

**Capacity Development
For Agricultural
Innovation Systems
Report on the review phase
for the development of a
Common Framework**

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April, 2015



Table of Contents

Chapter	Page
1. Introduction	2
2. Methodology	3
3. Structure of the Repository	5
4. Findings of the Literature Review: Overview of Theories, Concepts, Methods and Practices	7
4.1 What is agricultural innovation system? Key and common understanding	7
4.2 Capacity development for agricultural innovation systems – concepts, frameworks and tools	11
4.3 Facilitation and learning	19
4.4 Documentation and knowledge management	24
4.5 Monitoring and evaluation	27
5. Capacity Development for Agricultural Innovation Systems: Extant Knowledge, Methods and Practice Gap	31
6. Recommendation for the Framework	35
Annex I: Overview of CD Concepts, Dimensions, Approaches and Tools of Different Development Agencies and Key CD Providers	41

1. Introduction

There is widespread agreement that agricultural innovation is an essential component for both more sustainable use of natural resources and the reduction of hunger and poverty, particularly in low-income tropical countries. Yet, despite numerous recent public and private initiatives to promote more dynamic innovation processes, there have not been many success stories. In view of this, the G20 called for the establishment of a Tropical Agriculture Platform (TAP) as a specific effort to promote agricultural innovation in tropical countries. To achieve this goal, TAP serves as a multilateral and dynamic facilitation mechanism that enables more effective and streamlined capacity development interventions in agricultural innovation systems. TAP promotes the exchange ideas, knowledge, experiences, and practices, in the context of capacity development (CD) interventions that will acknowledge national leadership and ownership and will be aligned with national plans and demands. TAP fosters partnerships and shared visions to steer agricultural innovation along a more coherent path and to arrive at development solutions at scale with lower transaction costs. TAP also works to establish close linkages with relevant existing multi-partner initiatives that promote coherent institutional approaches, such as those being implemented by regional fora and international agencies.

Within this context, the EC funded Capacity Development for Agricultural Innovation Systems (CDAIS) project jointly implemented by Agrinatura and FAO is designed to promote the establishment of a global partnership supporting more effective and sustainable agricultural innovation processes in the low-income tropical countries. The project has been developed to support the implementation of the TAP Action plan approved by partners in 2013, in particular the development of a Common Framework on Capacity Development for Agricultural Innovation systems (CD for AIS). The objective of the Framework is to harmonize, from an AIS perspective the diversity of approaches to capacity development existing among various development support actors to both synergize resources coming from different donors and technical cooperation agencies and facilitate coordination among them during implementation.

The development of this framework is expected to evolve from a wide revision of existing experiences at the national and international levels, and involves two interrelated phases. The first phase covers a review of the existing literature, building up a repository of relevant documentation on agricultural innovation in general and AIS and CD for AIS in particular – as a stand-alone resource for future capacity development efforts on AIS – and the development of preliminary recommendations as to the components that the framework should include. The second phase, following this literature review and the discussion of the results of the first phase by the TAP CD Expert Group, a comprehensive CD for AIS framework including concepts, approaches, methodologies and tools will be developed.

The present report summarizes the results of the first phase of this process. Section 1 covers this brief introduction. Sections two and three focus on the review of relevant literature, presenting the methodology used and the structure of the repository itself. Following these, sections four and five present a preliminary discussion of the main issues involved in the AIS perspective, and the gaps in current literature. Finally, sections six advances the recommendations for the possible structure for the development of the CD for AIS Framework.

2. Methodology

The first phase of development of a CD for AIS Framework was the compilation and review of relevant literature to inform the development of the Framework. A core expert team, Eduardo Trigo, Julia Ekong and Ataharul Chowdhury, agreed a working strategy for collection, analysis and compilation of relevant literature, tools, guidelines and examples related to capacity development for innovation system. A Skype meeting in December, 2014 clarified with the TAP secretariat, hosted by FAO, goals and expectation of the work. Tasks were subsequently allocated among the members of the core expert team and weekly Skype meetings organized to discuss the issues and progress. The activities of review phase started on 12 December 2014 and continued until 10 March 2015¹.

Initial progress of the work was presented and discussed with the members of TAP secretariat, the TAP Global Task Force and the TAP Steering Committee meetings held between January 20 and 23, 2015 at FAO, Rome. This included a brainstorming session to identify key elements of a Common Framework on CD for AIS in order to better structure the literature review. A preliminary framework was presented and discussed with meeting participants. The meetings provided an opportunity to receive feedback from some members of the wider expert groups and agree on a preliminary structure of this report.

Several rounds of discussions led to identification of the most important themes to address CD for AIS. The identified themes are as follows: advocacy & case study, capacity development, innovation system, knowledge management, learning & facilitation, monitoring & evaluation, impact study. Various publications were identified using database searches such as Scopus, Science Direct, CAB Abstracts, Google Scholar, and search navigation function of the website of relevant international organizations such as Food and Agriculture Organization, World Bank, CGIAR centers. Key words that were used separately and in combination included, 'agricultural innovation', 'innovation system', 'capacity', 'development', 'assessment', 'knowledge management', 'learning', 'facilitation', 'monitoring', 'evaluation', 'impact study', 'partnership', 'innovation platform'. The wider membership of the TAP CD Expert Group were also contacted through TAP secretariat to share relevant publications for the review phase of the framework development and some publications from the partners of TAP were received.

