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Effective Tools for Knowledge Management and Learning in Agriculture and Rural Development

Krishan Bheenick and Israel
Bionyi

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About CTA

The Technical Centre for Agricultural and Rural Cooperation (CTA) is a joint international institution of the African, Caribbean and Pacific (ACP) Group of States and the European Union (EU). Its mission is to advance food and nutritional security, increase prosperity and encourage sound natural resource management in ACP countries. It provides access to information and knowledge, facilitates policy dialogue and strengthens the capacity of agricultural and rural development institutions and communities.

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For more information on CTA, visit www.cta.int

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This study could not have been carried out if the networks and organisations involved in knowledge management in the agricultural and rural development sector had not documented and shared their experiences. The authors can only commend these organisations and encourage others to do the same, to promote learning.

CTA's stakeholders in the African, Caribbean and Pacific regions have been requesting for simplification of concepts of knowledge management and have been seeking recommendations for methods and tools that can be applied. This has been the main motivation for the analysis carried out and the exercise of conceptualisation of knowledge management in agricultural and rural development (KM4ARD). This Working Paper complements the resources on KM4ARD which CTA is making available through its knowledge management blog at <http://km4ard.cta.int>. This blog also proposes to highlight implementation of KM4ARD in the ACP regions and the authors encourage readers to share their experiences on implementation of knowledge management in agricultural institutions in ACP regions and beyond.

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Executive summary

As part of implementing its mandate to support capacity development of institutions involved in agricultural and rural development (ARD) in the African, Caribbean and Pacific regions (ACP), the knowledge management (KM) team at the Technical Centre for Agricultural and Rural Cooperation (CTA) carried out desk research and analysis of KM methods and tools that are already being recommended and used by institutions in ARD. Guidebooks on KM practice have been developed by several institutions but they propose a variety of methods and tools that can be overwhelming for a beginning KM practitioner in the ARD sector. Therefore, the purpose of CTA's KM team was to explore if a framework could be developed to understand KM and a shortlist of KM methods and tools identified, providing a useful starting point for beginning KM practitioners.

The approach used was to identify those methods and tools most often recommended in guidelines and toolkits produced by development organisations involved in agriculture and rural development. The assumption is made that the tools which are more popular in the guidelines are also the ones that have been found to be effective by these organisations. CTA's KM team systematically searched for KM methods and tools listed in guidelines for their staff by 20 networks and institutions involved in KM in agriculture and rural development (KM4ARD). The compiled list was then analysed.

This study has found that institutions use different terms to describe their perspective on KM. Furthermore, they use different terms for similar KM methods and tools. However, an overview of KM was possible, encompassing the various terms used but better visualised and understood through the use of diagrams. The KM process is described as a set of overlapping and interacting stages and also described diagrammatically. The desk study identified 125 individual terms describing a comprehensive list of KM methods and tools used by these networks. A few of the tools are mentioned by a majority of networks. Based on analysis of the descriptions of the methods and tools, these could be aggregated into clusters, which reflect similar conceptual approaches to the methods and tools. Thus, a set of 35 clusters of KM methods and tools have been identified. The popularity of the tools and methods corresponding to the clusters have been analysed both from the perspective of frequency of mentions and the spread of mentions across these networks. The results show consistency in the popularity of some of the clusters.

The list of 35 KM methods and tools clusters represent the range of concepts of KM applied in agriculture and rural development. This list, along with the conceptual diagrams representing the perspectives of KM4ARD, as well as the overlapping stages of KM provide a useful framework to understand aspects of KM. Some aspects of KM are more visible than others, but the less visible aspects are no less important. Therefore, the beginning KM4ARD practitioner can make use of the framework to assess their requirements for KM based on their context, which specific aspects of KM they may want to focus on or opt for a holistic approach. Within the relevant clusters that relate to the KM processes they can identify specific methods and tools to apply. Finally, the beginning KM4ARD practitioner can resort to the literature already available about the specific methods and tools to inform implementation. CTA proposes to facilitate the discussion of the framework and the KM methods and tools with the KM4ARD community of practice through its KM4ARD blog (km4ard.cta.int).

Introduction

One of the strategic goals of the Technical Centre for Agricultural and Rural Cooperation (CTA) is 'the strengthening of capacity of institutions involved in agricultural and rural development (ARD) in the African, Caribbean and Pacific regions (ACP)'. ACP organisations have expressed the need for advice on the use of effective ARD knowledge management (KM) methods and tools to support decision-making in agricultural policies and value chains development (VCD).

Much information has been produced about KM as it is applied in the business sector. The concept, which became popular more than 20 years ago, is still considered important as it helps preserve an organisation's knowledge as a 'corporate asset' (Smith, 2001). On the other hand, development organisations value the use and sharing of this asset for collective benefit. In this context, KM is defined as the explicit and systematic management of processes enabling vital individual and collective knowledge resources to be identified, created, stored, shared and used for collective benefit (adapted from Girard & Girard, 2015).

There is a diversity of literature about KM, reflecting perspectives about methods and tools and their use to facilitate KM. Often, the KM perspectives documented within development organisations, research institutes and businesses are formed around their sectoral mandates, their context, the challenges and realities they face, and their unique selling points. The differences could be interpreted as the result of a good practice whereby KM is adapted to the goals of an organisation. This range of perspectives is also reflected in discussions on online platforms among KM professionals such as the Knowledge Management for Development Community (e.g. KM4Dev on the Dgroups platform), which remains a reference community of practice on KM in the development sector. However, this diversity makes the task of a beginning KM practitioner seeking guidance more complex.

The Knowledge Sharing Toolkit (KS Toolkit) is an example of how, over the past decade, several development organisations have compiled a large set of KM methods and tools. The KS Toolkit website (<http://kstoolkit.org>) recognises that the 'wealth' of tools and methods can make it difficult to choose which to use for a specific activity. Thus some guidance is provided on the website on how to choose a method or tool to apply in KM depending on the user's context. However, a beginning KM practitioner from the field of agricultural development may still find it hard to select the most appropriate KM methods or tools for specific themes such as agricultural policy and VCD. After all, they want to identify specific methods and tools that facilitate knowledge capture, evaluation, creation, retention, development, storage, transfer, application, exchange and learning.

In order to further define its framework for supporting capacity development on KM4ARD in ACP regions, the CTA KM team set out to conduct desk research and analysis of KM methods and tools. The objective was to identify those methods and tools more often recommended in guidelines and toolkits produced by development organisations involved in agriculture and rural development. The assumption is made that the tools which are more popular in the guidelines are also the ones that have been found to be effective by these organisations. Thus, following this exercise, the CTA KM team would end up with a shortlist of KM methods and tools that it could propose to ACP organisations and thereafter support capacity development on these to generate, share and apply knowledge locally.

Method

The approach adopted for the analysis was to address it from the perspective of a beginning KM practitioner who sets out to carry out a systematic search for guidelines and resources on KM that are accessible online. These resources would then be narrowed down to sources documented by organisations working in the field of ARD and which provide lists of KM methods and tools that have been used and recommended by KM practitioners in ARD. The most commonly documented use of methods and tools would constitute a good basis for the beginning KM practitioner.

