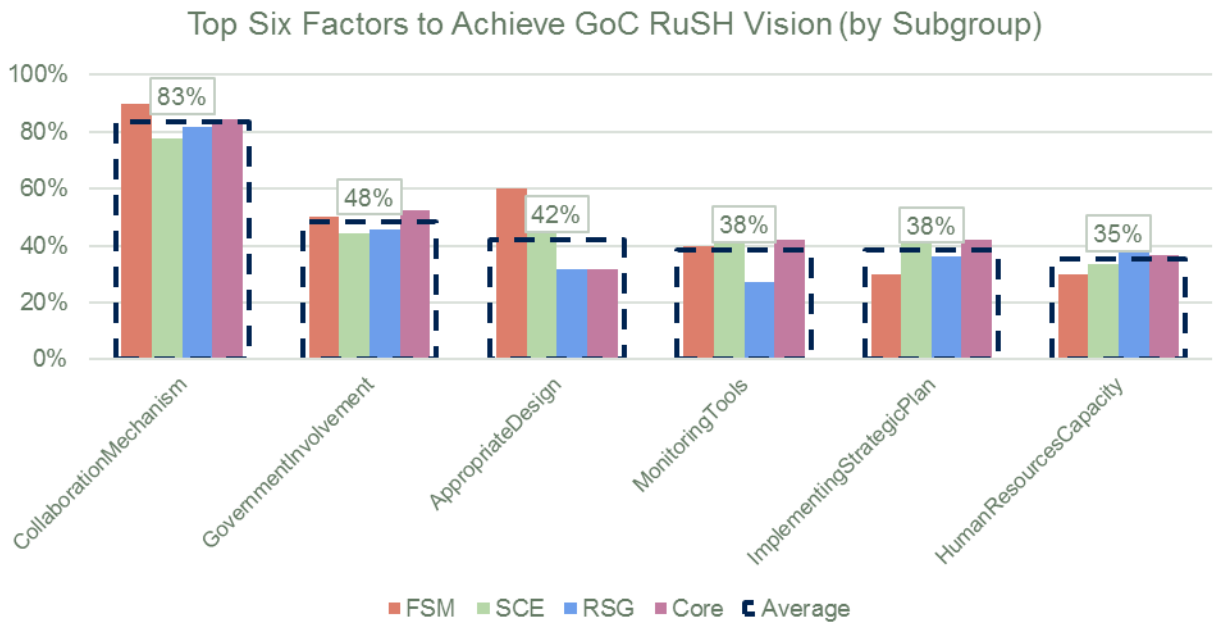


Figure 2-10: Percentage of Each Sub-Group Referencing the Top Six Success Factors Mentioned by Those Groups



Potential Considerations for the Network

The responses to Question 2 provide insight into the perspectives of the sector stakeholders for where the network should focus its efforts, indicating several specific areas for discussion:

- *How can the RuSH Network meet expectations for a collaboration mechanism?* Across all types of organizations, there is a clear shared belief that a collaboration mechanism is critical for achieving the sector vision. This is amplified by existing sub-groups that are already collaborating, and for the most densely connected members of the network. It is an appropriate time for the RuSH Network to provide the means for that collaboration and valuable for the group to acknowledge and further define its role in that effort.
- *How can the actors in the sector support the government in its role of leader?* Government involvement is another highly recognized success factor as highlighted in the interviews, in the network analysis, and with stakeholder consultations. It will be important for the network to provide support for government to continue its leadership.
- *What should the network do about factors that scored on the lower end of priorities or other previously identified important issues that were not mentioned?* All the factors mentioned were named by at least one organization as an important factor for success, so even if a theme only emerged from a small number of interviews it may be important. The factors named least frequently tend to be practical issues related to access or sustainability. It is worth noting that gender issues did not come up as a factor despite its prominent place in SDG 6.

Analysis of Factor Question 3

> ***Question 3:*** *What are the one or two things where you think the RuSH sector should triple its efforts or investments because it would have the greatest impact on achieving the sector vision?*
>
> **Purpose of Question 3:** The purpose of Question 3 was to learn from network members which factor, among the various factors for success they mentioned in Question 2, they would prioritize and where they feel the most leverage exists.

The word cloud reveals where network members would triple their efforts, starting with financial resources, behavior change, and government involvement (see Figure 2-11). Allocating financial resources was the most frequently mentioned factor, followed by behavior change and government involvement. Human resources or capacity and awareness building campaigns were the fourth and fifth most frequently cited factors for tripling efforts. Although it was not mentioned as a success factor, the role of women emerged as a factor to triple efforts in, however it was among the least frequently mentioned (raised by only one organization). Other infrequently mentioned factors were monitoring, data or information, and hygiene.

Figure 2-11: Word Cloud for Prioritized Factors

One striking finding that emerged from comparing the ranking of success factors (Question 2) with the ranking of factors to triple efforts (Question 3) is that collaboration slipped from first to sixth place. Also, efforts to support behavior change moved up in ranking from fifth place as a success factor to second place as an investment target. A number of factors related to access to sanitation such as households install latrines, RuSH product accessibility, and affordability fall in the middle to lower rankings for prioritizing for investment. Several of the factors related to sustainability such as policy, maintaining latrines, appropriate design, and participation are among the lower rankings, again reinforcing the notion that sustainability issues are not top of mind for most network members.

Figure 2-12: Percentage of Respondent Organizations Referencing Priority Factors for Triple Effort

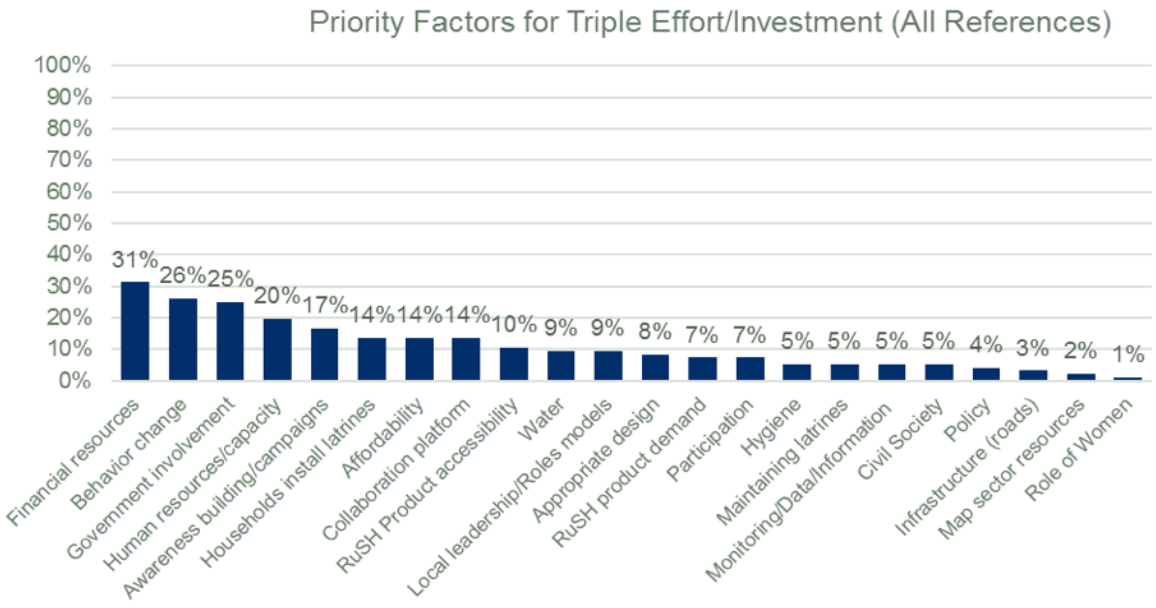
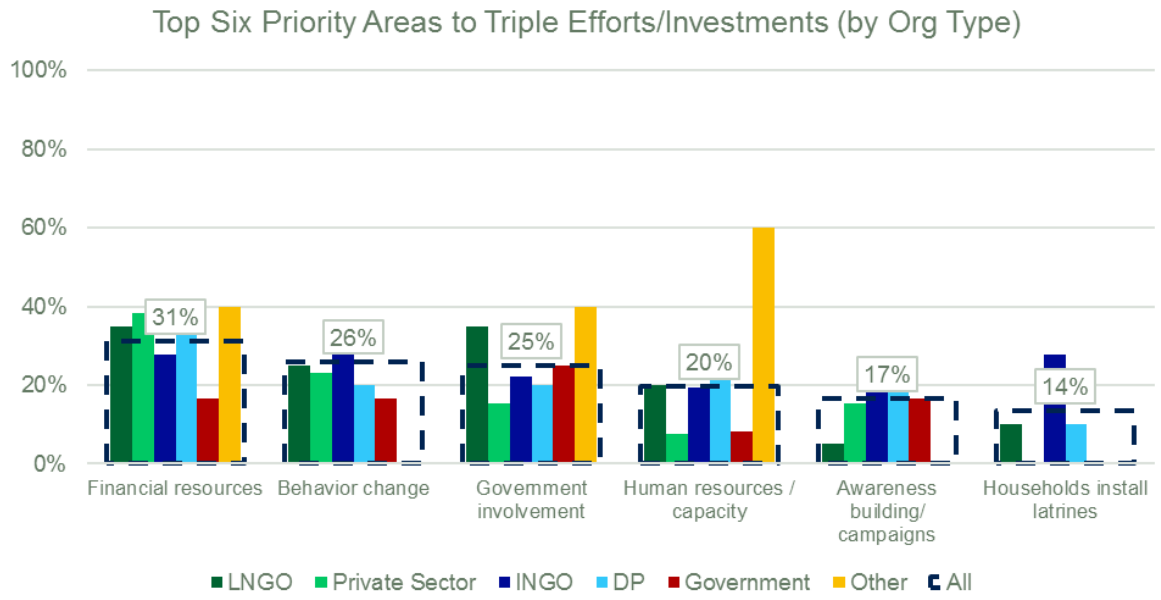


Figure 2-12 shows the distribution across the top factors to triple effort and investment by organization type. There is general consensus among organization types that financial resources is the greatest

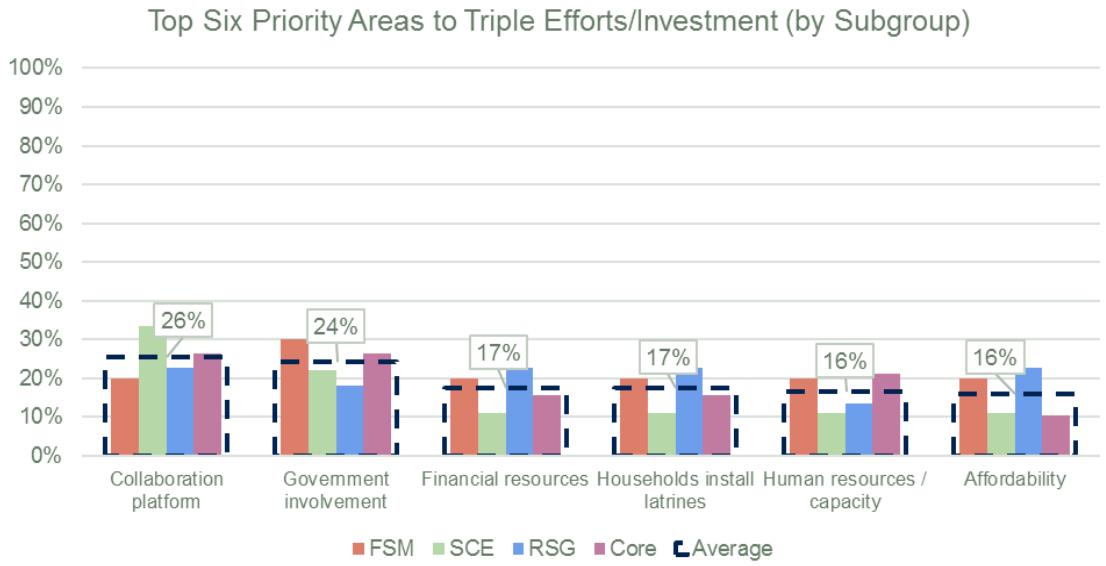
priority. Likewise, behavior change is a commonly held priority for investment by the various organization types. Looking at the breakdown by organization type, INGOs actually prioritized behavior change over financial resources while LNGOs put government involvement on par with financial resources. Government itself prioritized their own involvement in the sector more than financial resources. It is the private sector and development partners that clearly see securing financial resources as the greatest priority for effort which raises the overall average. Development partners also put human resources or capacity as a close second.