In analyzing the publications a systemic literature review (Weed, 2005; Lavis, 2009)² was followed. This is an approach of reviewing literature comprehensively on a specific topic and appraising the selected ones according to some excluding criteria. Highlighting common themes, trends and identifying gaps that exist in the literature regarding theory and practice of CD for AIS is intended to inform the design phase of the framework. While emphasis was placed on peer reviewed publications (e.g. journals and books) literature from global initiatives such as, books and reports published by international organizations have also been included.

¹ 110 working days in all were allocated for the team of consultants (15 days each for senior consultants and 80 days for junior consultant).

² Weed, M. (2005). "Meta Interpretation": A method for the interpretative synthesis of qualitative research. *Forum: Qualitative Social Research*, 6(1).

Lavis, J.N. (2009) How Can We Support the Use of Systematic Reviews in Policymaking? *PLoS Med* 6(11): e1000141. doi:10.1371/journal.pmed.1000141

In the initial search some 350 publications were collected and relevant themes, that each publication, addressed identified. In a next step key literature was selected taking into consideration the relevance and practical implication for a CD for AIS framework. Finally, 150 documents and publications have been included and a short summary on objectives, methods, results and implications of each article for designing a CD for AIS framework prepared.

3. Structure of the Repository

A cloud-based content management and collaborative platform, Alfresco, was used for designing and developing the document repository. Alfresco allows members to share, modify, organize and store contents. The ‘Community Edition’ of the software was used which is free and open source. The navigation bar of the platform has three main tabs—dashboard, document library, and site member. The dashboard is shown after signing into the platform. The dashboard shows list (see Fig. 1) of members, changes in the site content, and list of activities performed by the members in the last month. The document library tab shows activities related to documents, library folders and tags used for organizing the contents in the library.

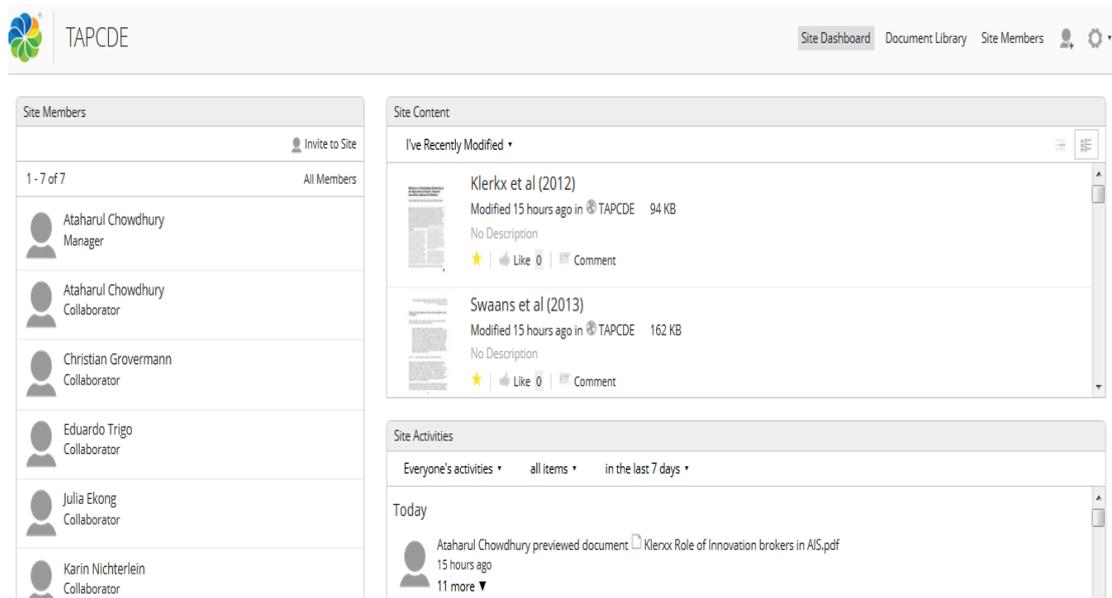


Figure 1: Screenshot of the repository dash board

Literatures was uploaded in the library’s root folder called ‘Documents’. Folders and sub-folders were created within the root folder (see Fig. 2). When clicked on, the ‘Document Library’ tab shows root folder, folder and subfolders. The platform shows a path of documents within the root folder such as, document>TAPCDE Main Library (i.e. main library folder)>Advocacy & Case Studies (AD&CASE)>file (i.e. document). This path is helpful for navigating easily between folder and sub-folders. There are two tabs on the top navigating bar of the document library called ‘create’ and ‘upload’. The ‘create’ tab is for creating folder and subfolder and the ‘upload’ tab is for uploading documents on to the library. The platform also allows the uploading of multiple documents at a time into a specific folder/sub-folder using ‘drag and drop’ function of the file transfer technique. However, the file size of all documents should not exceed 50mb.