Thus the approach comprised of the following steps:

- 1) Identify a core set of information sources that list KM methods and tools used in ARD (highest ranked compilations, toolkits, guides on KM methods and tools that appear in web search engines)
- 2) Provide a framework for conceptualising and making sense of KM4ARD based on the terminology used by organisations involved in applying KM
- 3) Systematically search for KM methods and tools listed from the core set of resources across various information sources (toolkits, guidebooks, wiki, synthesis reports, discussion fora) among a core set of organisations, networks and communities of practice.
- 4) Compile a list of specific KM methods and tools mentioned among the core set of information sources, and identifying most popular specific methods and tools
- 5) Where possible, group similar specific methods and tools into clusters that represent the range of KM functions applied in ARD
- 6) Assess the popularity of clusters (of KM methods and tools) to identify popularity of KM functions
- 7) Apply the conceptual framework of KM4AD to the clusters to improve understanding of the appropriate methods and tools for application in KM4ARD

The CTA team will document the method, carry out the analysis and present the results of the analysis in the form of a Working Paper for discussion within the KM4ARD community and invite members to explore and validate the results. There will also be the opportunity to apply the method to additional guidelines and toolkits that may be identified.

Following this process, CTA will develop a set of online resources on the KM4ARD blog that will provide further information on these KM4ARD clusters. A dissemination strategy will be developed, especially targeted at KM practitioners in ACP regions and experiences of application of these methods and tools by ACP organisations will be documented.

Findings

Identifying the core set of information sources

While the KM4Dev community and the KS Toolkit already provide reference to KM methods and tools in the development sector, an attempt was made to broaden the scan of information already available online that may be more specifically relevant to ARD.

Major search engines such as Google, Yahoo, and Bing were used to look up responses to searches for terms such as '*knowledge management tools and methods in agriculture and rural development*', and separately as '*knowledge management tools*', '*knowledge management methods*' and '*knowledge management in agriculture and rural development*'. The top search results (first ten pages of hits) were then analysed to identify which institutions and networks did at least one of the following: mentioned KM in ARD; had generated discussions around (KM4ARD); had applied KM tools and methods and developed publications on the topic.

This analysis resulted in the identification of 20 institutions and/or networks (Table 1) which covered at least two of the following criteria:

- had developed KM resources (tools, toolkit or/and methods) and publications accessible online;
- had run and documented experiences from a KM programme/project;
- had managed a KM community of practice on ARD.

Further details of these institutions/networks are provided in Annex 1.

Table 1. Networks and institutions included in the KM4ARD information sources

1	The African Capacity Building Foundation (ACBF)
2	Asian Productivity Organisation (APO)
3	European Commission Capacity4Dev online knowledge sharing platform on development (Capacity4dev)
4	Climate Development Knowledge Network (CDKN)
5	CGIAR
6	Economic Commission for Latin America and The Caribbean (ECLAC)
7	Food and Agriculture Organization of the United Nations (FAO)
8	International Development Research Centre (IDRC)
9	International Fund for Agricultural Development (IFAD)
10	Knowledge Sharing Toolkit (KS Toolkit)
11	Overseas Development Institute (ODI)
12	Swiss Agency for Development and Cooperation (SDC)
13	International Training Centre of the ILO --The COMPASS (COMPASS)
14	United Nations Development Programme (UNDP)
15	United Nations Children's Emergency Fund (UNICEF)
16	United States Agency for International Development (USAID)
17	World Bank Group
18	World Food Programme (WFP)
19	Wageningen University and Research (WUR) Multi-Stakeholder Process Portal (MSP)
20	Knowledge Management Consultants (Knoco Ltd.)

Conceptualisation and visualisation of KM4ARD

The review of the various sources for KM guidance spans over a decade and reflects the range and evolution of terms used by different organisations. Over the years KM tools and approaches have also been adapted to accommodate the potential use of ICTs in their implementation. The methods and tools have generally been incorporated into diverse sets of guides, often referred to as a toolbox or toolkit.

In the course of developing and using KM, some institutions tend to give their own label to KM methods and tools, reflecting their own institutional interpretation, preference and approach to implementation. It is also guided by organisational cultures and traditions and all these have served to create institutional ownership of KM. However, when documented and shared in this form, the documentation reflects the diversity of terms attached to similar functions of these methods and tools. This diversity in descriptions also extends to the broad labelling of knowledge management by different terms including either knowledge management and communication (KMC), knowledge sharing (KS), knowledge exchange (KE), information and communication management (ICM). Therefore, upon first exposure to knowledge management, a beginning KM4ARD practitioner may wonder about the subtle differences among these terms or whether they are interchangeable.

The use of these terms has also changed over time, even within the same institutions. For example, before 2008, the World Bank Group, FAO, IFAD and WFP used the term KM in their interventions, communities and publications but, more recently, the World Bank Group and UNICEF refer more to KE (the World Bank Group has been using KS since 2016 (Janus, 2016)). Similarly, FAO, IFAD and WFP still refer to KM but outreach and engagement with their stakeholders is reflected through the use of terms such as KS and KE. The CGIAR, Capacity4dev, APO and CDKN, on the other hand, often mention 'communication and knowledge management', with a particular emphasis on capacity development.

In order to make better sense of the broad terminology used in KM4ARD by various networks, it may be more useful to visualise KM comprising a family of terms that are used by organisations and networks to reflect the focus of their purpose for KM and their audience. Figure 1 provides a representation that combines the terminologies generally used in literature to currently describe KM4ARD. This illustration can be useful for a beginning KM practitioner to appreciate how KM is referred to by different institutions using different terms while they are still referring to the same concept.

Furthermore, if Figure 1 is imagined as a three dimensional structure, with the different terms appearing 'at the surface' of a structure representing KM, one may understand how different organisations, using their preferred terms, may be introducing KM from different perspectives, resulting in some facets appearing more predominant than other. Such a representation, with these commonly used terms for KM at the surface, can also illustrate why an initial exposure to a facet of KM may lead to the impression that KM has more to do with what is externally more visible (e.g. information management systems and technology, KS techniques, facilitation techniques etc.) while there are other important aspects less visible externally at the core of KM (e.g. planning KM, monitoring & evaluation of KM, learning, tacit knowledge of the people involved). Therefore, the beginning KM practitioner should be aware that there are also interactions within KM to be explored as one gets a better insight into KM.