Figure 2-13: Percentage of Respondent Organizations Referencing Top Factors by Organization Type



In contrast to the overall network, the existing sub-groups and core network group prioritized collaboration as the most mentioned factor to increase effort in. Government involvement was close behind, with financial resources mentioned third most frequently. The sub-groups also mentioned households install latrines among the top areas where efforts should be increased.

Figure 2-14: Percentage of Respondent Organizations Referencing Top Factors to Triple Effort by Sub-group



Potential Considerations for the Network

The most significant insight from Question 3 is around the interest in collaboration:

- *Why does the network see collaboration as relatively less valuable for an increase in effort?* The decline from the most mentioned success factor in Question 2 to the sixth most mentioned factor for Question 3 implies that organizations believe it is important for success but is not worth a significant increase in time or effort invested. This may be an indication that organizations feel it is important and they are already investing a lot in collaboration. It is also noteworthy that most of the organizations in the sub-groups already collaborating or highly connected in the network still feel that tripling effort in collaboration would yield the most impact.

Analysis of Factor Question 4

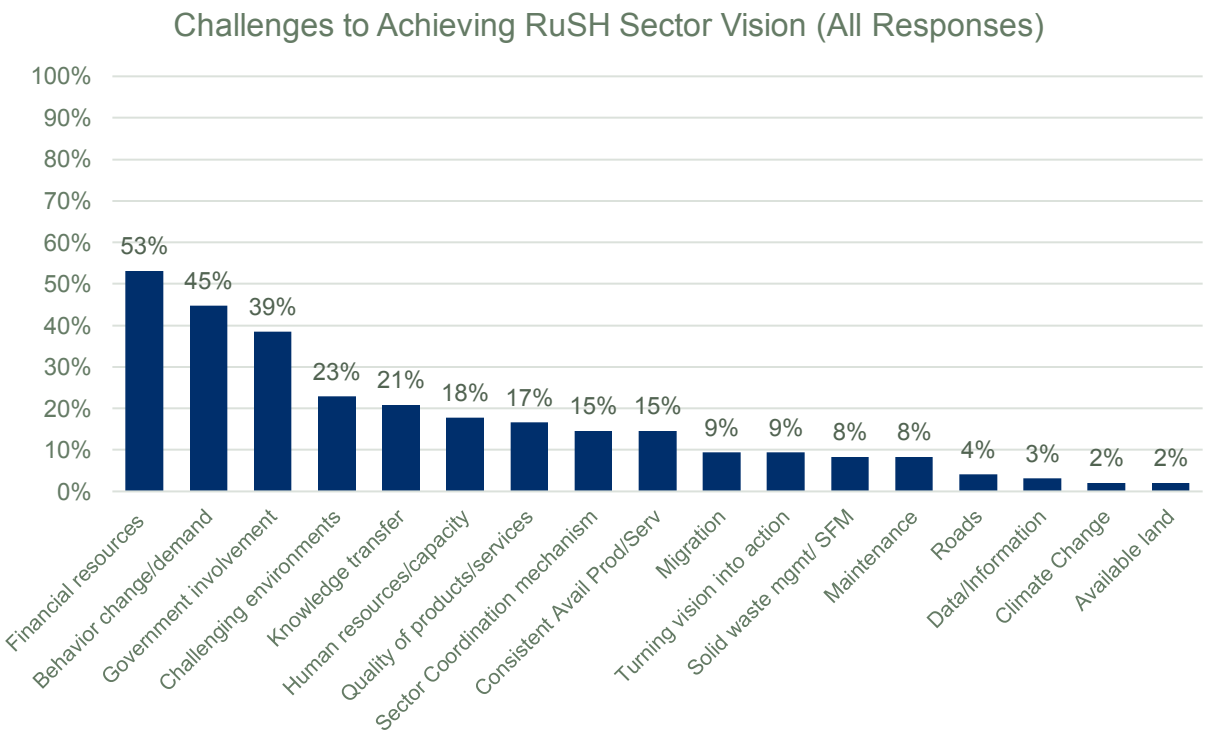
Question 4: *What are the practices or issues that make it challenging for Cambodia to achieve the sector vision?*

Purpose of Question 4: The purpose of Question 4 was to ascertain what network members see as the most problematic factors that stand in the way of achieving the 2025 Vision, the inhibiting factors that influence success.

The challenges named tended to be similar to the success factors with over half of respondent organizations identifying financial resources as a major barrier, nearly 45% identifying behavior change or demand, and 39% identifying government involvement. This was followed by challenging environments at 23% and knowledge transfer at 21%, which was a new focus named by respondent organizations. The comments by interviewees about knowledge transfer focused primarily on the movement of know-how

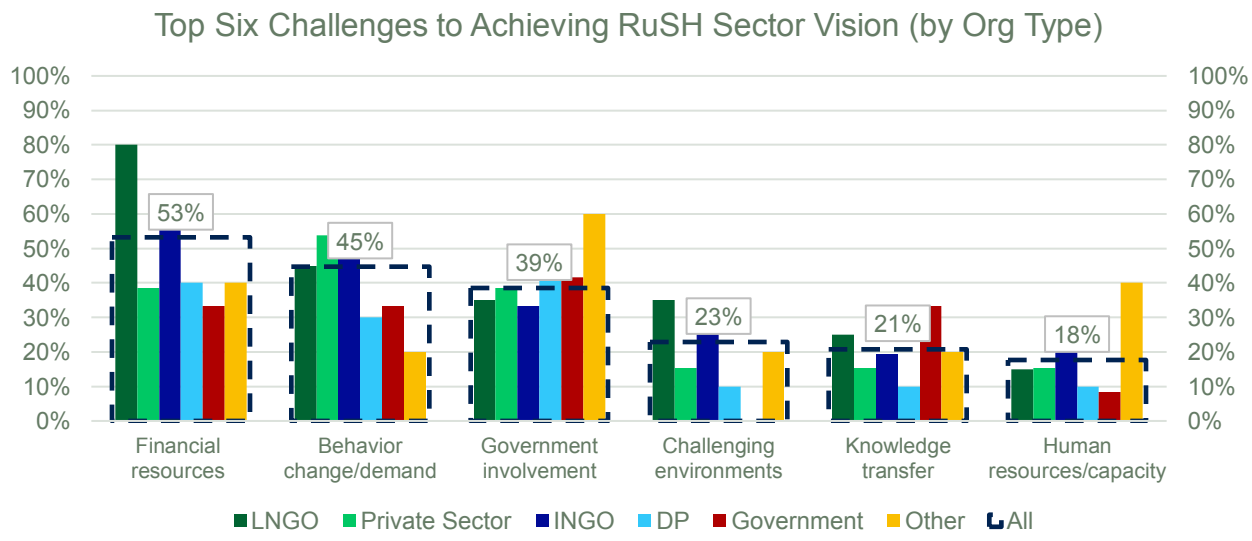
and vision between national and sub-national government units and within those units. One of the notable takeaways in this chart is that sector coordination mechanism was mentioned by only 15% of organizations. It comes in seventh place just ahead of availability of products or services and migration. Data or information, maintenance, and climate change were among the barriers identified but mentioned by the fewest organizations, again indicating some sustainability factors as low priority.

Figure 2-15: Percentage of Respondent Organizations Referencing Challenges to Achieving Vision



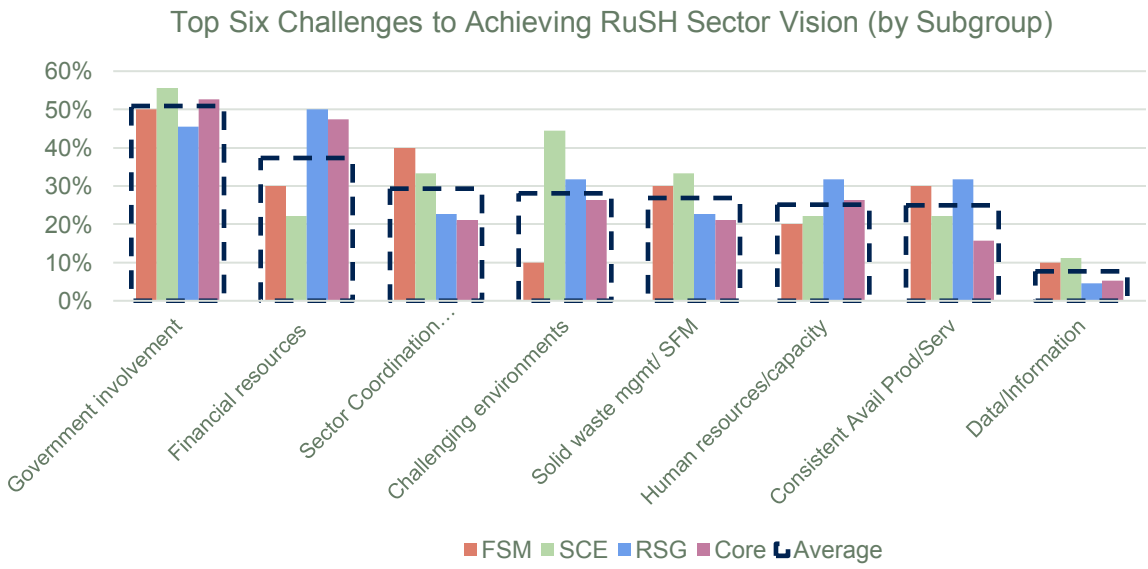
Examining the top barrier factors by organization type, one noteworthy observation was how consistently government entities mentioned four out of the five top factors: financial resources, behavior change or demand, government involvement and knowledge transfer. One-quarter to one-third of government entities interviewed selected each of those factors. Government entities named challenging environments, and less than 10% of government entities or development partners named human resources or capacity as a challenge. Private sector actors most frequently mentioned behavior change and LNGOs most frequently mentioned financial resources as a barrier. Proportionally speaking, development partners, government and private sector mentioned a looming sustainability barrier, fecal sludge management, at higher rate than other organization types but this factor was still within the lower quintile of barrier factors. The barriers that have at least one mention from each of the six organization types – which could indicate that it is something that affects all of them to some discernible degree – are financial resources, government involvement, knowledge transfer, and sector coordination mechanism.

Figure 2-16: Percentage of Organizations Referencing Top Six Challenges to Achieve Vision by Organization Type



The existing sub-groups and the core network group follow some of the patterns of the overall network by identifying financial resources, government involvement, challenging environments, and human resources or capacity among the most frequently referenced barriers. However, once again these groups showed more interest in coordination mechanism, citing that barrier third most frequently. The sub-groups also showed more interest in solid waste management or FSM.

Figure 2-17: Percentage of Organizations Referencing Top Six Challenges to Achieve Vision by Sub-group



Potential Considerations for the Network

While the responses to the barrier question seems to closely mirror those of the success factors question, it does provide more information on the issue of coordination to add to discussion for the network. Even though coordination or collaboration decreased in interest from the top success factor to the sixth most frequently mentioned factor to triple efforts in, it is still seen as a barrier that needs to be addressed. As with previous questions, it is also more frequently mentioned by sub-groups that are already coordinating.

