Knowledge Networks in the Mekong

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October, 2018

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What are knowledge networks?

As far back as 1646, the British chemist Robert Boyle was corresponding with friends and colleagues in what he referred to as 'our invisible college' - an informal network of 'natural philosophers' united by a common interest in advancing knowledge through experimental investigation. The invisible college is generally considered to be one of the precursors to the Royal Society. The technology has changed considerably since parchment and quill pens, but the invisible college lives on. In her book The New Invisible College: Science for Development, Caroline S. Wagner applies the idea to today's global network of communications among scientists (Wagner, 2008). Wagner argues that, "the shift from big science to global networks creates unprecedented opportunities for developing countries to tap science's potential. Rather than squander resources in vain efforts to mimic the scientific establishments of the twentieth century, developing country governments can leverage networks by creating incentives for top-notch scientists to focus on research that addresses their concerns and by finding ways to tie knowledge to local problem solving" (p. 13).

Knowledge networks, then and now, global or local, are meant to manage knowledge. Based on a frequency analysis of common words appearing in 100 definitions, Girard *et al.* (2015) define knowledge management as "the process of creating, sharing, using and managing the knowledge and information of an organization." The academic publishing house IGI Global has compiled 189 definitions, many of which add the dimension of purpose, which is absent in the Girard *et al.* definition. For example, "A range of strategies and practices used in an organization to identify, create, represent, distribute, and enable adoption of insights and experiences" (Levy and Pliskin, 2012) or "the discipline of enabling individuals, teams and entire organizations to collectively and systematically capture, store, create, share and apply knowledge to better achieve their objectives". [1]

A knowledge network is a platform or channel for one or more of these processes. Whatever shape they may take, their basic function is to enable individuals, teams and organizations to collectively and systematically capture, store, create, share and apply knowledge to achieve their objectives. They are widely used in industry, government, the professions, academia and development. People use the terms 'network' and 'forum' fairly loosely to refer to events and initiatives that would be more accurately described as corporate communications and conferences. Because the term 'knowledge network' is applied so broadly, it is useful to have a typology such as the one offered by Knowledge Management Online.[2]

Communities of practice (COP) are "naturally flourishing knowledge networks of people with a high interest in learning, investigating, developing and improving the knowledge subject matter and share common work goals." A COP requires good facilitation and moderator support.

Knowledge forums and knowledge cafés emphasize the value of social interaction and face-to-face communication. These are social meeting techniques that can be organized within and between organizations with a special interest in creating and leveraging specialist knowledge.

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[1] Knowledge Management Online. Accessed at
http://www.knowledge-management-online.com/Definition-of-Knowledge-Management.html
[2] See *http://www.knowledge-management-online.com/KnowledgeNetworks.html*

Communities of interest are more loosely organized COPs and may have a larger membership. COI's are often supported by discussion forums and community software technologies.

Knowledge teams focus on a specific body of knowledge a team wants to create, improve and apply. National working groups can be considered here. These are usually groups co-chaired by a donor and a government ministry. For example, in Laos the Water Working Group is chaired by Australia and DWR MONRE and France co-chairs the Agriculture and Land Working Group with MAFF. With goodwill and good management, these groups can be quite effective.

Unstructured and structured discussion forums. Most people have at some time been involved in an unstructured discussion forum, for example a bulletin board, chat line, or discussion thread on a website. They can be useful but are difficult to manage. A structured discussion forum on the other hand is managed with a facilitator or moderator who ensures specific goals, actions and outputs are discussed and agreed within specific timeframes.

In this paper, we offer a broad survey of Mekong knowledge networks to illustrate the types outlined above. Whereas the aims of all types of knowledge networks are similar, the discussion of what makes an effective network likewise draws from diverse sources. In the final section, the discussion is narrowed to knowledge networks designed to support Official Development Assistance (ODA) projects.

Who uses knowledge networks?

Knowledge networks are widely used in industry, government, the professions, academia and development. Regardless of the sector, knowledge networks help individuals and organizations understand the processes of knowledge creation, diffusion and use (Phelps *et al.* 2012). These processes are not in any sense neutral. In "Knowledge Networks and Global Policy", Diane Stone (2003) argues that, "As authority over global political, social and economic activity is globally diffused among a variety of public and private actors, knowledge networks become crucial arbiters and co-ordinators in policy formulation."