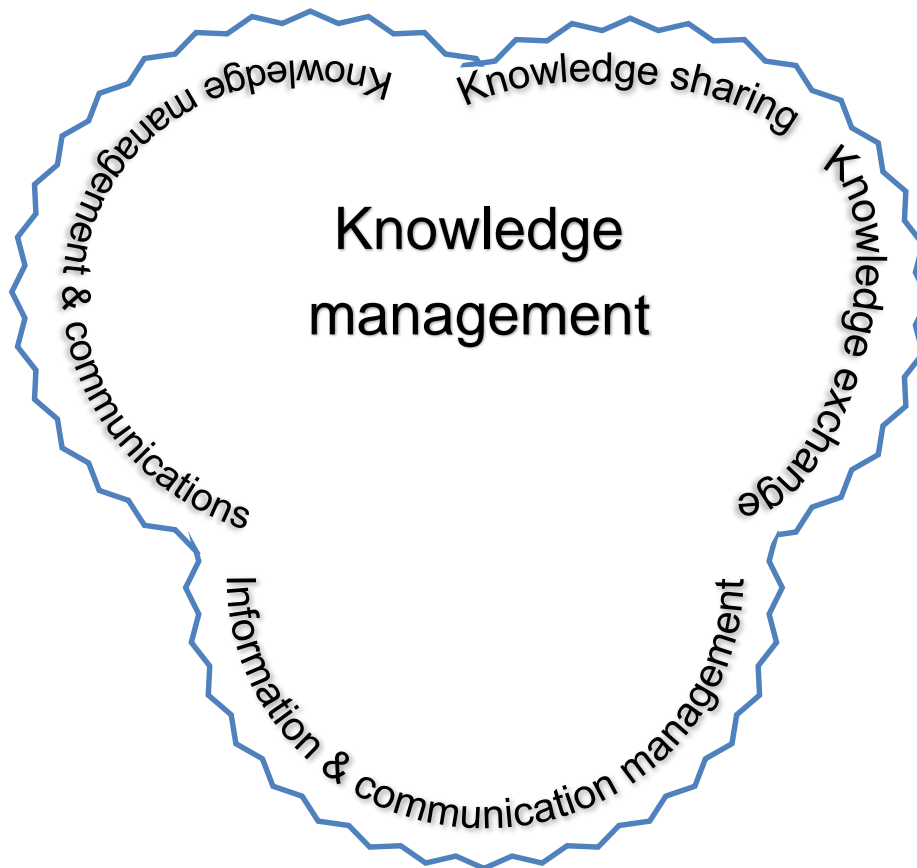


Figure 1. Representation of common perspectives and terminology associated with KM

In the introduction above, KM was described as a process that enables knowledge resources to be identified, created, stored, shared and used for collective benefit. While these stages are generally listed separately and linearly, they are interconnected and overlapping, with iterations among these stages of the KM process. There are also interactions at each stage of the process with the people involved, which enables learning to occur.

In line with the approach used above, a diagram may be more useful to illustrate KM comprising of these overlapping stages rather than a linear process. Therefore, in Figure 2, the stages of the KM process have been arranged to illustrate the overlaps, with some of the stages grouped as follows:

- A. Identification, capture and creation of knowledge
- B. Storage and preservation of knowledge
- C. Sharing, exchange and application of knowledge
- A, B & C intersection: Development of knowledge: planning, monitoring, evaluation and learning (synergistic interactions of the above processes to enable co-creation of knowledge and learning)

Figure 2 combines the perspectives of KM from Figure 1 and matches these perspectives to the stages listed above. If Figure 2 is also imagined as a 3-dimensional structure, the groups A, B and C can be seen to match the perspectives described 'at the surface' of the structure, while the intersection of A, B and C illustrates those stages of the KM process that are at the core of KM and which may not be very visible from an external perspective. The intersection of the three groups illustrates that some aspects of KM emerge from, and are achieved through the coordination, combination and integration of the stages, such intersections enabling greater effectiveness of the KM process. Graphically, the illustration also serves to illustrate why the 'inner' process of KM may not be fully recognised on initial exposure to KM.

This framework can also be used to situate how KM methods and tools are used within the KM process and how these relate to the facets of KM used by the organisations.

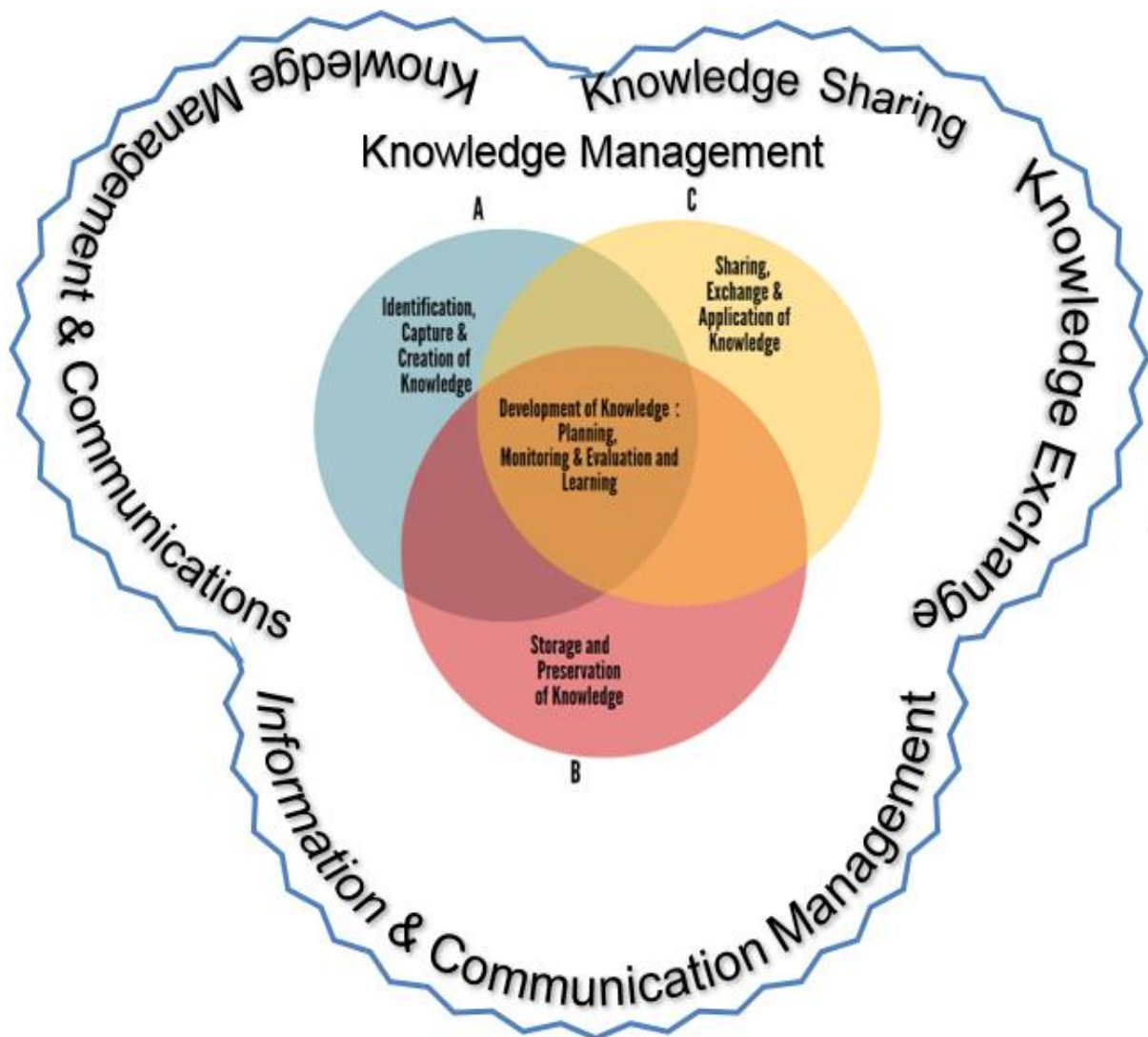


Figure 2. Organisation of processes within the multiple perspectives of KM

Popularity of terminologies and specific KM methods and tools used by networks

The KS Toolkit provides a comprehensive list of methods and tools that are relevant to KM4ARD. However, the list comprises more than 180 methods and tools which, while being comprehensive, can be daunting for a beginning KM practitioner. The networks and institutions listed in Table 1 also mention their preferred but varied set of tools and methods. An initial scan of the information sources indicated that eight of them (APO, FAO, UNICEF, the World Bank Group, IDRC, SDC, ODI and Knoco) had documented and packaged guides on KM and used similar terms to describe methods and tools.