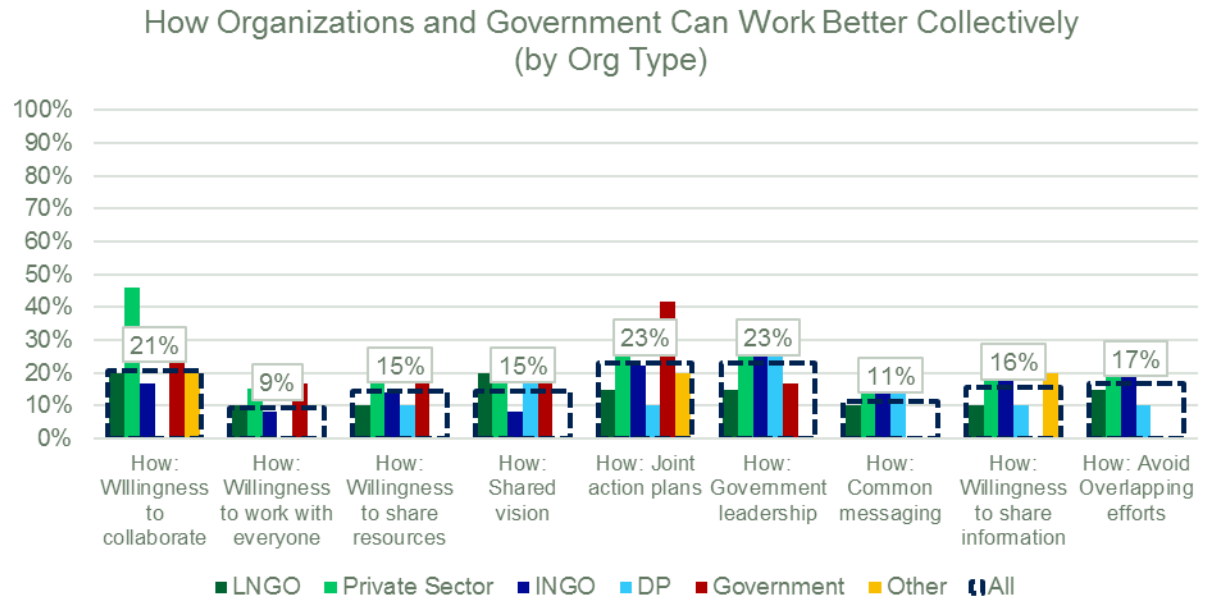
Analysis of Factor Question 5

> ***Question 5:*** *Which factors would benefit the most from organizations or government departments coming together to collectively work on?*
>
> **Purpose:** The purpose of this question was to learn from network members what they believe the sector could most gain from working together on. It was intended to give the backbone building efforts some insights into where to focus collective action as well as capacity building assistance.

The codes that emerged from the responses to Question 5 fell into two groups. The first is the "how" group which represents network members' expression of conditions required to work collaboratively. The second is the "what" group which captures key topics they think they should work on together.

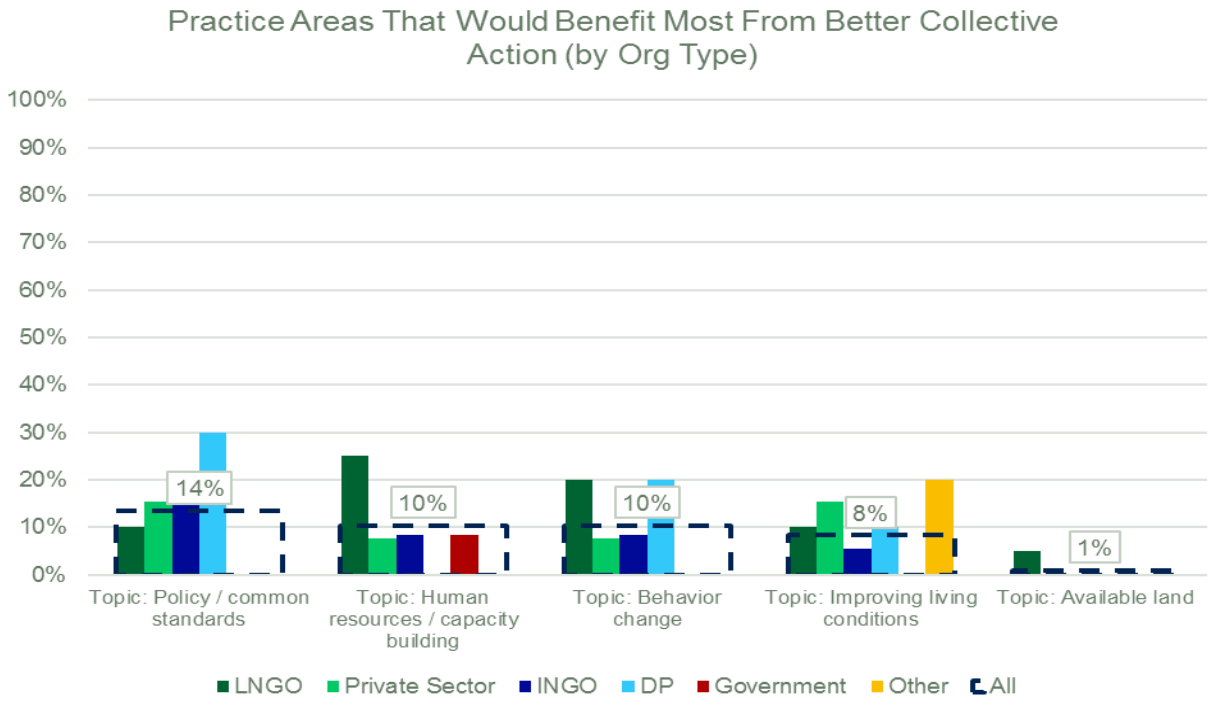
Network members most frequently cited joint action plans and government leadership as ways to work collectively. Willingness to collaborate and avoid overlapping efforts were close behind.

Figure 2-18: Percentage of Organizations Referencing Ways to Work Together



Policy or common standards garners the greatest interest as a topic network member would like to address collectively, especially among development partners. This is followed by behavior change and human resources or capacity building, which is the only topic mentioned by government actors.

Figure 2-19: Percentage of Organizations Referencing Topics to Address Together by Organization Type



Given the repeated interest in coordination and collaboration, and the specific mention of avoiding overlapping efforts, two observations were made examining the attributes of organizations from the closed-ended or multiple choice questions. The first observation is around coordination of activities. Respondents were asked to select all the activities their organization engages in from a list of 13 activities. On average, organizations are undertaking 5.6 of the 13 activities with INGOs averaging 6.4. Some NGOs and private sector actors identified 11 of the 13 activities, and overall 23 of 88 organizations said they work on eight or more activities.

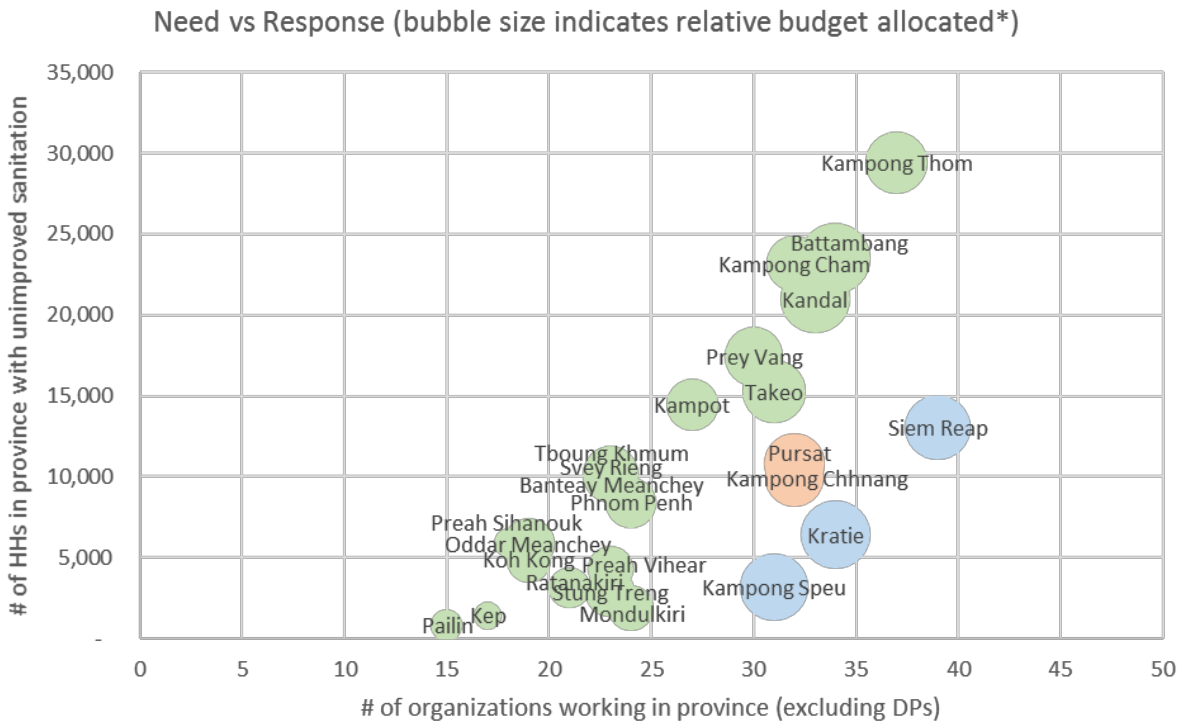
Table 2-1: Number of Activities Reported by Organization Type

	Average # of Activities	Minimum # of Activities	Maximum # of Activities	# of Organizations Working on More than 8 Activities	% of Organizations Working on More than 8 Activities
LNGO	5.4	1	10	4	21.1%
PS	3.8	1	11	1	7.7%
INGO	6.4	1	11	13	38.2%
DP	5.9	2	13	2	20.0%

	Average # of Activities	Minimum # of Activities	Maximum # of Activities	# of Organizations Working on More than 8 Activities	% of Organizations Working on More than 8 Activities
Govt	6.3	2	13	3	37.5%
Other	2.8	2	3	0	0.0%
OVERALL NETWORK	**5.6**	**1**	**13**	**23**	**26.1%**

The second observations is around alignment of action to needs. Data from the Royal Government of Cambodia on the number of households with unimproved sanitation in each province was compared to the number of organizations (excluding development partners) reporting that they work on RuSH in each province. This shows a fairly clear alignment of more organizations working in provinces with more need, with a few exceptions. In particular, more organizations than seems appropriate are working in Siem Reap, Kratie and Kampong Speu.

Figure 2-20: Alignment of Need and Response in Provinces



Potential Considerations for the Network

Given the repeated interest in collaboration and coordination, the responses to this question provide a good starting point for discussion in the network:

- *Top ways to collaborate identified by the respondent organizations:* Joint action planning, engaging government leadership, and willingness to collaborate were most often mentioned by organizations as ways to collaborate and may be good focus activities for the network.
- *Alignment of efforts:* As many organizations are engaged in a large number of activities, it appears that organizations may not be working together to divide responsibilities. At the same time, the potential misalignment of need and response in provinces may indicate another area where more coordination is necessary. This is an opportunity for the RuSH Network to identify how to align new and existing interventions in the sector. Working together, members can develop a perspective on how their programs and activities can better support the sector vision, and how they could evolve to become mutually reinforcing.

System Map

As a complement to and output of the network analysis and factor analysis, a RuSH Sector System "messy map" was developed, which provides a snapshot of the dynamic relationships of the various factors described by respondent organizations. The map is designed to help members of the RuSH Sector better understand the forces that drive the RuSH system in Cambodia and thus identify where and how to effect change in that system to accelerate progress toward the 2025 Vision. This system map captures the most important RuSH sector factors according to stakeholders interviewed, and how these factors influence each other. This version is considered a messy map because it is a starting point of a living system – as practitioners use it and interact with the system, they are able to refine it, remove pieces that are inconsequential, and add new sections that influence the progress to achieving the vision.