Communities of practice

The CGIAR Research Program on Water, Land and Ecosystems (and before it, the CGIAR Challenge Programme on Water and Food) is currently one of the largest knowledge sharing platforms in the Mekong Region.[3] From 2009–2017, these programmes comprised a network of 144 formal partners that implemented 33 research-for-development projects. Nearly half of these were regional research institutions, one-third were regional government agencies, one-quarter regional NGOs, and nearly one-fifth were international research institutions. The network emphasized diversity and approaching critical water-related problems from multiple perspectives. The programme platform was organized around themes which the network coordinated. Themes emphasized capacity building, which led it to its association with M-POWER (see below), and CPWF took on the M-POWER fellowship programme after the latter

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[3] See *https://wle-mekong.cgiar.org/about-us/our-partners/*
and *http://www.siwi.org/publications/towards-multi-stakeholder-platform-mekong-basin/* for a less biased perspective.

ended. The Mekong Forum was the programme's flagship event and brought project-level initiatives to regional levels. In 2017, 171 institutions participated in the Forum.

LaoFAB is a well-organized, active moderated forum for sharing information about agriculture, rural livelihoods and natural resource management in Lao PDR. The forum consists of a Google discussion group, an online library, a Facebook page and a LinkedIn group. Its 4000+ members[4] include government officials, staff of donor agencies and NGOs, project experts, academics, business people, journalists and students. Membership is free. LaoFAB is an activity of the Lao Upland Rural Advisory Service, a project approved by the Lao Ministry of Agriculture and Forestry and funded by the Swiss Agency for Development and Cooperation. LaoFab is managed by CLICK, a Lao social enterprise. Volunteer moderators post a steady stream of news and are also responsible for approving new members and any files uploaded to the repository.

The Sustainable Mekong Research Network (Sumernet) was originally proposed by the Stockholm Environment Institute and launched in 2005 with support from the Swedish International Development Agency. It is supported by a secretariat at the Stockholm Environment Institute in Bangkok, Thailand. its aim is to connect research partners working on sustainable development in six countries of the Mekong Region: Cambodia, China (specifically Yunnan Province and Guangxi Zhuang Autonomous Region), Lao PDR, Myanmar, Thailand, and Vietnam. Its main research themes are climate, energy and health. Its stated aim is "to meet the need for integrated research by supporting and promoting the use of scientific evidence in policy making, with the overarching goal of contributing to sustainable development in the Mekong Region."[5] Sumernet has over 50 individual and organization members, including research and policy making institutions and claims to have, "a strong track record of publications and outreach activities." Sumernet has had three phases of funding (2005–2009, 2010–2013 and 2014 to June 2017). A fourth phase was approved in late 2017. The website shows an active calendar of events and up-to-date news bulletins.[6]

The Mekong Program on Water, Environment and Resilience or M-POWER, was "a network of collaborators undertaking action-based research, facilitated dialogues and knowledge brokering to improve water governance in the Mekong Region in ways that support sustainable livelihoods and healthy communities and ecosystems." M-POWER sought to promote "a high standard of democracy in water governance". The network began in 2004 as a community of practice with members from Cambodia, Lao PDR, Myanmar, Thailand, Vietnam and China's Yunnan Province. M-POWER's stated objective was to make it normal practice for important national and transnational water-related options and decisions to be examined in the public sphere.

Activities were supported by a network of approximately 30 partners from academic and non-government organizations, international organizations and government agencies. The network received funding from several sources, including Echel Eau, the International Fund for Agricultural Development, Rockefeller Foundation, and the Blue Moon Fund. An M-Power fellowship program in 2006 awarded nearly 90 fellowship grants to professionals to conduct research studies on water governance in the Mekong Region. From 2011–2012, the CPWF provided funding for fellowships

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[4]   Most recent membership figure from May 2015.
[5]   See *https://www.sei.org/projects-and-tools/projects/sumernet/*
[6]   See *http://www.sumernet.org/*

through a project (led by the Asian Institute of Technology) "to improve the capacity of M-POWER fellows to critically analyze water resource management and development, as well as the challenges for democratizing water governance in the region." The Fellowships were small and of short duration and contributed to CPWF achieving its programme goals in the Mekong and in this sense could be regarded as a knowledge team. All Fellows worked in the Mekong Region with their fellowship sometimes fitting into a broader research initiative or degree program. The programme was carried though to the Water, Land and Ecosystems Program, a WLE activity that built on the M-POWER work). M-POWER ended in 2016 when its Steering Committee retired.