Altogether when compiled, these guides mention 78 terms to describe KM methods and tools. These 78 terms were then used as a starting point to systematically search for each term within the information sources of the 20 networks, comprising of websites, strategic documents, projects, blogs and communities of practice. The specific terms used for KM methods and tools by the networks and institutions were gathered.

Many terms were obvious duplicates, which were combined, resulting in a set of 125 specific methods and tools, each term being mentioned in some cases by all 20 networks to some being mentioned by only one network. Table 2 shows the ranking and frequency of the 125 specific methods and tools.

These specific terms used by the networks were compiled into a spreadsheet for ease of analysis, and to provide a space for compiling additional resources for similar comparisons in the future.

This simple ranking of the 125 specific methods and tools shows that the 27 most popular methods and tools were mentioned by at least five networks (25% of the core set of information sources). This exercise did not involve interpretation of the specific terms used by the 20 sources of information. However, one should be mindful of closely related terms also being mentioned further down the list. Therefore, many of the 125 methods and tools could be further clustered into 'families' of methods and tools with similar functions, which is described below.

Table 2. List of KM methods and tools and terminology used by the 20 networks (frequency)

• Blogs (20)	• Timeline (1)
• Knowledge fair (14)	• Timelines (1)
• Lessons learnt (13)	• Open space technology (1)
• Exit interview (13)	• Action lab (1)
• World café (11)	• Technology-ICMS (1)
• Knowledge exchange (11)	• Open source CMS (1)
• Experience capitalisation (10)	• Secondment (1)
• Social networks (analysis) (10)	• Field visit (1)
• Knowledge map (10)	• Site visit (1)
• Good practices (9)	• Demonstration (1)
• Knowledge resource centre (9)	• Share fair (1)
• Electronic library/repository (9)	• Knowledge market place (1)
• Fishbowl (9)	• Poster session (1)
• Icebreakers (8)	• Networks (1)
• Knowledge audit (8)	• Social networking (1)
• Knowledge café (5)	• Knowledge assets (1)
• Wiki (5)	• Book sprint (1)
• Information management systems (5)	• Action learning sets (1)
• Retrospect (4)	• Learning and idea capture (1)
• Knowledge harvesting (3)	• Business driven action learning (1)
• Social networks (3)	• Learning reviews (1)
• Knowledge mapping (3)	• Learning history (1)
• Six thinking hats (3)	• 'How to' guides (1)
• Knowledge jam (2)	• Retention interview (1)
• Challenge sessions (2)	• Anecdote circle (1)
• Expert panel (2)	• File sharing (1)
• Expert interview (2)	• Shared network drives (1)
• Debriefing (2)	• Yellow pages (1)
• Knowledge base (2)	• Expertise locator / Who's who (1)
• Database, intranet and extranet (2)	• Collegial coaching (1)
• Information and content management systems (2)	• Mentee scheme (1)
• Intranet (2)	• Mentor (1)
• White pages (2)	• Twinning (1)
• Repository (2)	• Mentoring (1)
• Knowledge handover (2)	• KM standards (1)
• Force field analysis (2)	• KM metrics (1)
• Lightning talks (2)	• KM performance management (1)
• Knowledge worker (2)	• Most significant change (MSC) (1)
• Multi-stakeholder dialogue/consultation (2)	• Outcome mapping (1)
• Topsy-turvy (1)	• Real-time evaluation tools for meetings (1)
• Blame vs gain behaviours (1)	• Balanced score card (1)
• Briefing (1)	• Skill analysis (1)
• Chat show (1)	• Knowledge managers (1)
• Interview (1)	• Knowledge team (1)
• Focus group (1)	• Teams: Virtual and face-to-face (1)
• Conference (1)	• KM librarian (1)
• Expert visit (1)	• Knowledge owners (1)
• Knowledge management assessment tool (1)	• Knowledge management plans (1)
• KM evaluation (1)	• Scenario testing and visioning (1)
• Building knowledge clusters (1)	• The SECI approach (1)
• Knowledge scan (1)	• Structured innovation (1)
• Knowledge map (1)	• Reframing matrix (1)
• Activity-based knowledge mapping (1)	• Role play (1)
• Peer review (1)	• Open space (1)
• Visualisation (1)	• Simulation (1)
• Visual reminders (1)	• Report (1)
• Visualisation in participatory programmes card collection and clustering (1)	• Action planning (1)
• Mind maps (1)	• Survey (1)
• Mind mapping (1)	• Voice and voice-over-internet protocol (VOIP)

Clustering of KM methods and tools with similar concepts

While grouping of the specific methods and tools was based on obvious duplicate terms (Table 2) a closer look further down the list shows how the same KM concept may have been described by different terms, resulting in each specific term individually ranking lower in frequency, but which, if considered together, may achieve a higher ranking. Therefore, through further comparison of their descriptions provided within the toolkits and guides consulted, the 125 tools and methods were clustered around the KM concepts they addressed. In addition to clusters that reflected the most popular methods and tools listed in Table 2, other clusters emerged that include methods and tools that describe information storage, information and knowledge sharing, multi-stakeholder interactions and collaboration. The result of this aggregation of the 125 specific methods and tools is a list of 35 clusters of KM methods and tools (Table 3).

Table 3. List of 35 clusters of KM methods and tools used by the 20 networks analysed

• After action review	• KM teamwork
• Blogs	• Knowledge audit
• Brainstorming	• Knowledge exchange
• Buzz groups	• Knowledge mapping
• Collaborative workspace	• Knowledge resource centre
• Communities of practice (CoP)	• Lessons learnt
• Debrief	• Lightning talks
• Electronic library/repository	• Mentoring
• Exit interview	• Multi-stakeholder dialogue/collaboration
• Experience capitalisation	• Peer assist
• Expert interview	• Profiles directory
• Field visit	• Share fair
• Fishbowl	• Social networks
• Good practice	• Storytelling
• Icebreakers	• SWOT analysis
• Information and communications management systems (ICMS)	• Visualisation
• KM learning, M&E	• World café
• KM strategy/plan	

With the 35 clusters grounded in the 125 specific methods and tools, further analysis was carried out on the basis of clusters. The clusters were analysed in two ways: first by comparing the popularity of each cluster based on the number of mentions of the corresponding methods and tools belonging to the cluster (Table 4a) and secondly by comparing how widespread each cluster is among the networks based on the number of networks mentioning methods and tools belonging to a cluster (Table 4b).

The results of the two approaches to analyse and rank the clusters do not differ greatly in the top 20% and bottom 20% of the list, with most shifts appearing in the mid-ranking clusters. Therefore, based on the analysis of these 20 sources of information, it seems that the more popular KM clusters of methods and tools are coherent irrespective of the method of analysis.

Such a comparison enables a beginning KM4ARD practitioner to better appreciate the range and use of the KM methods and tools across the KM process. Therefore, the beginner KM4ARD practitioner may use the list of KM clusters provided in Table 3 as a representation of the spectrum of KM functions they may consider, as a guide to identifying the more appropriate methods and tools to apply in their context.