Legend

Glossary: Key terms used in describing and explaining a systems map are provided here.

Term	Explanation
Element	A unique process, activity or piece of information that has an effect on other elements that it is connected to. The value or state of the element is usually dynamic, meaning it can change over time. Sometimes referred to as a variable.
Direct Connection	A link between two elements that describes how one directly influences or affects the other. These are also referred to as a first-degree connection.
Indirect Connection	A link between two elements with another element in between them in a chain where A influences B, which in turn influences C. These are also referred to as a second-degree connection.
Direction	Connections can indicate that two elements move in the same direction (as one increases the other increases or as one decreases the other decreases), or in opposite directions (as one increases the other decreases or as one decreases the other increases).

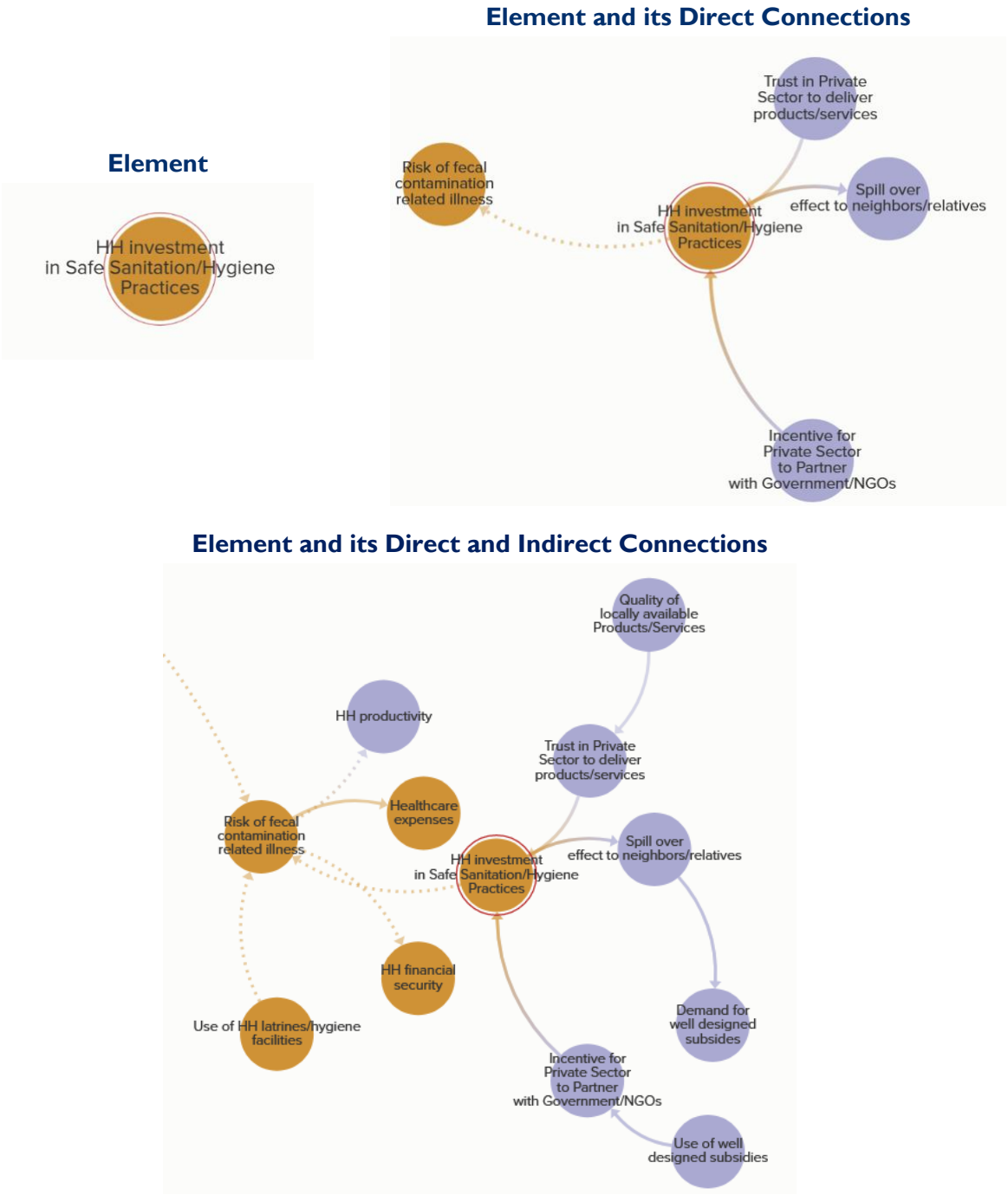
Term	Explanation
Feedback Loop	The return of information (or consequences) through a series of activities or processes (or degrees or steps from element to element). A feedback loop indicates how an element indirectly (or directly) affects itself. A feedback loop effects an element by accelerating, balancing or diminishing its condition based on how it is connected to other elements of the system.
Virtuous Cycle	A feedback loop that continues to build on itself in a positive way, growing more and more positive over time. For example, as your bank balance increases, the interest earned increases, which in turn increases the bank balance more.
Vicious Cycle	A feedback loop that continues to build on itself in a negative way, spiraling worse and worse over time. For example, as a pain you feel increases, so does stress about that pain, which in turn causes more pain, which in turn causes more stress again.
Balancing Loop	A feedback loop that is self-regulating, preventing an element from increasing or decreasing continuously. For example, as the population of rabbits increases, the population of foxes thrives, which in turn decreases the population of rabbits, which in turn decreases the population of foxes, which in turn increases the population of rabbits again.
System Map	A diagram that shows a series of closed loops of cause-and-effect linkages which visualizes how elements of a system are connected to one another.

Reading a System Map: The most basic part of a system map is an element – the labeled circles in the map. In the RuSH Sector System Map, an element represents a factor that a network member identified in the interviews. These can also be thought of as variables that can change over time. See Figure 2-21 for an example.

A direct connection, represented by an arrow, is a relationship from one element to another showing a direct influence. The point of the arrow running from Element A to Element B means that A influences or causes B. Two kinds of arrows represent connections. A solid arrow means the two elements or variables move in the same direction, in other words as Element A increases, Element B also increases, or as Element A decreases, Element B also decreases. A dashed arrow means that the two elements or variables move in opposite directions, in other words, as Element A increases, Element B decreases, or as Element A decreases, Element B increases. See Figure 2-21 for an example.

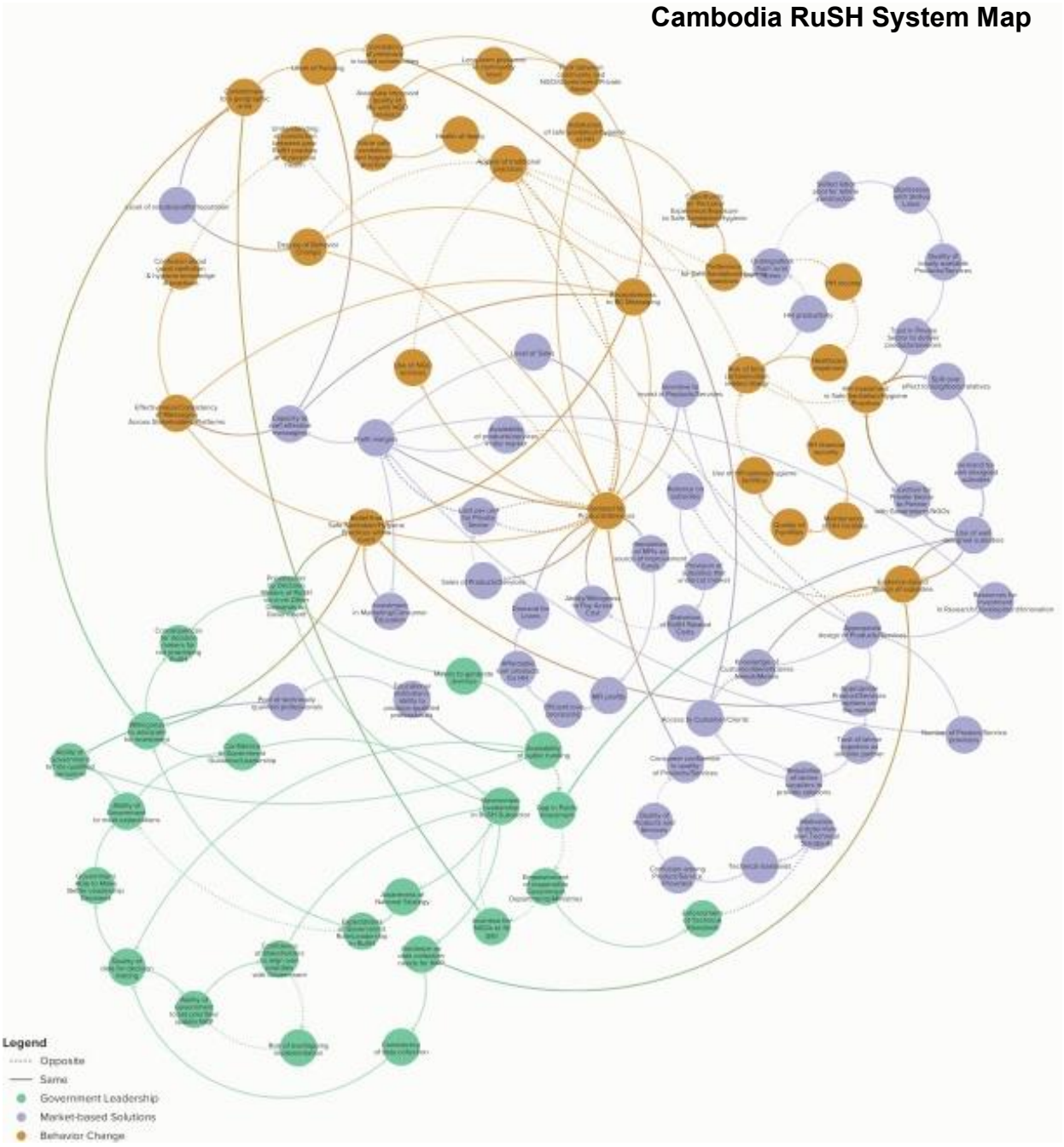
An indirect (or second-degree) connection is a relationship between two elements that are connected through another element in a chain. One element influences the other indirectly, by first influencing the element between them.

Figure 2-21: Example Elements and Connections



Such indirect connections can extend out even further beyond the first two levels and which can continue until you have a complete system map as pictured in Figure 2-22.

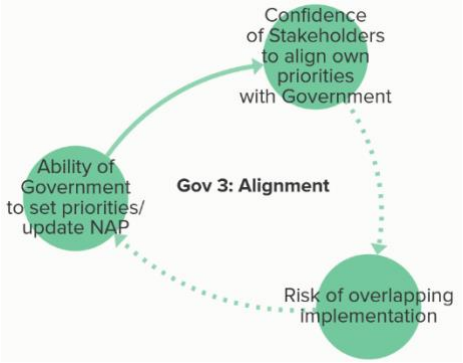
Figure 2-22: Snapshot of Cambodia RuSH System Map (November 2017)



When the chain of connections comes back to the element it started at, meaning that an element has an indirect influence on itself, this is a closed loop. These feedback loops are the core building blocks of the system map. Once assembled, the full system map has literally thousands of closed loops of different sizes built within it (including loops that overlap with one another connecting some of the same elements).