The ASEAN University Network was established in 1995 to, "hasten the solidarity and development of a regional identity through the promotion of human resource development to further strengthen the existing network of leading universities and institutions of higher learning in the region." Starting with eleven universities from six countries, AUN now has 30 university members and 16 UN, foundation and other partners. AUN aims to develop Southeast Asian interdisciplinary academic degree programs, ASEAN regional research projects to be undertaken jointly by scientists and scholars of more than one member state, and an ASEAN Visiting Professors' programme to enable academics from one member state to lecture at an institution of higher education of another member state.[7]

The Urban Knowledge Network Asia is a regional community of practice that "brings together concerned scholars and practitioners engaged in collaborative research on cities in Asia." With over 100 researchers from 17 institutes in Europe, China, India and the United States, UKNA "represents the largest academic international network on Asian cities." A 2012–2016 European Union grant led to the creation of a South East Asian Neighborhoods Network programme (2017–2020). UKNA promotes research under three themes:[8]

- Ideas of the city: to explore competing ideas of the contemporary city,
- Cities by and for the people: to examine who are the actors and how they interact in the production, shaping and transformation of the city, and
- Future of cities: to consider the challenges of urban dwellers and users in the areas of land, housing, infrastructure, services, planning and the environment and personal well-being.

Southeast Asia Regional Policy Network on Education and Skills is an OECD-funded community of practice designed to "foster knowledge exchange in support of national growth and regional integration by encouraging a whole-of-government approach." In the Mekong Region, Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam are members.

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) offers two knowledge networks designed to "develop and share expertise on pressing regional challenges" with a focus on capacity development and research, **The Asia-Pacific Research and Training Network on Trade** (ARTNet) and **The United Nations Network of Experts for Paperless Trade in Asia and the Pacific** (UNNexT).[9] ARTNeT is an open

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7   See *http://www.aunsec.org/*.
8   See *https://www.ukna.asia/urban-knowledge-network-asia-ukna*
9   See *https://artnet.unescap.org/members-and-partners*

regional network composed of leading trade research institutions and think-tanks across the Asia-Pacific region and aims to increase the quality and the amount of trade research in the region. Mekong Region partners are:

- Cambodia Development Resource Institute
- National University of Laos
- Economic Research Institute for Trade (Lao PDR)
- Yangon University of Economics
- Centre for Economic and Social Development (Myanmar)
- Trade Training Institute (Myanmar)
- International Institute for Trade and Development (Thailand)
- Thailand Development Research Institute
- Thammasat Institute for Study of International Cooperation (Thailand)
- The Faculty of Economics, Chulalongkorn University (Thailand)
- The Faculty of Economics, Ramkhamhaeng University (Thailand)
- The Mekong Institute (Thailand)
- Centre for Analysis and Forecasting (Vietnam)
- Foreign Trade University (Vietnam)
- Vietnam National University

UNNExT describes itself as a "community of knowledge and practice for experts from developing countries and transition economies from Asia and the Pacific involved in the implementation of electronic trade systems and trade facilitation." However, given its formal structure of core experts and national focal points managed by a secretariat it would be more accurately described as a knowledge team than a community of practice.

Knowledge fora and cafés

The Greater Mekong Forum on Water, Food and Energy claims to be "the largest annual knowledge sharing event in the Greater Mekong." The organizers make it clear the event is *not* a research forum but is designed for researchers to present their findings, ideas and innovations to potential users through 'facilitated dialogue'. Potential knowledge users are mainly government agencies and the private sector. Feedback from participants has been strongly positive.

The Forum was initiated by the Challenge Program on Water and Food Mekong in 2011 and has been held annually ever since[10], most recently under the CGIAR Research Program on Water, Land and Ecosystems (WLE), with funding from the CGIAR and Australia. In 2017, 431 people participated in the forum, representing 171 institutions, the largest proportion of which were regional research institutions (47%), followed by regional government (27%) and regional NGOs (22%).