Table 4. Clusters of methods and tools mentioned by 20 networks analysed by: (a) frequency of mentions; and (b) spread across the networks

(a) Cluster of KM methods and tools organised by frequency of mentions	Total no. of mentions	Percentage frequency	Cumulative percentage	(b) Cluster of KM methods and tools mentioned across the 20 networks	Network frequency	Percentage frequency	Cumulative percentage
After action review (AAR) and retrospect	23	5.1%	05.1%	Blogs	20	5.0%	05.0%
Brainstorming	22	4.8%	09.9%	AAR and retrospect	19	4.8%	09.8%
Blogs	20	4.4%	14.3%	Storytelling	19	4.8%	14.5%
Storytelling	20	4.4%	18.7%	Community of practice (CoP)	19	4.8%	19.3%
Community of practice (CoP)	19	4.2%	22.9%	KM strategy/plan	19	4.8%	24.0%
KM strategy/plan	19	4.2%	27.0%	Brainstorming	16	4.0%	28.0%
Debrief	18	4.0%	31.0%	Debrief	16	4.0%	32.0%
Lessons learnt	18	4.0%	34.9%	Peer assist	16	4.0%	36.0%
Knowledge mapping	17	3.7%	38.7%	World café	16	4.0%	40.0%
Social networks	17	3.7%	42.4%	SWOT analysis	16	4.0%	44.0%
SWOT analysis	17	3.7%	46.2%	Buzz group	15	3.8%	47.8%
Peer assist	16	3.5%	49.7%	Knowledge mapping	15	3.8%	51.5%
Exit interview	16	3.5%	53.2%	Share fair	15	3.8%	55.3%
World café	16	3.5%	56.7%	Social networks	15	3.8%	59.0%
Buzz group	15	3.3%	60.0%	Lessons learnt	15	3.8%	62.8%
Information and content management systems (ICMs)	15	3.3%	63.3%	Information and content management systems (ICMs)	14	3.5%	66.3%
Share fair	15	3.3%	66.6%	Exit interview	14	3.5%	69.8%
Expert interview	12	2.6%	69.2%	Experience capitalisation	12	3.0%	72.8%

Knowledge exchange	12	2.6%	71.9%	Knowledge exchange	11	2.8%	75.5%
Experience capitalisation	12	2.6%	74.5%	Knowledge audit	10	2.5%	78.0%
Electronic library/Repository	11	2.4%	76.9%	Electronic library/Repository	10	2.5%	80.5%
Collaborative workspace	11	2.4%	79.3%	Knowledge resource centre	9	2.3%	82.8%
Multi-stakeholder Dialogue/Consultation	11	2.4%	81.8%	Good practice	9	2.3%	85.0%
Knowledge audit	10	2.2%	84.0%	Fishbowl	9	2.3%	87.3%
Good practice	10	2.2%	86.2%	Collaborative workspace	9	2.3%	89.5%
Knowledge resource centre	9	2.0%	88.1%	Icebreakers	8	2.0%	91.5%
Fishbowl	9	2.0%	90.1%	Expert interview	6	1.5%	93.0%
Icebreakers	8	1.8%	91.9%	Visualisation	5	1.3%	94.3%
Visualisation	7	1.5%	93.4%	Multi-stakeholder Dialogue/Consultation	5	1.3%	95.5%
KM learning, M&E	7	1.5%	94.9%	Profiles directory	4	1.0%	96.5%
Km teamwork	7	1.5%	96.5%	KM learning, M&E	4	1.0%	97.5%
Mentoring	5	1.1%	97.6%	Mentoring	3	0.8%	98.3%
Field visit	4	0.9%	98.5%	KM Teamwork	3	0.8%	99.0%
Profiles directory	4	0.9%	99.3%	Field Visit	2	0.5%	99.5%
Lightning talks	3	0.7%	100.0%	Lightning Talks	2	0.5%	100.0%

Organisation of KM method and tool clusters according to KM processes

To facilitate better understanding of the range of KM functions applied in supporting ARD, a further exercise was carried out to match and associate the KM clusters to the stages of the KM process described in Figure 2. It was not a straightforward exercise as some methods and tools can be associated or applied to more than one of the stages. Nevertheless, the concept of overlapping stages with common methods and tools is compatible with a diagrammatic representation and thus it was possible to propose a conceptual model of KM including an overview of how these tools and methods relate to KM (Figure 3).

While some of the clusters relate directly to specific stages of the KM process, other clusters are spread across different segments of overlapping and iterating groups of stages of the KM process.

The representations of KM illustrated in Figures 2 and 3, when combined, provide a conceptual framework that links the perspectives of KM used by different networks to the stages of the KM process and provides further refinement to identify the clusters of KM methods and tools that relate to these stages. These clusters in turn represent a set of different methods and tools that are used by these networks.

The conceptual framework can also help to understand how some of the KM perspectives (e.g. KS, KE, information and communication management, and KM and communications) preferred by particular networks, are related to the use of certain sets of methods and tools by these networks or institutions.

Therefore, using this framework, beginner KM4ARD practitioners can identify a range of methods and tools clusters that they can consider applying, depending on their context. For example, they may choose to reinforce a stage of their KM process by increasing the set of methods and tools addressing a particular stage; or they may also use the framework to identify a selection of methods and tools that enable a more holistic overview of the KM process.