An example of a very short feedback loop is below. This three-element feedback loop has been lifted out of the larger map of the entire system shown above (see Figure 2-23). It reads: *As the "ability of government to set priorities or update the National Action Plan" increases* (solid arrow), *the "confidence of stakeholders to align their own priorities with the government" also increases. As the "confidence of stakeholders to align their own priorities with the government" increases* (dashed arrow), *the "risk of overlapping implementation" decreases. And as the risk of overlapping implementation" decreases* (dashed arrow), *the "ability of government to set priorities or update the National Action Plan increases."*

Figure 2-23: Feedback Loop Example



This would also be true if the opposite dynamic were present in the system. This would read: *As the "ability of government to set priorities or update the National Action Plan" decreases, the "confidence of stakeholders to align their own priorities with the government" decreases. As the "confidence of stakeholders to align their own priorities with the government" decreases, the "risk of overlapping implementation" increases. And as the "risk of overlapping implementation" increases, the "ability of government to set priorities or update the National Action Plan" decreases.*

Cambodia RuSH Sector System Map

The full Cambodia RuSH System Map is a dynamic visual of the system and can be found in the online software Kumu at https://embed.kumu.io/11cab1cdd663aba677c6cd60809bfa50. Using Kumu, the reader can zoom in to view specific elements, connections, loops, and regions of the map. The online map will also be transferred to the RuSH Network to manage, refine, and update over time.

As the team integrated more than 25 initially identified feedback loops into one large coherent set of linkages and feedback loops to represent the overall RuSH system, three distinct yet interdependent themes emerged. While these themes may have their own internal causal flow and reinforcement, they also share a number of elements as their influence spills over into the other thematic areas.

Thematic Area 1: Behavior Change

In the interview process, it became apparent from the number of responses that linked various factors and their causal effect to behavior change that this theme plays a significant role in the RuSH system. Its prominence bore out once the system map was assembled. The elements most closely associated with the behavior change theme are represented in gold on the map (see Figure 2-22). Within this theme some of the more central elements which have a number of arrows coming into or flowing out of them are: demand for RuSH products and services, belief that safe sanitation or hygiene practices are within reach, receptiveness to behavior change messaging, and risk of fecal contamination-related illness. As these elements indicate, the theme primarily focuses on behavior change at the household level and for the end user of sanitation and hygiene practices and products. There is, however, an economic element that emerged and comes into play as captured in the second theme.

Thematic Area 2: Products and Services

Products and services, though closely related to end-user behavior and demand described above, is its own distinct theme because it demonstrates the role of the private sector and has elements that are relevant for NGOs working in the sector, since such entities are often providers of RuSH-related services and products. Some of the more central elements are: reputation of latrine suppliers to provide solutions, profit margins, motivation to determine own standards, use of well-designed subsidies, and knowledge of customers' or beneficiaries' needs or means. There are numerous points of connection between this theme and Thematic Area 1 (behavior change), because of the interplay between consumer attitudes, knowledge and behaviors – constituting the demand side of this relationship – and the interplay between businesses, NGOs, and government to provide appropriate and enticing options and messaging on the supply side.

Thematic Area 3: Sector Leadership

The third theme is sector leadership which primarily captures the role of government, but also includes elements related to the role of NGOs in shaping and leading the sector. Some of the more central elements include: government leadership in the RuSH sector, confidence of stakeholders to align their own priorities with government, willingness to advocate for investments in the RuSH sector, and prioritization by decision makers of RuSH compared with other demands on government. A key linkage between sector leadership and the business community is the use of subsidies and enforcement of technical standards. are Examples of how the sector leadership comes into play for behavior change are the connection between prioritization by decision makers of RuSH compared with other demands on government and belief that safe sanitation or hygiene practices are within reach.

Possible Additional Elements, Feedback Loops and Themes

The creation of a system map is an iterative process. While the majority of the data that informed this system map was derived from the 96 recoded interviews with stakeholders active in this system on a daily basis, there are some areas that warrant further data gathering and validation by stakeholders. For example, a deeper analysis of inclusion in the sector could supplement all three themes, as could further examination of human resource development, donor funding, and political will. While these are, in part, represented in the map, the depth of understanding gleaned from the interviews and stakeholder feedback at the December 7, 2017 workshop was not enough to adequately demonstrate how these elements come into play in the system. It is also important to note that elements, loops, or themes not included in this map are missing because stakeholders did not talk about them or how they influence the progress toward achieving the 2025 Vision. Further investigation by the RuSH Network may incorporate these new elements deemed influential into the map.

Next Steps

A system map is an evolving iteration of the factors and relationships in a given system. Stakeholders can use it to assist in the development of sector strategies, designing specific program activities, providing policy input, and coordinating sector actors around a joint action plan and vision. The greatest utility of a system map is identifying key leverage points in the system which may allow stakeholders and decision makers to better target resources to effect lasting positive change in the sector. Each time stakeholders interact with the map allows for increased understanding and further refinement. It is also critical to

update and "grow" the map in real time, so the system map has been published as a public document that stakeholders can reference and draw upon. The RuSH Network is the "owner" of this data and the map. A mechanism is needed to engage and manage members to contribute to editing and refining the map in real time, enabling the utilization and enhancement of the map for the benefit of the entire RuSH Network and sector.

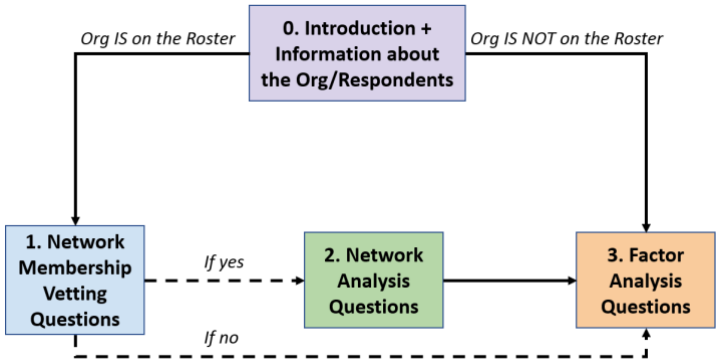
Annex 3: Survey Instrument

Cambodia Semi-Structured Interview Guide & Network Questions Survey Instrument

Prepared by Avery Ouellette, LINC, Senior Director

June 2017

Overview of The Interview Guide Structure



Section 0. Introduction

NOTE: This questionnaire will be uploaded onto a tablet using survey software. This version is for planning purposes only.

Enumerator: _____

Please read to respondent before starting survey:

My name is [NAME]. I am conducting a survey of organizations working on rural sanitation and hygiene issues in Cambodia. This study, which is undertaken on behalf of the Rural Sanitation and Hygiene Collective Action Network (RuSH CAN) and funded by the United States Agency for International Development (USAID), will map organizations working in this area, identify their relationships with other organizations, and help to identify areas for improved collaboration. The results from this survey will be shared with all respondents at a workshop in September and be used to help identify ways to collectively strengthen the RuSH sector. This survey usually takes around 90 minutes to complete, and we would appreciate your participation. There are a couple of questions where we would like to record your response and will ask your permission to do so once we get to those questions.

Your participation in this survey is entirely voluntary. Because the analysis will be looking at relationships between organizations, there will be parts of the analysis which includes looking at specific organizations, and therefore your responses should not be considered as fully anonymous. We appreciate your openness and honesty, though, and if you would like to provide any information anonymously, please clearly indicate this when responding.

Do you have any questions before we begin?

If they have specific questions about the type of analysis, some examples are:

- *Self-reported organizational attributes (size, type of organization, areas of work, etc.) will be clear on any map that groups, color codes, or sizes and shapes organizations' map nodes by those attributes, or on a sub-network map based on those attributes. [Questions #13-22]*
- *Reported relationships will be clear on any map, potentially including type of relationship if we indicate that by color or size or shape or if we produce sub-network maps based on relationship type. An individual respondent's answers about perception of the value of an organization to the RuSH sector won't be explicitly shown on any map. [Reported Relationships: Questions #24-27 and #35; Value of Org: Questions #28-34]*
- *Anything else will either be analysis metrics that might be public but aren't really attributable to a respondent (for example, the organization's centrality measures which are just an indication of its position within the network), or will be reported in aggregate (for example, average "value" scores or percentage of local NGO respondents working in XYZ province).*

Instructions: Read each prompt aloud. Record the response exactly as stated by the respondent. For all names, ask to ensure the spelling is correct. Depending on the organization type that you are interviewing, please either use "organization" -OR- "government department" when asking the questions (not both).

1. Organization name:

FOR EACH INTERVIEWEE (repeat up to four times):

2. First name:
3. Last name:
4. Gender: [Male/Female]
5. Individual phone:
6. Individual email:
7. How many years have you worked on RuSH issues in Cambodia? *[Number value - Answer only in number of years. If they work part of a year, please round to the quarter of the year (0.75, 0.5, 0.25)]*
8. What is your position?

8a. What is the position of the person that you report to?

Section 1. Network Member Vetting

Read: *Now I will ask you some questions about [ORGANIZATION/GOVERNMENT DEPARTMENT NAME]. These questions are meant to help understand how different types of local organizations interact and work together, and where there may be gaps in collaboration among or between different types of organizations that*

could be addressed through RuSH CAN. For each question, I will read a set of potential responses and ask you to select the response or responses that best match your organization.

Instructions: Read each question to the respondent. After reading the question, read all responses and ask the respondent to name either one or all that apply (this will be noted in the question). If necessary, repeat some or all answer choices.

9. Does your organization have permanent staff based in Phnom Penh?
   a. Yes
   b. No

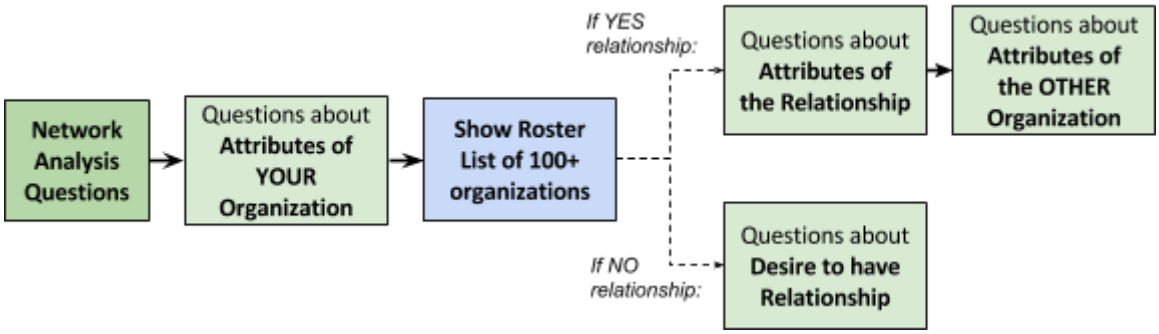
10. Does your organization's strategy/government department's mission include a focus on RuSH activities and/or issues?
   a. Yes
   b. No

11. Approximately how many staff in your organization/government department work on RuSH issues for 50% or more of their time?
   11a. How many of those are women?