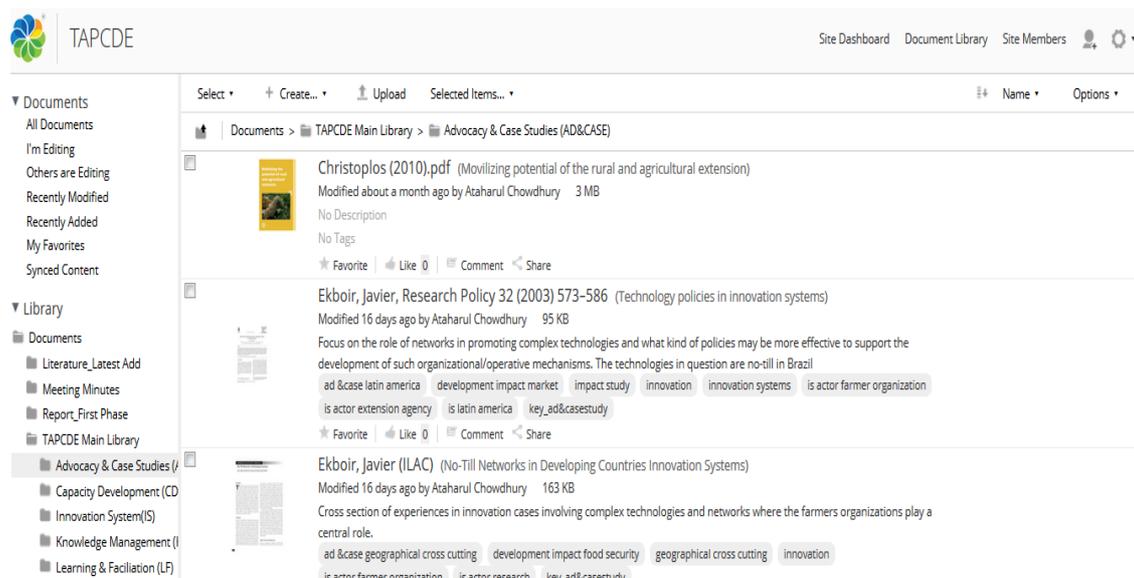


Figure 2: Screenshot of the repository library

A general library folder, ‘TAPCDE main library’, and sub-folders for each theme were created in the library. Articles were categorized and organized according to their relevance to the sub-folders in the general folder. The sub-folders are: Advocacy & Case Studies (AD&CASE), Capacity Development (CD), Innovation System (IS), Knowledge Management (KM), Learning & Facilitation (LF), Monitoring & Evaluation (M&E). The file properties can be viewed while moving or clicking the cursor on the file. The properties allow several functions, such as, downloading, editing properties, copying document to a folder/sub-folder, and deleting a document, to be performed. The ‘Edit properties’ has three important fields - name, title and description. The fields are visible on the screen showing list of files in a sub-folder.

The name field is for naming each file. We followed author and year style for naming the files. For instance, an article written by more than two authors was named as Guoel et al (2004). The title field includes title of the article. The description field contains a short synthesis of the document. The synthesis highlights relevance and importance of the article in relation to the capacity development for agricultural innovation system.

The categorizing and compiling process of the library is an ongoing process. New categories and key words have emerged in the course of compiling the literature. The library has a function for tagging the documents. Tags have been used to further describe each file. A single word or a phrase containing maximum of three words was used to tag documents. The documents can be searched and retrieved by clicking on these tags. The repository platform also has an advanced search function. The documents and folders can be searched and retrieved using a combination of key words. Some articles may be relevant to more than one theme, therefore, the categorization and compilation of documents using sub-folders and tags addresses the cross-cutting relevancy of any document. Moreover, the advanced search function of the repository considers the key words of the ‘title’ and ‘description’ field. The repository will, at a later date, be included in the TAPipedia.

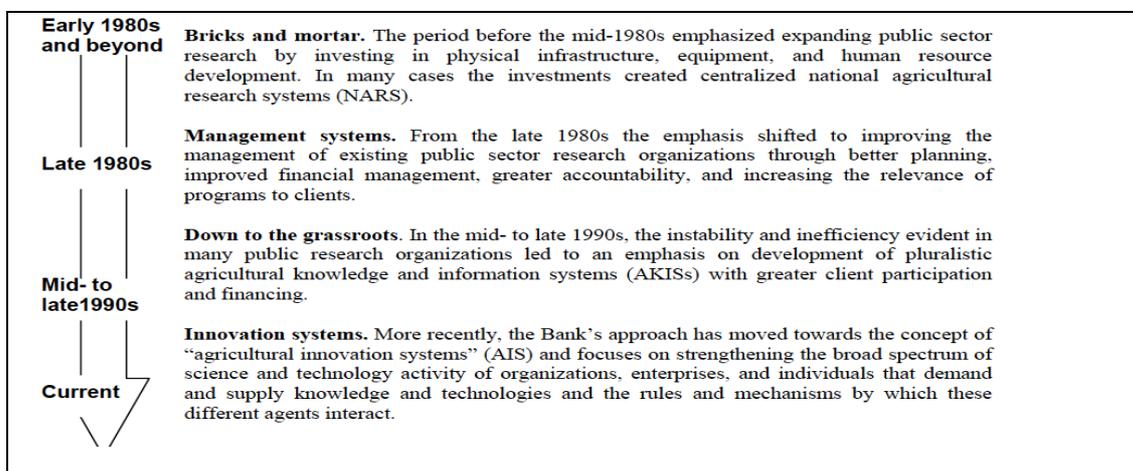
4. Findings of the Literature Review: Overview of Theories, Concepts, Methods and Practices

4.1 What is agricultural innovation system? Key and common understanding

The lack of an active and effective exchange of knowledge between farmers, and those who produce of farm-relevant knowledge, has often been regarded as one the key issues to be addressed in pro-poor agricultural development. This perspective was, for a long time – at least until the early 1980s – the driving force behind development efforts and policies both at the national and international level that promoted a linear model by which the government and development agencies supported separate lines of intervention such as research institutes, training and visit programs, credit schemes, and agricultural subsidies. Knowledge was expected to be generated by scientists, handed down to researchers for adaptive research and extensionists for diffusion, and then finally adopted by farmers (Hartwich et al., 2007)³.