Mekong Hub Knowledge and Learning Fair was first convened in July, 2018 by IFAD's Mekong Hub in Da Nang, Vietnam. The fair attracted 130 participants from IFAD-supported programmes and loan projects from Vietnam, Cambodia, Myanmar, Lao PDR and the Philippines. Other participants were from partner projects and grant projects implemented by CGIAR institutions, academies (SEARCA), international NGOs

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[10] 2011 and 2015 in Phnom Penh, 2012 and 2013 in Hanoi, 2016 in Bangkok, 2017 and 2018 in Yangon. No forum was held in 2014.
[11] *http://vcbnetwork.org/wp-content/uploads/2018/05/Mekong-Hub-Learning-Fair-Concept-Note.pdf*
   IFAD Social Reporting blog: *http://ifad-un.blogspot.com/2018/07/fair-promotes-cross-sharing-and.html*

(SNV, Helvetas, CIAT), and farmer organizations (AFA). IFAD's Mekong Hub is composed of country offices and programmes in Vietnam, Cambodia, Myanmar, Lao PDR and the Philippines. The Fair was organized "to capture the knowledge generated from 17 ongoing IFAD and related projects and to share the learning to IFAD country programmes, projects and partners within the hub." Based on the success of the 2018 fair, IFAD is planning to host the fair again in 2019.[11]

The Mekong Tourism Forum is a "platform for public and private sector stakeholders in the tourism industry to discuss the development, marketing and promotion of travel to, from and within the Greater Mekong Subregion and monitor sustainable and responsible tourism growth." The Forum was 'revived' in 2010 and held annually ever since in a different Mekong Region city with a different theme. In addition to the traditional 'talking head' sessions, the Forum offers mini film festivals, cocktail parties, press conferences, networking receptions and award ceremonies.

The Mekong Mission Forum / Network is "a partnership of Church ministries in Southeast Asia." Since 2000, the Mekong Mission Forum, "has been networking Christian churches, theological institutions in the Mekong River area to enhance the holistic mission of Lutheran, Evangelical and Ecumenical partners in the Mekong and around the world." The Forum is a mix of workshops and events.

Numerous events use the word 'forum' synonymously with 'conference'. For example:

The Mekong Forum is hosted by the Mekong Institute based in Khon Kean Thailand every two years and uses a traditional conference format.

The Green Mekong Forum is organized by the Government of Japan and the Mekong countries. The first forum was in 2010, as one part of Japan-Mekong cooperation for heightening awareness of environmental problems and promoting cooperation on sustainable development and is held every two years.

Communities of interest

The International Hydropower Association uses the term 'knowledge network' to describe their community of interest. They list eleven topics ranging from 'asset management' to 'water footprint' with the stated aim of "bringing together hydropower professionals from throughout our membership to share ideas and experiences, discuss new developments and collaborate on a range of topics of mutual interest." Participation is restricted to employees of an IHA corporate member or an individual member of IHA and "offer you the chance to raise your profile and advance your professional development by showcasing successful initiatives or examples of good practice to the community."[12]

Unstructured and structured discussion forums

The Vietnam Development Forum (formerly the Consultative Group and more recently the Vietnam Development Partnership Forum) is a highly structured forum for discussion between government and donor agencies on development policies and donor pledges. This annual event is designed to build consensus and generate

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[12] See *https://www.hydropower.org/iha-knowledge-networks*

commitment among stakeholders toward the Government's development and reform priorities. Four representatives of international NGOs are invited to the meeting as observers and share one seat at the meeting table.

Knowledge teams

In 2008, World Health Organization set up nine knowledge teams designed to manage a multi-author publication process to compile reports on a range of topics including early child development, employment conditions, and globalization. Reports were funded by WHO and the writing was outsourced to partner organizations (WHO, 2011).

What makes for an effective knowledge network?

There has been increasing research interest on social networks and networks for knowledge management since the late 1990s. Scholars and researchers were then mainly interested in network models (e.g. Beckmann, 1995; Alvi and Leidner, 1991) and their role in innovation in the private sector (cf. Swan *et al.*, 1999; Bell and Albu, 1999), From 2000 onward, interest increased considerably and researchers sought to explain more detailed aspects of knowledge networks, for example, effective knowledge sharing in multiunit companies (Hansen, 2002), its role in product development cycles and competitive advantage (Akgün *et al.* 2005; Argote and Ingram, 2000), diffusion through large networks (Ernst and Kim, 2002) and the role of interpersonal factors such as trust (Abrams *et al.* 2003). Reviews of this vast body of literature are few and far between and usually behind publisher's paywalls (Phelps *et al.* 2012). What information is accessible, however, suggests a number of common factors that determine the effectiveness of a knowledge network, including organizational culture, how 'close' people are (geographically, socially, cognitively), the structure, management and administration of the network, and how those factors interact.