12. Approximately how much of your organization/government department's annual budget is for RuSH activities?
   a. $0
   b. $1–25,000
   c. $25,001–100,000
   d. $100,001–500,000
   e. Over $500,000

→ *If Question #9 is Yes AND either Question #10 is Yes -OR- Question #11 is 3 or more staff -OR- Question #12 is above $25,000 (answer c, d or e), then go to Section #2. Otherwise, go to Section #3.*

Section 2. Network Analysis Questions



ORGANIZATION ATTRIBUTES

13. What year was your organization/government department established [in Cambodia if it is not a local organization]? (Can enter "I don't know")

14. Is the head of your organization/government department male or female?
    a. Male
    b. Female

15. What category best describes your organization? (Only select ONE answer)
    a. National government
    b. Local NGO
    c. International NGO
    d. Development Partner (Bilateral or Multilateral agency that provides funding that comes from another government to address social and economic issues in Cambodia. For example, the World Bank, USAID, or UN agency)
    e. Academic Institution
    f. Private Sector
    g. Other

→ If they answer B), C), E) or G):

15a. Does your organization identify as faith-based?
    a. Yes
    b. No

→ If they answer G):

15b. Please describe other

16. Which sector(s) does your organization/government department work on? (May select more than one answer)
    a. Sanitation

b. Hygiene
c. Water

17. What types of rural sanitation and hygiene activities does your organization/government department provide and/or focus on? (Select all that apply)
    a. Community-Led Total Sanitation (CLTS)
    b. Household latrine subsidy
    c. Financing sanitation
    d. Marketing/selling sanitation/hygiene products/services (direct to consumers)
    e. Market development activities
    f. Behavior change communications (BCC)/handwashing promotion/health education
    g. Infrastructure activities (building toilets or handwashing facilities)
    h. Capacity building/leadership development
    i. Government decentralization program
    j. Policy development
    k. Advocacy
    l. Research
    m. Other:

18. Which of those activities is the primary rural sanitation and hygiene activity that your organization/government department provides and/or focuses on? (Select only ONE answer)
    a. Community-Led Total Sanitation (CLTS)
    b. Household latrine subsidy
    c. Financing sanitation
    d. Marketing/selling sanitation products/hygiene products/services (direct to consumers)
    e. Market development activities
    f. Behavior change communications (BCC)/handwashing promotion/health education
    g. Infrastructure activities (building toilets or handwashing facilities)
    h. Capacity building/leadership development
    i. Government decentralization program
    j. Policy development
    k. Advocacy
    l. Research
    m. Other:

19. Which of these populations does your organization/government department focus on for rural sanitation and hygiene activities? (May select more than one answer)
    a. Infant and young children
    b. Elderly
    c. People with different abilities
    d. Remote rural

e. People living in challenging environments (such as floating communities, seasonally flooded areas, etc.)
f. Women-focused
g. General population

20. What geographic areas does your organization work in on rural sanitation and hygiene issues? (May select more than one answer. Enumerator to show laminated province map as visual aid)
    a. At the national level
    b. Within provinces [select provinces]
        i. Phnom Penh Municipality
        ii. Banteay Meanchey Province
        iii. Battambang Province
        iv. Kampong Cham Province
        v. Kampong Chhnang Province
        vi. Kampong Speu Province
        vii. Kampong Thom Province
        viii. Kampot Province
        ix. Kandal Province
        x. Koh Kong Province
        xi. Kep Province
        xii. Kratié Province
        xiii. Mondulkiri Province
        xiv. Oddar Meanchey Province
        xv. Pailin Province
        xvi. Preah Sihanouk Province
        xvii. Preah Vihear Province
        xviii. Pursat Province
        xix. Prey Veng Province
        xx. Ratanakiri Province
        xxi. Siem Reap Province
        xxii. Stung Treng Province
        xxiii. Svay Rieng Province
        xxiv. Takéo Province
        xxv. Tboung Khmum Province

21. What are the sources of funding for your organization/government department over the past year? (May select more than one answer)
    a. Donor agencies (Bilateral or multilateral agency that provides funding that comes from another government to address social and economic issues in Cambodia. For example, the World Bank or USAID)

b. Cambodian government
c. International NGOs
d. International private foundations (Gates Foundation, Stone Family Foundation, etc.)
e. Local private foundations
f. Donations from individuals outside Cambodia
g. Donations from individuals in Cambodia
h. Corporations (Corporate social responsibility support, funding from corporate foundations, etc.)
i. Fees for services/products/income-generating activities
j. Other [describe]
k. Prefer not to disclose

22. Of those sources that you mentioned, which ONE is the PRIMARY source of funding for your organization/government department over the past year? (Only select ONE answer)
    a. Development partner (Bilateral or multilateral agency that provides funding that comes from another government to address social and economic issues in Cambodia. For example, the World Bank or USAID)
    b. Cambodian government
    c. International NGOs
    d. International private foundations (Gates Foundation, Stone Family Foundation, etc.)
    e. Local private foundations
    f. Donations from individuals outside Cambodia
    g. Donations from individuals in Cambodia
    h. Corporations (corporate social responsibility support, funding from corporate foundations, etc.)
    i. Fees for services/products/income-generating activities
    j. Other [describe]
    k. Prefer not to disclose

RELATIONSHIP ATTRIBUTES

Share with the respondents the list with all the organizations/government departments on the roster. As they identify an organization, have them write that organization name on top of the "value of organization" sheet and say the name aloud. Only write one organization's name on each sheet.
- At the same time, one enumerator enters all the names into the "alter prompt" page.

Say to the respondents: *Please identify all the organizations/government departments on this list with which your organization/government department had a relationship with in the **past six months**. (For relationships, we mean ones that went beyond just attending meetings or conferences together, or sharing newsletters. We mean discussions, calls, joint project activities, and so forth.) Write the name of the organization on top of the values table sheet. Use one sheet per organization. I will then ask you questions about that relationship and how the organization engages in the RuSH sector. Please keep in mind, this is a "snapshot" in time and not the full history of your relationship with this organization. So only think about the past six months.*

23. Enter the name of each organization that the respondents identified:

FOR EACH ORGANIZATION IDENTIFIED, ask the following questions:

Read: *We will now ask you a series of questions about each relationship that you identified. We appreciate your patience.*

24. How would you best describe the type of relationship with this organization/government department? (Only select ONE answer)
    a. Formal (there is an MOU, contract, grant or other type of institutional arrangement with this organization/government department)
    b. Informal

25. To what degree did your organization/government department share information with this organization/government department around RuSH related efforts over the past six months? (Scale of 0 to 5, with 0 being "we did not share any information" to 5 being "we shared sensitive information related to our future RuSH activities")

26. How frequently did your organization/government department share any type of information about RuSH related efforts with this organization/government department in the past six months?
    a. Once or less
    b. About once a quarter
    c. About once a month
    d. Every week
    e. Every day
    f. Not sure

27. At the same period of time last year, were you sharing the same amount of information with this organization/department, or more/less/not sure?
    a. About the same
    b. Less than
    c. More than
    d. Not sure

VALUE OF THAT ORGANIZATION TO THE RuSH SECTOR

Instructions: Give to the respondents the value table sheets. Start with the first organization listed in the table. Ask the seven value questions organization by organization (only complete one row and then click next). Try to enter in the table answers at the same time the respondent is filling out the sheets. If

you cannot keep up with the respondent, you can skip ahead using the gear in the upper right hand corner to the "REPEATORG" page.

Read: *For the questions below, we will also ask about your perception of that organization's contributions to the RuSH sector. All responses to these questions will be aggregated with responses from other organizations. Please use one sheet for each organization and note your responses.*

	0 - Not at all	1 - A small amount	2- A fair amount	3 - A great deal	Not sure
28. How valuable is this organization/government department's **level of involvement** in the RuSH sector? (For example, actively participates in sector events and initiatives.]					
29. How valuable is this organization/government department's **resource contributions** to achieving results in the RuSH sector? [For example, funding, information, staff and/or other resources.]					
30. How **reliable** is this organization/government department in following through on its commitments to the RuSH sector? [For example, follows through on commitments]					
31. How **open to discussions** is this organization/government department around RuSH issues – either within the sector or between your organizations? [For example, this organization/government department is willing to engage in frank, open and civil discussion (especially when disagreement exists), and/or communicates in an open, trusting manner.]					
32. To what degree does this organization/government department act in a way that is **fair towards other** organizations/government departments in the RuSH sector?					
33. To what degree does the organization/government department **seem**					

	0 - Not at all	1 - A small amount	2- A fair amount	3 - A great deal	Not sure
committed to coordinating their activities with other organizations/government departments?					
34. How **influential** is this organization/government department in the RuSH sector? [For example having influence, having success as a change agent, and/or showing leadership.]					

REPEAT THIS PROCESS (Questions #28-34) WITH ALL ORGANIZATIONS ON THE ROSTER LIST THAT THIS ORGANIZATION HAS A RELATIONSHIP WITH

Then ask QUESTIONS #28-34 ABOUT THEIR OWN ORGANIZATION

35. Are there any other organizations on this list whom your organization/government department currently doesn't have a relationship with but would like to collaborate with to improve the effectiveness of your RuSH activities? (Respondent may name **up to five** additional organizations from the roster; should not be organizations they mentioned in the above questions)

36. Are there any other organizations/government departments not on this list that you believe play an important role in working on national level issues in the rural sanitation and hygiene sub-sector?

Section 3: Factor Analysis Questions

Read: *I will now ask you some questions about the RuSH sector. We will aggregate your responses with the ones from other organizations. We would like to audio record your responses to these answers, and these recordings will only be used for analysis purposes. Is that okay with you?*

Enumerator instructions: *If* they say it is okay, begin the recording now. When you start the recording, say "*My name is [NAME], one of the enumerators for this study. I am interviewing [ORG NAME] on [DATE] at [TIME].*" Then ask the first question. Please capture detailed notes during this section.

37. What does success look like for the RuSH sector by 2025?

38. The Government of Cambodia's sector vision is that "everyone in rural communities has sustained access to…sanitation services, and lives in a hygienic environment by 2025." What are all the things that need to happen in order to achieve that vision? [Note for the enumerator: Ask *why* questions, particularly around sustained service delivery.]

39. Of the things that you mentioned, what are the one or two things where you think the RuSH sector should triple its efforts/investments because it would have the greatest impact on achieving the sector vision?

40. What are the practices/issues that make it challenging for Cambodia to achieve the sector vision?

41. Of the things that you mentioned that are needed to achieve the sector vision, which ones would benefit the most from organizations/ government departments coming together to collectively work on them?

Instructors for enumerators: Save the audio file. The file will automatically put in a date and time. Please add to that name: [Org Acronym/Brief Name]_[Your Name]_[Language]

Section 4: Enumerator Notes

Read: *That is the end of our survey. We thank you again for taking the time to answer our questions. We will be conducting interviews with organizations in July and August and hope to share the results in September. Members of the RuSH Collective Action Network will be reaching out to you later with more information about next steps.*

Instructors for enumerators: Once you leave the interview, please fill in these notes before finalizing the survey:

1. Which interviewee offered the most insights, particularly in Section 3 (factor analysis)?
2. Any observations or themes that you noticed during the interview that you would like to note?
3. Was there anything discussed during the interview that you weren't able to capture in the survey?