During the last decades this “linear”, and probably simplistic approach, has been repeatedly questioned. A more balanced approach has emerged focusing not only on the supply of new knowledge, but also taking into consideration the demand side of the equation and recognizing the multidimensionality and complex nature of the innovation process. Most of the relevant knowledge is indeed created collectively, in groups, through mechanisms of networking and communication (Chambers et al, 1989; Roling, 1996; Sumberg, 2005)⁴

Box 1. Evolution of perspectives about the dynamics of agricultural innovation informing development programs and national policies



Source: World Bank (2006)

³ Hartwich, Frank, Anastasia Alexaki, and René Baptista. (2007). Innovation Systems overnance in Bolivia Lessons for Agricultural Innovation Policies, IFPRI Discussion Paper 00732, IFPRI, Washington DC, September

⁴ Chambers, R., Pacey, A., & Thrupp, L. A. (1989). Farmer first: Farmer innovation and agricultural research . London: Intermediate Technology Publications

Sumberg, J. (2005). Systems of innovation theory and the changing architecture of aricultural research in Africa. Food Policy 30(1): 21–41.

Röling, Neils (1996) Towards an interactive agricultural science. European Journal of Agricultural Education and Extension 3(4), 35-48

In this new perspectives agricultural innovation is seen to emerge from the dynamic interaction among multiple actors involved in growing, processing, packaging, distributing and consuming or otherwise using agricultural products together with the various actors, such as researchers, extension and business service providers, who in one way or another support these activities (Klerkx et al, 2010)⁵. Agricultural innovation evolves from the countless interactions between huge numbers of elements and function on the basis of interrelationships between people, groups, structures and ideas. AIS is thus an interactive, dynamic and flexible process requiring these actors to simultaneously deal with many conditions and complementary activities (World Bank, 2012)⁶. An AIS approach takes into consideration the collective action among the diverse actors, their potential interactions, exchange of knowledge among them, incentives and resources available to form partnerships and develop businesses as well as the informal practices in promoting innovation, and the agricultural policy context and other internal and external factors that influence the adoption of innovation by farmers and entrepreneurs as illustrated in the diagram below (World Bank, 2006)⁷.

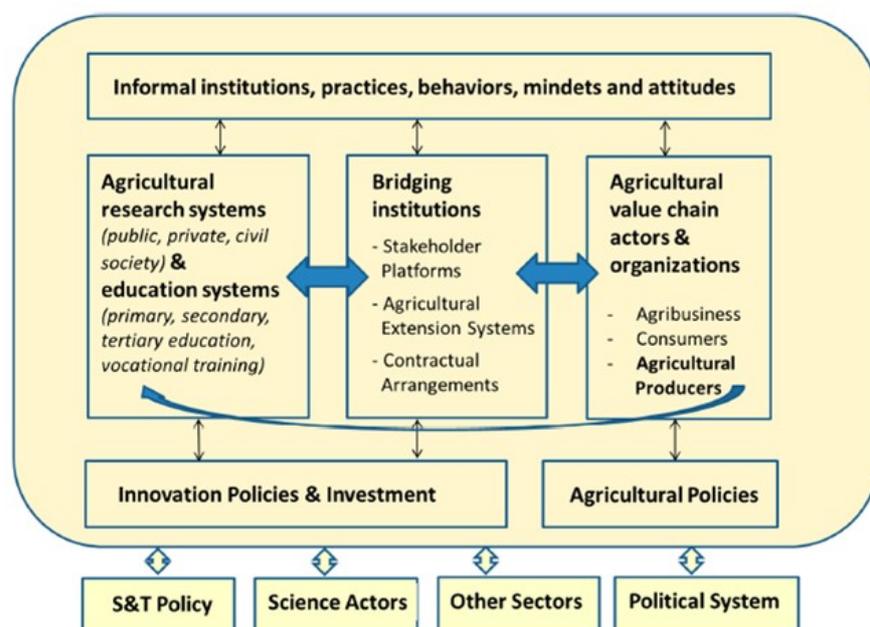


Figure 3: Conceptual diagram of an agricultural innovation system
Source: Aerni et al., 2015⁸ (Modified version of Birner and Spielman, 2008⁹)

The following resources are relevant for a better understanding issues related to working with the AIS perspective in developing countries contexts, and also offer useful guidelines, tools, and methods for designing interventions aiming to improving their performance and effectiveness.

- “Agricultural Innovation Systems: an investment sourcebook”, The World Bank (2012): Offers a comprehensive reference covering from conceptual innovation system issues to

⁵ Klerkx, L., Aarts, N., & Leeuwis, C. (2010). Adaptive management in agricultural innovation systems: The interactions between innovation networks and their environment. *Agricultural Systems*, 103, 390–400.

⁶ World Bank (2012) *Agriculture Innovation Systems: An Investment Sourcebook*. Washington, DC, 2012.

⁷ World Bank (2006). *Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems*. Washington, DC, 2006.

⁸ Aerni, P., Nichterlein, K., Rudgard, S., and Sonnino, A., 2015. Making Agricultural Innovation Systems (AIS) Work for Development in Tropical Countries. *Sustainability*, 7(1), 831–850

⁹ Spielman, D., and Birner, R., 2008. *How Innovative Is Your Agriculture ? Using Innovation Indicators and Benchmarks to Strengthen National. Agriculture and Rural Development Discussion Paper* (Vol. 41, p. 48). Washington.

specific issues and tools of relevance for innovation process design and management in an AIS context (available at <http://siteresources.worldbank.org/INTARD/Resources/335807-1330620492317/9780821386842.pdf>)