Organizational culture determines what qualifies as 'knowledge', who controls it and how it is created and distributed. It also, "...creates the context for social interaction that determines how knowledge will be used in particular situations" (De Long and Fahey, 2000). De Long and Fahey suggest that understanding these elements, "...is the critical first step in developing a strategy and specific interventions to align the firm's culture in support of more effective knowledge use. For example, a study at Caterpillar Inc., a Fortune100, multinational corporation, found that, "when employees view knowledge as a public good belonging to the whole organization, knowledge flows easily." Factors that inhibited sharing included fear of criticism and lack of confidence that contributions would be viewed as important, accurate or relevant to a discussion.

'Proximity' has emerged as another major factor affecting knowledge networks. Broekel and Boschma (2012) showed that "cognitive, social, organizational and geographical proximity were crucial for explaining the knowledge network of the Dutch aviation industry." Geographical proximity makes it easy for members of a network to connect and exchange knowledge, but paradoxically, too much proximity may inhibit innovative performance. Similarly, Hansen (2002) looked at 120 new product development projects in 41 business units of a large multiunit electronics company and found that "project teams obtained more knowledge from other units and completed their projects faster if the interunit network paths were short" and that "established relations mitigated problems of transferring noncodified knowledge."

Geographical proximity was the underlying factor in the one major complaint noted in the tracer study on the M-POWER fellows the Water, Land and Ecosystems MK31, 32 and 33 projects. Fellows who were geographically far from their mentors faced larger challenges than those with mentors in the same organization or country.

A major reason for establishing the M-POWER network was to build constructive connections between individuals and organisations across a large territorial area (the Mekong Region) where a) actions by one country influence others and b) building a more region-wide exchange and understanding and between people who are policy influencers in their own country.

Network structure influences the knowledge transfer process in a research and development firm. Reagans and McEvily (2003) found that both social cohesion and network range make knowledge transfer easier and were more important factors than the strength of a tie between any two people. In social network analysis, the concept of social cohesion is defined as "the minimal number of actors in a social network that need to be removed to disconnect the group" (Wikipedia Contributors, 2018) and network range is a measure of how an individual distributes their connections across a range of subgroups and how strongly connected those subgroups are" (Morel, n.d.).

'Weak ties' are another feature of networks that facilitate or inhibit the flow of information. Interpersonal connections or 'ties' are defined in social network theory as "information-carrying connections between people." Interpersonal ties are strong (e.g. close friends or colleagues) or weak (e.g. an acquaintance). Weak ties are responsible for most information transmission through networks of any kind. In his study of 120 new-product development projects undertaken by 41 divisions in a large electronics company, Hansen (1999) found "weak interunit ties speed up projects when knowledge is not complex but slows them down when the knowledge to be transferred is highly complex" (Hansen, 1999).

How factors interact is illustrated in a case study of Toyota's automotive production network by Dyer and Nobeoka (2000). They found that "suppliers do learn more quickly after participating in Toyota's knowledge-sharing network" and that Toyota effectively addressed three problems common to many knowledge sharing networks: how to motivate members to participate and openly share valuable knowledge, how to prevent free riders, and how to reduce the costs associated with finding and accessing different types of knowledge. They conclude that "if the network can create a strong identity and coordinating rules, then it will be superior to a firm as an organizational form at creating and recombining knowledge due to the diversity of knowledge that resides within a network."

The strengths and weaknesses of Mekong knowledge networks

In this section we briefly discuss knowledge networks related to ODA projects in the Mekong River Basin. Even with this limited scope, it is difficult to assess effectiveness because independent evaluations are generally not to be found in the public domain. The Water, Land and Ecosystems Mekong programme did commission two tracking studies of the M-POWER fellowship program described in above and the findings are supported by the research on the role of organizational culture (De Long and Fahey, 2000) and proximity (Broekel and Boschma, 2012).