Annex 4: Initial Organization Roster

Organization Name	In Network Boundary (Y/N)	Interviewed (Y/N)
1001 Fontaines Teuk Sa'at	Y	Y
17 Triggers	Y	Y
Action Against Hunger (AAH)	Y	Y
Advanced Engineering Cambodia (AE)	Y	Y
Adventist and Development Relief Agency (ADRA)	Y	Y
AMK	Y	Y
Asian Development Bank (ADB)	Y	Y
Asian Outreach Cambodia	Y	Y
ATEC*International	Y	Y
Australian Department of Foreign Affairs and Trade (DFAT)	Y	Y
BORDA	Y	Y
Cambodia Global Action CHE program	Y	Y
Cambodia Red Cross (CRC)	Y	Y
Cambodian Women Business Federation (CWBF)	N	N
CARE	Y	Y
Caritas Cambodia	Y	Y
Catholic Relief Services (CRS) Cambodia Program	N	N
Center for Affordable Water and Sanitation Technology (CAWST)	N	N
Centre for Sustainable Water - Enrich Institute (CSW)	Y	Y
Chamroeun	Y	Y
Child Rights Foundation	Y	Y
ChildFund Cambodia	Y	Y
Chip Mong Group	Y	Y
Clear Cambodia	Y	Y
Community Empowerment Development Team (CEDT)	Y	Y
Community Health and Development Action (CHADA)	Y	Y
Council for Agricultural and Rural Development (CARD)	Y	Y
Dan Church Aid (DCA)	N	N
Development for Partnership in Action (DPA)	Y	Y
East Meets West Foundation (EMWF)	Y	Y

Organization Name	In Network Boundary (Y/N)	Interviewed (Y/N)
Engineers Without Borders (EWB) Australia	Y	Y
Federation of Associations for SMEs of Cambodia (FASMEC)	Y	Y
Finn Church Aid	N	N
GIZ	Y	Y
Global Service Corps of Kyunh Hee University	N	N
Good Neighbors Cambodia	Y	Y
Group de Recherces et d'Echanges Technologiques (GRET)	Y	Y
Habitat for Humanity Cambodia	Y	Y
Hydrologic	Y	Y
iDE	Y	Y
Ideas at Work	Y	Y
Indochina Starfish Foundation (ISF)	Y	Y
Innovative Water Center at the National Polytechnic Institute (iWC)	Y	Y
Institute of Technology Cambodia (ITC)	Y	Y
International Federation of Red Cross (IFRC)	Y	N
International Relief and Development (IRD)	N	N
Investing in Children and their Societies (ICS)	Y	Y
ISI Group/ FUXIN	Y	Y
Japan International Cooperation Agency (JICA)	Y	Y
Johanniter International Association (JIA)	Y	Y
Karuna Training Center (KTC)	N	Y
Khmer Community Development (KCD)	Y	Y
Khmer Youth Association (KYA)	Y	Y
Korea International Cooperation Agency (KOICA)	Y	Y
Lien Aid	Y	Y
Life with Dignity (LWD)	Y	Y
Lifewater International Organisation	Y	N
Live and Learn Environmental Education Cambodia	Y	Y
LOLC (Cambodia) Plc.	Y	Y
Marketing Strategy and Development Co., Ltd (MSD)	N	Y
Ministry of Agriculture, Forestry, and Fishery (MAFF)	N	Y
Ministry of Commerce (MoCom)	N	N

Organization Name	In Network Boundary (Y/N)	Interviewed (Y/N)
Ministry of Economy and Finance (MEF)	Y	N
Ministry of Education, Youth, and Sport (MOEYS)	Y	Y
Ministry of Environment (MoE)	Y	Y
Ministry of Health (MOH)	Y	Y
Ministry of Interior (MOI)	N	Y
Ministry of Labor and Vocational Training (MoLVT)	N	N
Ministry of Planning (MoP)	N	N
Ministry of Rural Development (MRD)	Y	Y
Ministry of Social Affairs (MSA)	Y	Y
Ministry of Tourism (MoT)	N	Y
Ministry of Women Affairs (MOWA)	Y	Y
Muslim Aid Cambodia	Y	Y
National Center for Health Promotion (NCHP)	Y	Y
National League of Communes/Sangkats (NLC)	N	Y
Oxfam Australia	Y	Y
Peace and Development Aid Organization (PDAO)	Y	Y
People in Need (PIN)	Y	Y
Plan International	Y	Y
Population Services International / Population Services Khmer (PSI/PSK)	Y	Y
PriceWaterhouseCoopers (PWC)	Y	Y
RainWater Cambodia (RWC)	Y	Y
Reproductive and Child Health Alliance (RACHA)	Y	Y
Royal University of Phnom Penh (RUPP)	Y	Y
Sahmakum Teang Tnaut (STT)	N	Y
Samaritan's Purse (SP)	Y	Y
Save the Children	Y	Y
SNV Netherlands	Y	Y
Sovann Phoum	Y	Y
Splash	N	Y
Srer Khmer	Y	Y
Swiss Red Cross (SRC)	Y	Y
The Catholic Agency for Overseas Development (CAFOD)	Y	Y

Organization Name	In Network Boundary (Y/N)	Interviewed (Y/N)
UNDP	N	Y
UN-HABITAT	Y	Y
UNICEF	Y	Y
Urban Poor Women Development (UPWD)	N	N
US Agency for International Development (USAID)	Y	Y
VisionFund	Y	Y
VNBK	N	N
Voluntary Service Overseas (VSO)	Y	Y
WASH Skills Development Organization (WASH SDO)	Y	Y
Water.org	Y	Y
WaterAid	Y	Y
WaterSHED	Y	Y
WaterSHED Ventures	Y	Y
Wetlands Work! Ltd	Y	Y
World Bank (WB)	Y	Y
World Health Organization (WHO)	Y	Y
World Hope International	Y	Y
World Renew	Y	Y
World Vision Cambodia	Y	Y

Annex 5: Interviewed Organizations, Labels on Maps and Attributes

Actor Name	Label	Organization Type	In Network (ONA)	Gender of Org Head	Language of Interview	Member of: RuSH Sub-group	Member of: SCE Group	Member of: FSM Fan Club
International NGOs								
Action Against Hunger (AAH)	AAH	INGO	Y	F	Khmer	N	N	N
Adventist Development and Relief Agency (ADRA)	ADRA	INGO	Y	M	Khmer	N	N	N
Asian Outreach Cambodia	AOC	INGO	Y	M	Khmer	N	N	N
BORDA	BORDA	INGO	Y	M	Khmer	N	N	N
CARE	CARE	INGO	Y	F	Khmer	N	N	N
Caritas Cambodia	Caritas	INGO	Y	M	Khmer	N	N	N
ChildFund	CF	INGO	Y	M	Khmer	N	N	N
East Meets West Foundation (EMWF)	EMWF	INGO	Y	M	Khmer	N	N	N
Engineers Without Borders (EWB) Australia	EWB	INGO	Y	M	English	Y	Y	Y
Good Neighbours Cambodia	GNC	INGO	Y	M	Khmer	N	N	N
Group de Recherces et d'Echanges Technologiques (GRET)	GRET	INGO	Y	M	Khmer	N	N	N
Habitat for Humanity Cambodia	HHC	INGO	Y	F	Khmer	N	N	N
iDE	iDE	INGO	Y	M	English	Y	Y	Y
Indochina Star Fish Foundation (ISF)	ISF	INGO	Y	F	Khmer	N	N	N
Innovative Water Center at the National Polytechnic Institute (iWC)	iWC	INGO	Y	M	English	N	N	Y
Johanniter International Association (JIA)	JIA	INGO	Y	M	English	N	N	Y
Lien Aid	Lien	INGO	Y	M	Khmer	N	N	N
Live and Learn Environmental Education Cambodia	L&L	INGO	Y	M	Khmer	N	N	N
Muslim Aid Cambodia	MuslimA	INGO	Y	M	English	N	N	N
Oxfam Australia	Oxfam	INGO	Y	F	Khmer	N	N	N
People in Need (PIN)	PIN	INGO	Y	M	English	N	Y	N
Plan International	Plan	INGO	Y	M	English	N	N	Y
Population Services International/Population Services Khmer (PSI/PSK)	PSI	INGO	Y	F	English	Y	N	Y
Samaritan's Purse (SP)	SP	INGO	Y	M	English	N	N	Y

Actor Name	Label	Organization Type	In Network (ONA)	Gender of Org Head	Language of Interview	Member of:		
						RuSH Sub-group	SCE Group	FSM Fan Club
Save the Children	StC	INGO	Y	F	English	N	N	N
SNV Netherlands	SNV	INGO	Y	M	Khmer	Y	N	Y
Swiss Red Cross (SRC)	SRC	INGO	Y	F	Khmer	N	N	Y
The Catholic Agency for Overseas Development (CAFOD)	CAFOD	INGO	Y	F	Khmer	N	N	N
Voluntary Service Overseas (VSO)	VSO	INGO	Y	M	Khmer	N	N	N
Water.org	Water.org	INGO	Y	M	Khmer	N	N	Y
WaterAid	WaterAid	INGO	Y	M	English	Y	Y	Y
World Hope International	WHI	INGO	Y	M	English	N	N	N
World Renew	WRenew	INGO	Y	F	Khmer	N	N	N
World Vision Cambodia	WVision	INGO	Y	M	Khmer	N	N	Y
Investing in Children and their Societies (ICS)	ICS	INGO	Y*	F	English	N	N	N
SPLASH	SPL	INGO	N	M	Khmer	N/A	N/A	N/A
Cambodian (Local) NGOs								
1001 Fontaines Teuk Sa'at	1001F	LNGO	Y	M	Khmer	N	N	N
Cambodia Global Action CHE program	CGA	LNGO	Y	M	Khmer	N	N	N
Child Rights Foundation	CRF	LNGO	Y	M	Khmer	N	N	N
Clear Cambodia	Clear	LNGO	Y	M	Khmer	N	N	N
Community Empowerment Development Team (CEDT)	CEDT	LNGO	Y	F	Khmer	N	N	N
Community Health and Development Action (CHADA)	CHADA	LNGO	Y	M	Khmer	N	N	N
Development for Partnership in Action (DPA)	DPA	LNGO	Y	M	Khmer	N	N	N
Federation of Associations for SMEs of Cambodia (FASMEC)	FASMEC	LNGO	Y	M	Khmer	N	N	N
Ideas at Work	Ideas	LNGO	Y	M	Khmer	N	N	N
Khmer Community Development (KCD)	KCD	LNGO	Y	F	Khmer	N	N	N
Khmer Youth Association (KYA)	KYA	LNGO	Y	F	Khmer	N	N	N
Life with Dignity (LWD)	LWD	LNGO	Y	M	Khmer	N	N	N
Peace and Development Aid Organization (PDAO)	PDAO	LNGO	Y	M	Khmer	N	N	N
RainWater Cambodia (RWC)	RWC	LNGO	Y	M	Khmer	N	Y	Y
Reproductive and Child Health Alliance (RACHA)	RACHA	LNGO	Y	F	Khmer	N	N	N
Sovann Phum	Sovann	LNGO	Y	M	Khmer	N	N	N

Actor Name	Label	Organization Type	In Network (ONA)	Gender of Org Head	Language of Interview	Member of:		
						RuSH Sub-group	SCE Group	FSM Fan Club
Srer Khmer	Srer	LNGO	Y	M	Khmer	N	N	N
WASH Skills Development Organization (WASH SDO)	WASHSDO	LNGO	Y	M	Khmer	Y	N	Y
WaterSHED	WaterSHED	LNGO	Y	M	English	Y	Y	Y
Sahmakum Teang Tnaut	STT	LNGO	N		Khmer	N/A	N/A	N/A
Private Sector								
17 Triggers	17T	Private Sector	Y	F	Khmer	N	N	N
Advanced Engineering Cambodia (AE)	AE	Private Sector	Y	M	English	N	N	N
AMK	AMK	Private Sector	Y	M	Khmer	N	N	N
ATEC*International	ATEC	Private Sector	Y	M	English	N	N	N
Chamroeun	Cham	Private Sector	Y	M	Khmer	N	N	N
Chip Mong Group	CMG	Private Sector	Y	M	Khmer	N	N	N
Hydrologic	Hydro	Private Sector	Y	F	English	N	N	N
ISI Group/ FUXIN	ISI	Private Sector	Y	M	Khmer	N	N	N
LOLC (Cambodia) Plc.	LOLC	Private Sector	Y	M	Khmer	N	N	N
PriceWaterhouseCoopers (PWC)	PwC	Private Sector	Y	F	English	N	N	Y
VisionFund	Vision	Private Sector	Y	M	Khmer	N	N	N
WaterSHED Ventures	WSVen	Private Sector	Y	F	Khmer	N	N	N
Wetlands Work! Ltd	Wetlands	Private Sector	Y	M	English	Y	Y	Y
Karuna Training Center (KTC)	KTC	Private Sector	N		English	N/A	N/A	N/A
Marketing Strategy and Development Co., Ltd (MSD)	MSD	Private Sector	N		English	N/A	N/A	N/A
Development Partners								
Asian Development Bank (ADB)	ADB	DP	Y	M	English	N	N	N
Australian Department of Foreign Affairs and Trade (DFAT)	DFAT	DP	Y	F	English	N	N	N
GIZ	GIZ	DP	Y	F	English	N	N	N
Japan International Cooperation Agency (JICA)	JICA	DP	Y	M	English	N	N	N
Korea International Cooperation Agency (KOICA)	KOICA	DP	Y	M	English	N	N	N
UN-HABITAT	UNHAB	DP	Y	M	English	N	N	N
UNICEF	UNICEF	DP	Y	F	English	N	Y	Y
US Agency for International Development (USAID)	USAID	DP	Y	F	English	N	N	Y