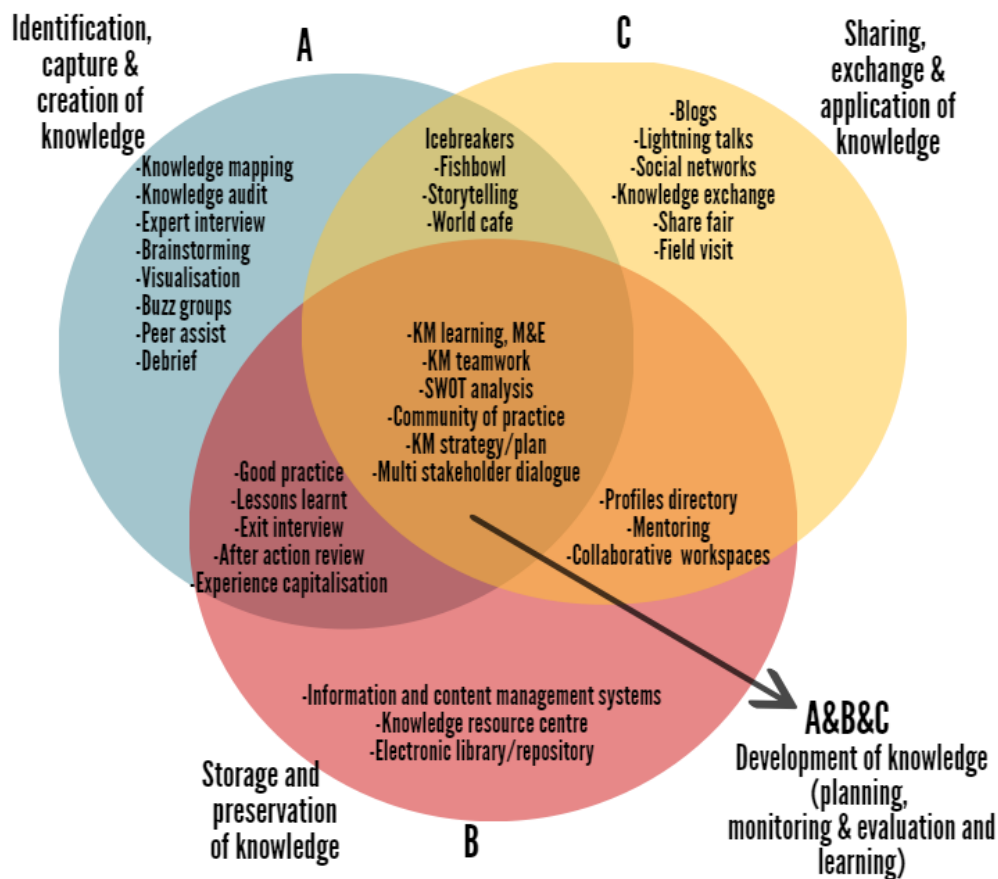


Figure 3. Illustration of the KM methods and tools as part of the overlapping and iterative stages of KM processes

Discussion and conclusion

This exercise of compiling toolkits and guides of KM methods and tools used by networks and institutions involved in KM4ARD, and the interpretation of these from the perspective of a beginner KM4ARD practitioner, has required ‘sense-making’ at several levels by the authors. First, the authors had to recognise that they had their own perceptions of KM prior to embarking on the study. Secondly, based on the sources of information, they had to internalise the organisational perspectives on KM of the networks and institutions and the associated terms used to describe perspectives of KM. Thirdly, they had to develop an appreciation of the choices of these networks of methods and tools listed in the toolkits and guides.

Making sense of the literature required the authors to exchange about and discuss their interpretations of the terminology used by the networks, followed by co-creation of knowledge and shared understanding of the stages of the KM process. Finally, their joint understanding and conceptualisation of KM4ARD in relation to all these terms had to be made explicit. The approach to analyse the potential linkages with the range of methods and tools related to KM4ARD had to be defined. These concepts and linkages were continuously validated and refined as they progressed through the analysis.

The authors are aware that, as it has been documented, the compilations of methods and tools were subject to interpretation. Communicating the conceptual framework and models of KM developed through this paper is the approach chosen to share the work with the larger KM4ARD community for wider discussions, and enable other members of the KM4ARD community to explore how this conceptual model can be useful to a larger set of KM4ARD practitioners.

The study has shown that there is a varied terminology used by networks and institutions when referring to KM such as KS, KE, and information and communication management, knowledge management and communications. However, it was possible to illustrate how these terms offer slightly different perspectives of KM, while remaining coherent with an overall generic definition of KM. The KM process itself has been further defined into a set of inter-related stages. Diagrammatic illustrations have been useful to demonstrate how some aspects of KM may not immediately be perceived by the beginning KM4ARD practitioners. These illustrations can further provide the KM4ARD practitioners with a framework to understand not only the stages but also the importance of interactions amongst these stages of the KM process.

Based on a set of information sources from 20 networks and institutions involved in KM4ARD, a list of 125 methods and tools has been compiled across the toolkits and guides. Frequency analysis has shown that a number of methods and tools are very popular. The analysis also showed that while some concepts behind several methods and tools were commonly applied by the networks, they were being described by a variety of terms and would not have been highly ranked based on straightforward frequency analysis alone.

The use of differing terms to describe similar methods and tools can add to the confusion of the beginning KM4ARD practitioner. Further analysis of the concepts behind these 125 terms to describe KM methods and tools has enabled their aggregation into a set of 35 clusters of KM methods and tools. The resulting clusters reflect a number of concepts that are commonly used in KM.

Analysis of the frequency of use of the methods and tools associated with each cluster, as well as how widespread they were across the networks showed similar results, hence reflecting that some clusters are more popular than others. The value of such an analysis based on the clusters provides a clearer picture of the range of KM concepts commonly applied by the networks.

The list of KM methods and tools clusters could serve as a guide on how to get started in KM4ARD. Therefore, in Figure 3, the clusters were grouped and categorised under interrelated KM processes to further clarify the role of the methods and tools in relation with the stages of the KM processes, to facilitate conceptualisation by a new KM4ARD practitioner.

The overlay of the results illustrated in Figures 2 and 3 can serve as a framework for a KM4ARD practitioner to assess the choice of KM methods and tools for their context. The comparison of methods and tools can be carried out either within the same cluster or within the stage of KM process being addressed. Furthermore, the KM4ARD practitioner can use the framework to evaluate the effectiveness of their approach to KM4ARD over the combination of tool sets across the entire spectrum of the KM process.

Therefore, this study has enabled the different levels and perspectives of KM4ARD to be conceptualised within a harmonised framework, going from understanding the perspectives of KM (e.g. seeing KM more as KS) to understanding the broad stages in the KM process and further to the clusters of methods and tools. More importantly, the framework enables the KM practitioner to assess the range of KM methods and tools available to them, across the spectrum, and depending on their context and purpose, which ones they should consider adopting and applying to achieve a coordinated and holistic approach to KM4ARD. The descriptions of the specific methods and tools can be sourced from the toolkits provided by these networks or the KS Toolkit.

Way forward

The approach used in this exercise has been to assess the range of methods and tools from the perspective of a beginner in KM4ARD. Nevertheless, as previously stated, compilations of methods and tools can be subjected to bias in interpretation, despite efforts to be objective. Therefore, the findings of this exercise are being shared with CTA's community of practice on KM4ARD to discuss the overall framework and to obtain the community's insights into the range of methods and tools documented and presented.

While the set of clusters identified in this study reflect many common terms used in KM, the comprehensiveness of this list compiled from the set of 20 core information sources, remains to be validated with experienced KM practitioners among other communities of practice and in particular to obtain feedback from beginner KM4ARD practitioners.

While this phase of the study may be concluded, it also lays the foundation to start off another set of activities to support the KM4ARD community of practice. CTA proposes to cater for and address the questions that will arise from KM4ARD practitioners, especially from the ACP regions, who will be seeking advice on the application of methods and tools. This will be carried out through progressively developing reviews of existing KM guidelines, using the information sources identified and others, and facilitating discussions among the community of practice on their experiences in the application of these methods and tools.

Discussions on methods and tools will be facilitated with the KM community of practice through CTA's KM4ARD blog. The community will be encouraged to document and share their experiences in trying out these methods and tools during capacity development interventions and documenting case studies from the field illustrating practical applications of these KM methods and tools. This will be CTA's approach to contributing to the knowledge-base of shared experiences and good practices on how KM4ARD is applied in the context of the ACP regions.

The authors appreciate the need for the data to be made accessible and interpretable by readers and KM practitioners who may want to apply the method and carry out their own analysis; or add their own data sets to the collection. The authors are also interested to include terms used by other networks dealing with KM and later carry out the analysis over a larger set of the data. The sources of the information and location of datasets are provided in Annex 2.

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Annex I: The 20 networks used as information sources on methods and tools used in KM4ARD

Research and development organisations & networks and business networks with a special interest in KM4ARD identified and used in the compilation of the methods and tools. Each has a particular story and history with KM.