- “Innovation systems analytical and methodological issues”, [Carlsson, Bo, et.al. \(2002\)](#): useful reference for addressing how to identify the system components and boundaries and performance measures. (available at <http://wenku.baidu.com/view/bfca2d687e21af45b307a888>)
- “Dynamics of rural innovation. A primer for emerging professionals”, Pyburn, Rhiannon and Jim Woodhill (eds.) – 2014: Insights into the theory and practice of ‘innovation systems’. It covers background and concepts about the ‘how to’ of facilitating innovation, and the role of the broader context (available at http://www.kit.nl/sed/wp-content/uploads/publications/54b7d397a31e6_Dynamics%20of%20Rural%20Innovation%20reduced.pdf)
- “Analyzing the functional dynamics of technological innovation systems: A scheme of analysis”, Bergek, Anna (2008): Practical scheme for policy makers for the analysis of innovation system dynamics, based both on previous literature and practical experiences in developing and applying functional thinking. (available at <http://www.diva-portal.se/smash/get/diva2:267496/FULLTEXT01.pdf>)
- “The role of agricultural R&D within the agricultural innovation system framework”, Anandajayasekeram, Ponniah, ASTI - FARA, IFPRI (2011): Conceptual framework for agricultural innovation systems highlighting the difference between innovation ecology/ecosystems and intervention-based innovations systems. Addresses the role of open innovation, innovation platforms, and innovation intermediaries in catalyzing, enhancing, and facilitating the innovation process. Also the role of R&D in the innovation process. (available at <http://www.ifpri.org/publication/role-agricultural-rd-within-agricultural-innovation-systems-framework?print>)
- “Concepts and guidelines for diagnostic assessments of agricultural innovation capacity” Hall, Andy Lynn Mytelka and Banji Oyeyinka (2006): Framework for diagnostic assessments of agricultural innovation capacity, developed from the idea that contemporary patterns of agricultural development demand fresh thinking on how innovation can be promoted in the context of rapidly evolving production and market conditions. (available at <file:///Users/eduardotrigo/Downloads/wp2006-017.pdf>)
- “Moving from agricultural research to innovation: what can be done to help”, [Hall, Andrew \(2007\)](#): Analysis of the evolution of the innovation system concept.(available at [https://www.google.com.ar/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=moving%20from%20agricultural%20research%20to%20innovation%3a%20what%20can%20be%20done%20to%20help%e2%80%9d%2c%20hall%2c%20andrew%20\(2007\)\)](https://www.google.com.ar/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=moving%20from%20agricultural%20research%20to%20innovation%3a%20what%20can%20be%20done%20to%20help%e2%80%9d%2c%20hall%2c%20andrew%20(2007))))
- “Evolution of systems approaches to agricultural innovation: concepts, analysis and interventions”, Klerkx, Laurens, van Mierlo, and Cees Leeuwis (2012): Synthesis of the existing literature on agricultural innovation, sketching the evolution of systemic approaches to agricultural innovation, and assessing key factors for innovation system performance.
- “Innovation and growth rationale for an innovation strategy”, OECD (2007): Discussion of general innovation issues and how they are affecting economic growth. Emphasis on how the advances in ICT, biotechnology and other fields of science are changing the innovation landscape and what are the implications for CD. (available at http://www.academia.edu/1569316/Evolution_of_systems_approaches_to_agricultural_innovation_Concepts_analysis_and_interventions)
- “Agricultural Innovation Systems: A framework for analyzing the role of government” OECD (2013): Overview of agricultural innovation systems with emphasis on the role

of government in fostering the creation and adoption of innovations in the agricultural and agri-food sector, i.e. primary agriculture, upstream and downstream industries. It includes a relevant analytical framework that can serve as guideline for agenda development. (available at

<http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/CA/APM/WP%282012%2919/FINAL&docLanguage=En>)

- “Innovation Systems Perspectives on Developing-Country Agriculture: A Critical Review” Spielman, David (2005): Broad coverage review of the literature on innovation systems up to recent applications to developing-country agriculture, and including an analysis of the strengths and weaknesses of recent applied work in developing-country agriculture and recommendations for improving analytical strength, and relevance to public policy and poverty reduction. (available at <http://www.ifpri.org/publication/innovation-systems-perspectives-developing-country-agriculture>)
- “Towards optimal coordination of the Chilean Agricultural Innovation System: Towards optimal coordination of the Chilean Agricultural Innovation System”, The World Bank (2013): Country case document including and in-depth analysis of the system weaknesses (lack of shared vision, weak articulation, conflicts with funding innovation, and culture) and presenting alternatives to solve them. It is one of the very few existing comprehensive approaches to building a NAIS. (available at <http://www.minagri.gob.cl/wp-content/uploads/2014/03/Towards-optimal-coordination-of-the-Chilean-Agricultural-Innovation-System-2.pdf>)
- “Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems”, The World Bank (2006): Discussion of agricultural innovation cases and the policies and types of interventions that have led to their development and successful consolidation (available at http://siteresources.worldbank.org/INTARD/Resources/Enhancing_Ag_Innovation.pdf)
- “Agricultural Innovation Systems: From Diagnostics toward Operational Practices” Rajalahti, Riikka et. al. (2008): The World Bank (Report on issues around enhancing agricultural innovation and the impact and usefulness of ag. R&D, including stakeholders’ analysis, different levels of case studies and specific innovation experiences with policy and action recommendations. (available at <http://siteresources.worldbank.org/EXTARD/Resources/ARDDDiscussionPaper38.pdf>)
- “Operational field guide for developing and managing local agricultural innovation platforms” Wambugha Makini, Felister (2013): discussion about innovation platforms (InPs), informed by experiences and lessons from the existing agricultural innovation platforms in Southern, Eastern and Western Africa. (available at <http://www.kari.org/docs/Innovation%20Platforms%20Operational%20Guide.pdf>).
- “How innovative is your agriculture: Using Innovation Indicators and Benchmarks to Strengthen National Agricultural Innovation Systems” Spielman and Birner (2008): application of the innovation systems framework to the design and construction of national agricultural innovation indicators. (available at <http://siteresources.worldbank.org/INTARD/Resources/InnovationIndicatorsWeb.pdf>)
- “Missing the target: Lessons from enabling innovation in South Asia” Sulaiman, Rasheed, et.al. (2011): Discussion of the the issues involved in promoting research into use and the role of enabling innovation, beyond fostering collaboration, and including a range of other innovation management tasks. (available at <http://www.merit.unu.edu/publications/wppdf/2011/wp2011-050.pdf>)