M-POWER and Sumernet have convened many events, and proactively engaged in many different arenas, produced a great many publications and individual members have clearly benefited in terms of personal and professional development. To assess the impact they may have had on the standard of democracy in water governance (M-POWER), and use of scientific evidence in policy making (Sumernet) would require independent evaluations. The same applies to any of the other networks mentioned in this paper.

Informal assessments of communities of interest are relatively easy but time consuming. For example, anyone can join LaoFab (free) and observe the traffic over a few weeks. Immediately following the flood event in Attepeu in July 2018, there was a significant spike in posts. There are daily posts on the LaoFab Facebook page and most will receive comments from other users as well as likes and shares. Similarly, anyone can observe first-hand the impact of knowledge forums such as the Greater Mekong Forum on Water, Food and Energy simply by attending or visiting the webpage and viewing the outputs, photos, media coverage and statistics on how many people attended (306 from 139 organizations in 2016[13]). The page for the 2015 forum has a detailed forum survey report[14]. In general, the following elements will give a rough estimation of how much traffic a site is getting: number of comments on their posts, number of YouTube video views, number of social shares, and engagement levels on their fan pages (i.e. Facebook page, Twitter, etc.). The easiest way to get this kind of data is to ask someone involved with managing the network.

There are more systematic and quantitative methods for assessing knowledge networks. Social Network Analysis (SNA) uses mathematical graph theory to describe networks of all kinds in terms of nodes (individual actors, people, or things within the network) and the ties, edges, or links (relationships or interactions) that connect them (Otte and Rousseau, 2002). For example, Castellan and Kibler (2015) used SNA to conduct a comparative analysis of agroecology networks in the Greater Mekong Subregion. With the data they were able to classify agroecology schools based on their conditions of emergence, their structure and governance mechanisms. They concluded that "agroecology schools are not necessarily well coordinated at each level (national, regional, global) nor across levels for each agroecology school.

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[13] See *https://wle-mekong.cgiar.org/2016forum/*
[14] See *https://wle-mekong.cgiar.org/2015forum/*

In Thailand, Stewart *et al.* (2012) organized an online discussion forum for pediatric pain practitioners across seven different hospitals to encourage them to share their knowledge and experience to help improve the management of pediatric pain. The social network analyses "…revealed a network dominated by a single institution and a single profession and found a varied relationship between reading and posting content to the discussion forum… and suggests there is strong inter-professional and interregional communication." They also found that very few nurses were involved in the network.

SNA is a powerful tool that can offer sometimes surprising insights into a network but its use is limited by the high level of expertise needed to gather the data and do the analysis. Traditional qualitative methods such as surveys and focus groups are of some use but cannot offer the same 'depth of vision' as SNA. For example, a socio-centred SNA analyses will show the overall network structure and "the pattern of ties that indicate cohesive social groups, central actors that may be paramount to the integration of the social network, and asymmetries that may reflect social prestige or social stratification."[15]

For example, the University of California San Diego Center on Gender Equity and Health used SNA to analyse a network of girls in a large US school and found that "the larger the node[16], the greater the behavioural risk factors for sexual violence. The clustering of nodes provides structural evidence of risk environments in which sexual violence is more likely." SNA also showed how, "intimate partner violence acceptance is clustered among socially connected individuals and that IPV is generally more accepted on the periphery of the network" in a village in Honduras."

Conclusion

While there appear to be a great many knowledge networks in the overseas development assistance sector, there has been very little research on their function or impact. Development organizations and NGOs often spend considerable time and effort setting up and managing a knowledge network, but is it worth the cost and are they getting an acceptable return on investment in terms of outcomes and impacts? A research agenda on knowledge networks might address some of the following questions.

What leads individuals and organizations to set up a knowledge network and how do they choose what form of network to establish?

What factors determine which type of network is best for a particular purpose? For example, to offer advice to policy makers would a knowledge forum work better than a community of practice?

How much time and effort do people invest in learning what knowledge and skills are needed to set up and sustain a network before they begin?

What is the cost of setting up and managing a network and how do we measure return on investment?

How can we monitor and assess if a network is having the intended impact?

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[16]   A node refers to individual actors, people, or things within the network. In this case, a node would be a group of influential actors.

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