Research and development networks

ACBF

The African Capacity Building Foundation was established in 1991, with a mission to build human and institutional capacity for good governance and economic development in Africa. ACBF supports capacity development through investments, technical support, knowledge generation and sharing across Africa. ACBF has a knowledge base called [Virtual Library on Capacity Development](#) with more than 280 resources available online, among which KM resources that tackle agricultural policy and value chain issues.

APO

The Asian Productivity Organisation was established on May 11, 1961 as a regional intergovernmental organisation. It is a non-profit organisation focusing on KM. In 2010, APO published the *Knowledge Management Tools and Techniques Manual*, a set of KM tools and methods their network considers essential (APO, 2010).

Capacity4dev

Capacity4dev.eu is EuropeAid's open platform for effective KS on development, technical cooperation, and policy, launched by the European Commission in 2009. It has 17,200 members, including staff from [DEVCO](#) and other European Commission (EC) directorates, the European External Action Service, EU Member States, partner governments, civil society, academia and the private sector. The EC has also developed a KM and learning strategy called [Learning and Knowledge Development Strategy](#).

CDKN

The Climate Development Knowledge Network is an initiative that was formed in 2010 and links developing countries with experts on climate change. It combines research, advisory services and KM to support locally owned and managed policy processes (Sutherland, 2013).

CGIAR

The CGIAR is a global partnership that unites organisations engaged in research for a food secure future. CGIAR initiated an Information and Communications Technology and KM (ICT-KM) Programme to improve the effectiveness of the consortium's work. More recently, CGIAR's KM work is being implemented directly through the CG centres.

ECLAC

The Economic Commission for Latin America and The Caribbean is a United Nations regional commission to encourage economic cooperation. The Commission includes 44

member states (20 in Latin America, 13 in the Caribbean and 11 from outside the region), and eight associate members which are non-independent territories in the Caribbean. The ECLAC Caribbean Knowledge Management Programme in KM seeks to strengthen capacity of the Caribbean sub-region. The programme hopes to bridge the digital divide by furthering the establishment of the Caribbean Information Society and advancing the development of the region's knowledge economies. In March 2010, ECLAC published the *Knowledge Management for Development: Towards a practical approach for the Caribbean* (ECLAC, 2010), with a set of curated tools and approaches on KM for its networks.

FAO

The Food and Agriculture Organization is an agency of the United Nations that leads international efforts to defeat hunger with 70 years' experience in agricultural development. In 2005, the organisation introduced the concept of FAO as a knowledge organisation (FAO, 2011). Since then, it has been actively involved in promoting learning and good practices in agriculture and rural development in its worldwide interventions.

IDRC

The International Development Research Centre is a Canadian federal Crown corporation that invests in knowledge, innovation and solutions to improve lives and livelihoods in the developing world. In 2008, the IDRC launched the Think Tank Initiative (TTI), dedicated to strengthening the capacity of independent policy research institutions in the developing world. The Knowledge Management Platform Maintenance and Support project of the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAS), takes care of KM in Asia and Africa.

IFAD

The International Fund for Agricultural Development is a specialised agency of the United Nations dedicated to eradicating rural poverty in developing countries. IFAD's Action Plan for Improving Its Development Effectiveness, approved by its Executive Board in December 2005, stated that IFAD was increasingly going to become a knowledge organisation. IFAD has a community of practice ([the Portal of the Community of Practice for Pro-poor Livestock Development](#) (CoP-PPLD)), and recently joined FAO and the World Food Programme to launch the [Community of Practice on Food Loss Reduction](#). IFAD is currently funding a capacity development project on [Experience Capitalisation](#), being implemented by CTA, FAO, and the Inter-American Institute for Cooperation on Agriculture.

Knowledge Sharing Toolkit

The KS Toolkit is a joint collaboration of CGIAR, FAO, UNICEF, the KM4Dev community and UNDP. It is described as "a living knowledge repository about knowledge sharing." Since its establishment, the KS Toolkit has undergone several crowd-sourcing efforts by the members of the community to update its contents.

ODI

The Overseas Development Institute is the UK's leading independent think tank on international development and humanitarian issues. ODI established KM as a project in 2004 to correlate "high-quality applied research, practical policy advice and policy-focused

dissemination and debate.” In 2006, the institute released, *Tools for Knowledge and Learning: A Guide for Development and Humanitarian Organisation* (Ramalingam, 2006). Presently, ODI have a programme on agricultural policy and development.

SDC

The Swiss Agency for Development and Cooperation Learning and Networking (SDC L&N) is a KM network of SDC. It operates under SDC's Knowledge-Learning-Culture division which is working on various aspects of knowledge and information management. In 2009, SDC published the *Knowledge Management Toolkit*, a set of KM approaches and tools which have been further developed and made available on the SDC L&N platform (SDC, 2009).

International Training Centre of the ILO – The COMPASS

Just like the KS Toolkit (a collaborative effort), The Compass is a joint project of the Innovation Fund project on Enhancing Knowledge Sharing Capacities, and the International Training Centre of the International Labour Organisation (ITC-ILO). The compass has gathered a set of KM approaches and tools for the purpose of training which gives insights on useful, effective and relevant learning and training methodologies.

UNDP

The United Nations Development Programme is the United Nations' global development network founded in November, 1965. It works in more than 170 countries and territories, helping to achieve the eradication of poverty, and the reduction of inequalities and exclusion. In 2009 UNDP set up its Knowledge Strategy 2009–2011 to “harness knowledge in support of its business objectives, putting heavy emphasis on supporting ‘just-in-time’ peer KS by making new investments in people, processes, and technology.” In UNDP’s recent strategic plan for 2014–2017, more emphasis is given to KM as a key component to achieving its mission (UNDP, 2014).

UNICEF

UNICEF is a United Nations programme that provides long-term humanitarian and developmental assistance to children and mothers in developing countries. In September 2015, UNICEF launched the UNICEF Knowledge Exchange Toolbox.

USAID

The United States Government agency USAID is primarily responsible for administering civilian foreign aid, created by US President J.F. Kennedy in 1961. USAID has a KM Program which aims to “connect people to processes and technology that will help them to work effectively.” USAID’s community of practice is called the Learning Lab. It is host to communities from Africa, Asia Latin America, the Middle East and Eastern Europe where it operates. It has assembled a set of concepts, approaches, and tools to use for learning in its programmes called the [USAID Program Cycle Learning Guide](#) for the Communalities of practice online.

World Bank Group

In 1995, the World Bank Group announced its plans to revolutionise the World Bank into a ‘Knowledge Bank’ (Carayannis and Laporte, 2002). The Bank has a set of tools online called

the '[Art of knowledge Toolbox](#)' to help its stakeholders as well as an Open Learning Campus that provides access to a repository of global development learning across all sectors and regions. The World Bank Group's Organisational Knowledge Sharing Programme is a KM programme facilitating interregional and country learning, inter-programme/project learning, and inter-institutional learning, with the Knowledge Hub as its community of practice. The programme also promotes interregional and inter-country learning in developing countries through the South-South Facility of the Knowledge Sharing for Development platform.

WFP

The World Food Program is the food assistance branch of the United Nations and the world's largest humanitarian organisation addressing hunger and promoting food security. KM and learning takes place as part of WFP's [Emergency Preparedness and Response Enhancement Programme \(EPR-Knowledge Management\)](#).