4.2 Capacity development¹⁰ for agricultural innovation systems – concepts, frameworks and tools

The concept of AIS calls for a paradigm shift not only in the way agricultural research contributes to development results through connecting multiple actors in the agri-food system, promoting joint knowledge creation, sharing and learning and concomitant changes in the institutional and policy setting, it calls for innovative and a systems-oriented approaches to capacity development to enable this shift.

This paradigm shift includes a shift from seeing knowledge generation as a final objective, to using it as a means to achieve change; A shift from mainly reductionist understanding of the parts to systemic understanding of the relationships between the parts; A shift from mainly ‘hard systems analysis’ (improving the mechanics of the system) to also ‘soft systems analysis’ (negotiating the meaning of the system and desirable transformations); A shift from seeing participation as a matter of consulting beneficiaries to one of facilitating engagement for interactive learning between stakeholders, resulting in joint analysis, planning, and collective action; A shift from working individually to working with others, in ever-changing ad-hoc teams and partnerships; A shift from teaching to learning; from being taught to learning how to learn; from individual learning to social learning and a shift in the culture of research and development (R&D) organizations from an exclusive focus on individual merit and competition to one that also favors collaboration and teamwork within and between organizations.¹¹ Achieving this shift requires a systems-oriented capacity development perspective whereby research is just one part of a wider process of change and development (Mbabu and Hall, 2012)¹².

A systems approach to CD

Capacity development is increasingly recognized as a multi-dimensional and multi-actor process that goes well beyond the transfer of knowledge and skills at the individual level and encompasses organizational and institutional dimensions (Pearson, 2011)¹³. It is seen as a complex interplay between individual, organizational and institutional¹⁴ levels. Complexity theory on which this thinking is based is concerned with emergence, self-organization, learning and adaptation. Complexity theory also posits that results cannot be planned or predicted and a system will decide for itself what, if anything, will emerge as the result of any intervention or change in its circumstances. Current approaches to capacity development grounded in complexity theory are therefore very much aligned to the systems approach to CD called for by an AIS lens (cf. Lucas, 2013)¹⁵.

¹⁰ The terms capacity building, strengthening, enhancement or development are used inter-changeable throughout the literature. The term Capacity Development has been adopted here to underscore CD as an endogenous process unleashing and strengthening inherent capacity/capabilities of individuals, organizations and systems as a whole.

¹¹ International Centre for development oriented Research in Agriculture (ICRA) 2011. “Strengthening Capacity for Rural Innovation: Building skills, changing outlooks”. Annual Report 2010. ICRA, Wageningen, The Netherlands.

¹² Adiel N. Mbabu and Andy Hall (Eds.) (2012). Capacity Building for Agricultural Research for Development: Lessons from Practice in Papua New Guinea. 274pp. United Nations University-Maastricht Economic and Social Research Institute on Innovation and Technology (UNU-MERIT), Maastricht: The Netherlands.

¹³ Pearson, Jenny. (2011). Training and Beyond: Seeking Better Practices for Capacity Development. OECD Development Co-operation Working Papers No. 1

¹⁴ “Institutional” refers to the formal and informal rules as well as beliefs, values and frameworks for understanding that create stability and order of the system. This is often referred to as the “enabling environment”.

¹⁵ Lucas, Brian. (2013). Current thinking on capacity development. GSDRS helpdesk Research Report.

Capacity is generally viewed as the ability of individuals, organizations or society as a whole to set and implement development objectives as well as to identify and meet development challenges in a sustainable manner¹⁶. A widely accepted definition of Capacity Development is that it is *the process whereby people, organizations and society as a whole unleash, strengthen, create, adapt and maintain this capacity over time* (OECD/GAT 2005)¹⁷. There are several variations on this definition. One variation that could inform the Common Framework CD for AIS is the AU/NEPAD Capacity Development Strategic Framework talks of a “process of enabling individuals, groups, organizations, institutions and societies to sustainably define, articulate, engage and actualize their vision on developmental goals building on their own resources” (NEPAD, 2010)¹⁸.

The emphasis is on process and current literature recognizes that this is an endogenous process that must be owned by the involved stakeholders and is a long-term process. As with agricultural innovation, capacity is seen to ‘emerge’ over time influenced by multiple factors both internal and external (local, national and international), formal and informal (Watson 2010).¹⁹ No single factor or constituent element – incentives, leadership, financial support, trained staff, knowledge, or structure – can by itself lead to the development of capacity. Whilst the inter-relationship of the three levels (individual, organizational and institutional) is recognized, theories of change as to how the strengthening of individual competencies and organizational capacities through either traditional interventions or, more recently, through creating links among all the actors in the “innovation system”²⁰ are seldom articulated. More often than not there is simply an implicit assumption that competencies at individual level will enhance the capabilities and capacity at organizational level, which in turn will contribute to the emergence of capacity at institutional or systems level. Creating and tracking synergies and inter-relationships between the levels will be a particular focus in the framework development.