Actor Name	Label	Organization Type	In Network (ONA)	Gender of Org Head	Language of Interview	Member of:		
						RuSH Sub-group	SCE Group	FSM Fan Club
World Bank (WB)	WB	DP	Y	F	English	Y	N	Y
World Health Organization (WHO)	WHO	DP	Y	M	Khmer	N	N	N
UNDP	UNDP	DP	N		Khmer	N/A	N/A	N/A
Government								
Council for Agricultural and Rural Development (CARD)	CARD	Government	Y	M	Khmer	N	N	N
Ministry of Education, Youth, and Sport (MOEYS)	MOEYS	Government	Y	F	Khmer	N	N	N
Ministry of Environment (MoE)	MoE	Government	Y	M	Khmer	N	N	N
Ministry of Health (MOH)	MoH	Government	Y	M	Khmer	N	N	N
Ministry of Rural Development (MRD)	MRD	Government	Y	M	Khmer	Y	Y	Y
Ministry of Social Affairs (MSA)	MSA	Government	Y	M	Khmer	N	N	N
Ministry of Women Affairs (MOWA)	MoWA	Government	Y	F	Khmer	N	N	N
National Center for Health Promotion (NCHP)	NCHP	Government	Y	F	Khmer	N	N	N
Ministry of Planning	MOP	Government	N		Khmer	N/A	N/A	N/A
Ministry of Agriculture Forestry and Fishery	MAFF	Government	N		Khmer	N/A	N/A	N/A
Ministry of Interior	MOI	Government	N		Khmer	N/A	N/A	N/A
MInistry of Tourism	MOT	Government	N	M	Khmer	N/A	N/A	N/A
Academic								
Institute of Technology Cambodia (ITC)	ITC	Academic	Y	M	Khmer	N	N	N
Royal University of Phnom Penh (RUPP)	RUPP	Academic	Y	F	Khmer	N	N	N
Other								
Cambodia Red Cross (CRC)	CRC	Other	Y	F	Khmer	N	N	Y
Centre for Sustainable Water - Enrich Institute (CSW)	CSW	Other	Y	M	Khmer	N	N	N
National League of Communes/Sangkats	NLC	Other	N		Khmer	N/A	N/A	N/A

Annex 6: Organizations and Activities Indicated

Actor Name	Population of Focus							Activities										
	Infant	Elderly	People with Different Abilities	Remote Rural	Challenging Environments	Women	General Population	CLTS	HH latrine subsidy	Financing Sanitation	Marketing	Market Development	Behavior Change Comms	Infrastructure	Capacity Building	Govt Decentralization	Policy	Advocacy	Research
International NGOs																			
Action Against Hunger (AAH)	X			X	X	X	X	X			X	X	X		X		X	X	
Adventist Development and Relief Agency (ADRA)	X		X	X		X			X	X	X	X	X	X	X				
Asian Outreach Cambodia				X	X				X	X			X	X	X				X
BORDA				X	X	X	X		X		X		X	X	X				X
CARE		X	X	X	X	X	X						X	X	X			X	
Caritas Cambodia		X	X	X		X	X	X	X	X	X	X	X	X	X	X		X	
ChildFund	X		X	X		X	X	X	X				X	X	X	X			
East Meets West Foundation (EMWF)			X	X	X	X	X	X	X		X	X	X	X	X				X
Engineers Without Borders (EWB) Australia	X		X	X	X		X	X	X		X	X	X	X	X		X	X	X
Good Neighbours Cambodia	X	X	X				X	X		X	X	X	X	X	X				
Group de Recherces et d'Echanges Technologiques (GRET)							X	X	X		X	X	X	X	X	X	X	X	X
Habitat for Humanity Cambodia			X	X	X	X		X	X	X			X	X	X	X			
iDE			X		X	X	X		X	X	X	X	X	X	X		X	X	X
Indochina Star Fish Foundation (ISF)							X						X	X	X				
Innovative Water Center at the National Polytechnic Institute (iWC)				X										X			X		X

Actor Name	Population of Focus							Activities											
	Infant	Elderly	People with Different Abilities	Remote Rural	Challenging Environments	Women	General Population	CLTS	HH latrine subsidy	Financing Sanitation	Marketing	Market Development	Behavior Change Comms	Infrastructure	Capacity Building	Govt Decentralization	Policy	Advocacy	Research
Johanniter International Association (JIA)	X			X	X		X	X	X			X	X		X				X
Lien Aid							X						X	X	X				
Live and Learn Environmental Education Cambodia				X	X						X		X	X					
Muslim Aid Cambodia	X	X	X	X		X		X	X	X	X		X	X	X		X	X	
Oxfam Australia	X		X	X	X	X	X	X	X				X	X	X		X	X	X
People in Need (PIN)				X	X		X	X	X	X	X	X	X	X				X	X
Plan International	X	X	X	X	X	X	X	X					X		X	X	X	X	X
Population Services International / Population Services Khmer (PSI/PSK)						X	X					X	X						X
Samaritan's Purse (SP)	X			X			X	X	X		X		X	X	X	X	X	X	X
Save the Children	X		X	X	X			X	X	X	X	X	X	X	X			X	
SNV Netherlands							X	X					X		X	X			
Swiss Red Cross (SRC)				X	X		X	X	X				X						
The Catholic Agency for Overseas Development (CAFOD)		X		X		X	X	X	X				X	X	X	X		X	
Voluntary Service Overseas (VSO)				X	X	X	X					X	X		X			X	X
Water.org							X			X									
WaterAid	X		X		X	X						X	X		X	X	X	X	X
World Hope International							X	X	X				X						

Actor Name	Population of Focus							Activities											
	Infant	Elderly	People with Different Abilities	Remote Rural	Challenging Environments	Women	General Population	CLTS	HH latrine subsidy	Financing Sanitation	Marketing	Market Development	Behavior Change Comms	Infrastructure	Capacity Building	Govt Decentralization	Policy	Advocacy	Research
World Renew			X	X		X	X	X	X				X	X	X	X		X	X
World Vision Cambodia							X	X				X	X	X	X				
Investing in Children and their Societies (ICS)			X				X						X		X	X			
Cambodian (Local) NGOs																			
1001 Fontaines Teuk Sa'at				X	X		X						X		X				
Cambodia Global Action CHE program	X	X		X		X	X	X	X				X		X			X	
Child Rights Foundation			X			X	X	X	X	X			X	X	X			X	
Clear Cambodia				X			X	X	X				X		X				
Community Empowerment Development Team (CEDT)							X								X				
Community Health and Development Action (CHADA)			X	X	X	X	X	X			X	X	X	X					
Development for Partnership in Action (DPA)			X			X	X	X	X				X	X	X			X	
Federation of Associations for SMEs of Cambodia (FASMEC)							X					X						X	
Ideas at Work	X		X			X					X	X	X						
Khmer Community Development (KCD)			X	X	X		X		X	X			X						
Khmer Youth Association (KYA)		X	X	X			X	X					X		X			X	
Life with Dignity (LWD)	X		X	X	X	X	X		X			X	X	X	X	X		X	

Actor Name	Population of Focus							Activities											
	Infant	Elderly	People with Different Abilities	Remote Rural	Challenging Environments	Women	General Population	CLTS	HH latrine subsidy	Financing Sanitation	Marketing	Market Development	Behavior Change Comms	Infrastructure	Capacity Building	Govt Decentralization	Policy	Advocacy	Research
Peace and Development Aid Organization (PDAO)				X	X		X	X	X			X	X	X	X	X			
RainWater Cambodia (RWC)				X			X	X	X		X		X	X	X	X			X
Reproductive and Child Health Alliance (RACHA)	X	X	X	X	X	X	X		X		X		X	X	X				
Sovann Phum		X	X	X		X	X	X					X		X				
Srer Khmer							X	X	X	X		X	X	X	X	X	X	X	
WASH Skills Development Organization (WASH SDO)		X	X	X	X	X		X		X	X	X	X		X	X	X		
WaterSHED				X			X			X	X	X	X		X	X	X	X	X
Private Sector																			
17 Triggers	X			X		X		X	X		X		X			X			X
Advanced Engineering Cambodia (AE)							X							X	X				X
AMK			X	X	X		X			X	X		X						
ATEC*International					X		X				X	X		X					
Chamroeun				X	X	X	X			X			X				X		X
Chip Mong Group							X												
Hydrologic							X				X	X			X				
ISI Group/ FUXIN				X			X			X		X	X	X					X
LOLC (Cambodia) Plc.				X			X			X									
PriceWaterhouseCoopers (PWC)							X												

Actor Name	Population of Focus							Activities											
	Infant	Elderly	People with Different Abilities	Remote Rural	Challenging Environments	Women	General Population	CLTS	HH latrine subsidy	Financing Sanitation	Marketing	Market Development	Behavior Change Comms	Infrastructure	Capacity Building	Govt Decentralization	Policy	Advocacy	Research
VisionFund						X	X			X	X								X
WaterSHED Ventures	X	X		X			X				X	X	X						
Wetlands Work! Ltd	X		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
Development Partners																			
Asian Development Bank (ADB)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Australian Department of Foreign Affairs and Trade (DFAT)							X					X	X		X				
GIZ	X												X	X	X	X	X	X	
Japan International Cooperation Agency (JICA)							X			X		X	X	X	X		X		X
Korea International Cooperation Agency (KOICA)							X	X	X					X					
UN-HABITAT							X							X	X	X		X	
UNICEF	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X
US Agency for International Development (USAID)	X					X		X					X						
World Bank (WB)							X						X		X	X	X	X	X
World Health Organization (WHO)							X						X		X		X	X	X
Government																			
Council for Agricultural and Rural Development (CARD)							X	X		X	X		X		X		X	X	X
Ministry of Education, Youth, and Sport (MOEYS)	X	X	X	X	X	X	X						X	X	X	X	X	X	

Actor Name	Population of Focus							Activities											
	Infant	Elderly	People with Different Abilities	Remote Rural	Challenging Environments	Women	General Population	CLTS	HH latrine subsidy	Financing Sanitation	Marketing	Market Development	Behavior Change Comms	Infrastructure	Capacity Building	Govt Decentralization	Policy	Advocacy	Research
Ministry of Environment (MoE)							X			X					X	X			
Ministry of Health (MOH)							X						X		X	X	X		
Ministry of Rural Development (MRD)							X	X	X	X	X	X	X	X	X	X	X	X	X
Ministry of Social Affairs (MSA)	X	X	X		X	X	X	X	X			X	X	X	X	X	X	X	X
Ministry of Women Affairs (MOWA)						X	X						X		X				
National Center for Health Promotion (NCHP)							X	X			X		X				X		
Academic																			
Institute of Technology Cambodia (ITC)							X								X				X
Royal University of Phnom Penh (RUPP)							X					X	X						X
Other																			
Cambodia Red Cross (CRC)	X	X	X		X	X	X						X	X	X				
Centre for Sustainable Water - Enrich Institute (CSW)			X	X	X	X	X						X		X				X

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