WUR Multi-Stakeholder Partnerships Knowledge Co-Creation Portal (WUR-MSP)

WUR-MSP is part of a platform created by the Centre for Development Innovation at WUR. The platform aims to enable practitioners to collaborate and share knowledge, experiences and strategies. It has a set of tools and approaches, serving different KM purposes on its website.

Business KM networks

Knoco

Knoco Ltd is a KM consulting firm established in 1999 by key members of BP's global Knowledge Management Consulting team, who are recognised within the KM community of practice as pioneers in the KM field in the 1990s. Using diverse media, they have curated various KM tools, toolkits, and methods available on their website.

Annex 2. Sources of information on methods and tools for the desk research

ACBF

- The ACBF Virtual Library on Capacity Development (<http://elibrary.acbfpact.org/>) About ACBF (<http://www.acbf-pact.org/who-we-are>)
- Search on ACBF's KM Virtual Library on KM (<http://goo.gl/ZV446A>)

APO

- APO overview and mission statement (<http://www.apo-tokyo.org/about/overview/>)
- Knowledge Management Tools and Techniques Manual(http://www.apo-tokyo.org/00e-books/IS-43_KM-Tools_and_Techniques_2010/IS-43_KM-Tools_and_Techniques_2010.pdf)

European Commission Capacity4Dev online knowledge sharing platform on development

- capacity4dev.eu platform (<http://capacity4dev.ec.europa.eu/article/welcome-wwwcapacity4deveu>)
- Search engine (<http://capacity4dev.ec.europa.eu/km-ks/searchgroup/Story%20Telling>)

CDKN

- CDKN site(http://cdkn.org/about/?loclang=en_gb)
- CDKN Search engine(http://cdkn.org/?s=dEBRIEF&searchsubmit=s&loclang=en_gb&type=google)

CGIAR

- ICT-KM Programme Archives(<http://ictkm.cgiar.org/>)
- KS Course(<http://ictkm.cgiar.org/2008/05/08/how-to-get-buy-in-for-ks-us/>)

ECLAC

- ECLAC Caribbean KM programme (<http://www.cepal.org/en/topics/8238/offices/8209>)
- Publication Knowledge Management for Development: Towards a practical approach for the Caribbean(<http://www.cepal.org/publicaciones/xml/5/38825/lcar.234rev1.pdf>)
- ECLAC search engine(http://www.cepal.org/en/search?as_q=WORLD%20CAFE)

FAO

- FAO Storytelling reference (http://www.fao.org/elearning/course/fk/en/pdf/trainerresources/pg_storytelling.pdf)

- FAO ABC of KM
(http://www.fao.org/fileadmin/user_upload/knowledge/docs/ABC_of_KM.pdf)

IDRC

- The TTI programme site
(http://www.idrc.ca/EN/Programs/Think_Tank_Initiative/Pages/default.aspx)
- IDRC Repository (<http://idl-bnc.idrc.ca/dspace/>)
- CARIAA Knowledge Management Platform Maintenance and Support
(<http://www.idrc.ca/EN/Misc/Pages/ProjectDetails.aspx?ProjectNumber=107793>)

IFAD

- Knowledge Management: perspectives from headquarters newsletter
(<https://www.ifad.org/newsletter/pi/26.htm>)
- IFAD' KM Strategy (<http://www.ifad.org/pub/policy/km/e.pdf>)
- Toolkit for Communication (<https://www.ifad.org/documents/10180/3ef64033-de59-4041-b8bf-e28178e9601a>)
- IFAD Knowledge Sharing Methods and Tools
(http://www.ifad.org/pub/thematic/km/faciliator_guide.pdf)
- IFAD Toolkits (http://www.ifad.org/knotes/institution/lessons_learn.pdf)

Knowledge Sharing Toolkit

- About the KS Toolkit <http://www.kstoolkit.org/KSTools>

ODI

- The KM project at ODI 2004-2007 (<http://www.odi.org/projects/53-knowledge-management-at-odi>)
- Tools for Knowledge and Learning: A Guide for Development and Humanitarian Organisations (<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/188.pdf>)
- ODI Writing a policy brief (http://cdkn.org/wp-content/uploads/2012/02/Writing-a-policy-brief_Nick-Scott.pdf)

SDC Learning & Networking

- SDC KM tools portal (https://www.shareweb.ch/site/Learning-and-Networking/sdc_km_tools/Pages/Home-SDC-KM-Tools.aspx)
- SDC KM toolkit (http://www.shareweb.ch/site/Learning-and-Networking/sdc_km_tools/Documents/comprehensive%20broschure.pdf)

The International Training Centre of the ILO – The COMPASS

- About the Compass (<http://compass.itcilo.org/>)
- The Compass methodologies (<http://compass.itcilo.org/all-methodologies/>)

UNDP

- UNDP KM_Strategy_ (<http://www.undp.org/content/dam/undp/library/capacity-development/English/UNDP%20Knowledge%20Strategy%20Report%202502-2%20LR%202,7MB.pdf>)

UNICEF

- The knowledge exchange programme at UNICEF (http://www.unicef.org/knowledge-exchange/index_82053.html)

USAID

- USAID official website (<http://www.usaid.gov/>)
- USAID Learning Lab online community (<https://usaidthinkinglab.org/program-cycle-overview-page>)
- USAID Knowledge Management, USAID, 2009 (http://pdf.usaid.gov/pdf_docs/Pdacn238.pdf)
- Types of Business Analysis, USAID, 2014 (<https://www.usaid.gov/sites/default/files/documents/1868/597sah.pdf>)

World Bank Group

- WBG Knowledge for Development programme (<http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/0,,menuPK:461238~pagePK:64156143~piPK:64154155~theSitePK:461198,00.html>)
- WBG Knowledge sharing for results (<https://www.knowledgesharingfordev.org/>)
- World Bank Online Learning Campus (<https://olc.worldbank.org/>)
- WBG Toolbox (<https://www.knowledgesharingfordev.org/resource-library/art-knowledge-exchange>)

WFP

- WFP Website (<https://www.wfp.org/>)
- WFP Search engine (<https://www.wfp.org/search/site/Story%20Telling>)

WUR Centre Multi-Stakeholder Process Portal

- The Multi-Stakeholder Processes Knowledge Co-Creation Portal tools and methods. (<http://www.mspguide.org/tools-and-methods>)

Knoco Ltd

- Knoco KM consultants (<http://www.knoco.com/knowledge-management-consulting-services.htm>)
- Knoco tools and approaches on KM (<http://www.knoco.com/knowledge-management.htm>)

KM4DEV network

- Website (<http://www.km4dev.org/>)
- KM4DEV Journal (http://wiki.km4dev.org/KM4D_Journal)

Information Management Resource Kit

- (www.imarkgroup.org)

Datasets for the analysis carried out in this Working paper are available at:

<http://bit.ly/DatasetsKM4ARDMethodsTools>

The Technical Centre for Agricultural and Rural Cooperation (CTA) is a joint international institution of the African, Caribbean and Pacific (ACP) Group of States and the European Union (EU). Its mission is to advance food security, resilience and inclusive economic growth in Africa, the Caribbean and the Pacific through innovations in sustainable agriculture.

CTA operates under the framework of the Cotonou Agreement and is funded by the EU.

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