Capacity development is often seen as a process of improving the ability of organizations and systems to perform their assigned tasks in an effective, efficient, and sustainable manner. That is, capacity is viewed primarily in terms of improved performance. Indeed, as Watson (2010)²¹ notes, performance of individuals or organizations tends to be seen as a proxy for capacity. The connection between capacity and performance is however murky and seldom immediate. Investments in capacity can take days or even years to yield significant results. This is partly due to fact that an organizations’ performance is influenced by both its internal environment and by the external environment in which it operates (Horton 2003)²².

Whilst the immediate aim of capacity development may be the improvement of performance of individuals, organisations and by extension of the system, capacity and

¹⁶See for instance **Tony Land, 2000** Implementing Institutional and Capacity Development: Conceptual and Operational Issues. ECDPM Discussion Paper No 14. European Centre for Development Policy Management, Maastricht, the Netherlands.

¹⁷ The Challenge of Capacity Development. Working towards good practice. A DAC Reference Document 2006.

¹⁸ NEPAD. (2010). Capacity Development Strategic frameworks. Capacity Development Guidance Note No. 2

¹⁹ Watson, David. (2010). Combining the ‘Best of Two Worlds’ in Monitoring and Evaluation of Capacity Development in Ubels, Jan, Naa-Aku Acquaye-Baddoo and Alan Fowler (Eds.) 2010. Capacity Development in Practice. Earthscan, pp. 239 – 249.

²⁰ Such interventions include providing the professional skills, incentives, and resources to develop partnerships and businesses; improving knowledge flows; and ensuring that the conditions that enable actors to innovate are in place.

²¹ Watson, David (2010). Combining the ‘Best of Two Worlds’ in Monitoring and Evaluation of Capacity Development in Ubels, Jan, et al (Eds.) 2010. Capacity Development in Practice. Earthscan, pp. 239 – 249.

²² Horton D et al. (2003). Evaluating Capacity Development. Experiences from Research and Development Organizations around the World. ISNAR

performance should not be seen as synonymous (Mizrahi 2006, European Commission 2012)²³.

Ortiz and Taylor (2008)²⁴ point out the need for capacity and capacity interventions to go beyond improving immediate performance and to develop what they term “standing capacity”. Individuals, organizations and systems, they argue, need capacity well above that which they use on specific projects each day in order to adapt to new and constantly changing environments, to learn and analyze internal and external context and to relate and build partnerships. If organizations (or institutions) are only prepared for limited results and immediate program needs, then they are not preparing systemically. Developing the capacity of a system - as in AIS - with its actors, incentives, norms, processes etc, they argue is paramount if results are to be achieved. Capacity development is therefore not just about ‘delivery of results’, but facilitating processes to enable stakeholders build on opportunities, build trust and take joint action (IOB 2010)²⁵. CD can be seen as the continual pursuit of resourcefulness, enabling actors in the system to respond with flexibility and adaptability to changing circumstances and to act decisively and with effect²⁶. Whilst current understanding of CD is aligned to a systems approach to AIS, defining the outputs and outcomes of CD for AIS in a framework (as opposed to the outputs and outcomes of AIS interventions) poses a particular challenge.

A Common Framework on CD for AIS

Whilst there is agreement in the literature about the central role of CD in achieving effective AIS and alignment of concepts and approaches, the literature is generally quite sparse on how to achieve a systems approach to CD for AIS involving multiple actors and creating synergies between individual, organizational and institutional levels. The focus of the literature tends to be mainly on individual components of AIS such as research organizations, university curricula, extension services, farmers’ organizations and Ministries of Agricultural. A large portion of the literature covers specific needs within higher education institutes, needs for technical training in specific disciplines within universities and research organizations, research management skills, and organizational development and change within research and extension organizations. It also covers the need for capacity development to implement new approaches to agricultural research for development in the changing context of public and private contributions to agricultural research and development (cf. Posthumus et al., 2012)²⁷. Several individual cases of capacity interventions regarding for instance curriculum change (Washington et al., nd.)²⁸, restructuring of ministry departments (Klerkx, nd.)²⁹

²³ Mizrahi, Yemile, (2003). Capacity Enhancement Indicators: Review of the Literature. Washington, World Bank.
European Commission (2012). *Evaluation Methodology & Baseline Study of European Commission Technical Cooperation Support. Final Report*

²⁴ Ortiz, Alfredo and Peter Taylor. (2008). Emerging Patterns in the Capacity Development Puzzle. Why, what and when to measure. Institute of Development Studies (IDS).

²⁵ Ministry of Foreign Affairs of The Netherlands 2011. Facilitating Resourcefulness. Synthesis report of the evaluation of Dutch support to capacity development. IOB Report no. 336

²⁶ Ibid

²⁷ Posthumus H, Martin A, Chancellor T (2012) A systematic review on the impacts of capacity strengthening of agricultural research systems for development and the conditions of success. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London

²⁸ Washington, O., Heemskerk, W. & Wongtschowski, M. eds. (no date). *Changing agricultural education from within. Lessons and challenges from the Go4IT programme*. Zwolle, KIT publishers.

Salm Mundie et al. (2013). The need for institutional change in capacity development of tertiary agricultural education. Report from a CDI-ICRA-KIT workshop. Wageningen, The Netherlands

²⁹ Klerkx Laurens et al, (no date). Towards optimal coordination of the Chilean Agricultural Innovation System. Design for a MINAGRI Agricultural Innovation Coordination Unit. World Bank.

or specific research programs (Hall et al., 2014)³⁰. Examples in the literature on a comprehensive approach to CD for AIS that simultaneously addresses CD initiatives at individual, organizational and institutional levels and the interplay between these levels were not found.

Linking research and development outcomes and achieving the necessary paradigm and mindset shifts, however, means that specific new skills and management systems are needed for diverse actors to perform effectively within dynamic, multi-actor development processes and beyond this be able to respond to emerging challenges. CD for AIS must facilitate the creation of synergy between research institutions and public and private sector actors and development organizations and enable innovation actors to address a whole range of activities, investments and policies that make change happen, whilst improving the way the different elements work together, take action and ensure iterative learning of the innovation system, continuously revisiting performance and how it is managed.

Some authors (see Hawkins et al., 2009; Mbabu and Hall, 2012)³¹ have postulated a framework on CD for AIS incorporating several principles to improve the quality of the innovation process that need to be addressed through capacity development.

According to Hall³² these include:

- *Organizational and systems focus* – including building links between different organizations and promoting collective action and tackling the enabling environment of the system through policy and institutional change.
- *Hard and soft skills focus*: In addition to hard skills and competencies that relate to their core business, organizations also need to build soft skills such as the ability to work in partnership with other organizations and stakeholders or the ability to reflect on performance and share lessons as well as manage conflict.
- *Focus on institutional development*: Policy and institutional arrangements are key in shaping the innovation process and are, therefore, a key component of capacity. An effective innovation capacity is one that can generate the policy and institutional changes needed to enable other forms of innovation.
- *Facilitation rather than training*: Organizations need to be facilitated to explore their goals and performance and to develop their own effective ways of working.
- *Strong focus on learning and performance management*
- *Capacity development as a dynamic, ongoing process*: In a systems perspective capacity building is not a one-off intervention, but a continuous process of upgrading and change. Learning-by-doing, reflection and adaptation as key elements of capacity building, both at an organizational level as well as at the level of the system as a whole and are essential ways of coping with change and uncertainty.

³⁰ Hall, A et al. (2014). “The journey to R4D: an institutional history of the Australia Africa Food Security Initiative in Innovation Systems: Towards Effective strategies in Support of Smallholder Farmers, CTA. Wageningen. Adiel N. Mbabu and Andy Hall (Eds.) (2012). Capacity Building for Agricultural Research for Development: Lessons from Practice in Papua New Guinea. 274pp. United Nations University-Maastricht Economic and Social Research Institute on Innovation and Technology (UNU-MERIT), Maastricht: The Netherlands.

³¹ Hawkins, R et al. (2009). Integrated Agricultural Research for development (IAR4D). A Concept Paper for the Forum for Agricultural Research in Africa (FARA) Sub-Saharan Africa Challenge Programme (SSA CP) FARA, Accra, Ghana.

. 2012. In Search of Agricultural Research for Development: Hall A. et al 2012. A New Capacity Building Agenda. In Adiel N. Mbabu and Andy Hall (Eds.) (2012). Capacity Building for Agricultural Research for Development: Lessons from Practice in Papua New Guinea. United Nations University-Maastricht Economic and Social.

Research Institute on Innovation and Technology (UNU-MERIT), Maastricht: The Netherlands.

³² Ibid

- *Need for organizations with an intermediary role:* The systems perspective on capacity building also points to the need for actors with a role in facilitating links between entities are often referred to as innovation brokers and represent a key component of capacity.

CD interventions must aim at facilitating multi-stakeholder processes to develop capacity at institutional or system level to create a synergy that is more than the sum of its parts. This will include at individual levels orientation in analytical skills (systems thinking, complexity theory, stakeholder analysis, gender analysis etc.), strategic planning skills (participatory planning, reflexive monitoring and evaluation, development of theory of change), soft skills (leadership, team building, conflict resolution, negotiation, listening skills, communication) and learning skills (participatory action research). Organizational and systems' capabilities require conducive incentives, relevant structure and political commitment in order for stakeholders and organizations to acquire and effectively share knowledge as well as collaborate. This implies that stakeholders, organizations and the system as a whole should have the ability to:

- continuously identify and prioritize problems and opportunities in a dynamic systems environment;
- take risks, experiment with social and technical options, and assess the trade-offs that arise from these;
- mobilize resources and form effective partnerships around promising options and visions for the future;
- Organize mechanisms to bring stakeholders together and facilitate their interaction in order to access, share and process relevant information and knowledge and collaborate and coordinate with others and achieve effective concerted action. (Leeuwis et al., 2014)³³:

*CD concepts and guidelines - levels dimensions principles, issues and outcomes of capacity*³⁴

As stated above, there is general agreement that capacity development is an endogenous and complex process that takes place over time at individual, organizational and institutional level. These levels are seen to be interconnected and affect each other in complex ways through push and pull factors. Interestingly, the Swiss Agency for Development and Cooperation (SDC) distinguishes a fourth level “development of networks and partnerships”³⁵ (The capacity to build partnerships is subsumed under various capacity dimensions in other CD frameworks). Given the importance of building networks and partnerships for AIS, it seems pertinent indeed to distinguish this fourth level as a dimension of capacity.

Whilst the guidelines all emphasize the need to develop capacity at these levels, there is quite some variation in the types of capacity, basic principles and core issues as well as the expected outcomes of capacity development initiatives.

³³ Leeuwis C, Schut M, Waters-Bayer A, Mur R, Atta-Krah K and Douthwaite B. (2014). Capacity to innovate from a system CGIAR research program perspective. Penang, Malaysia: CGIAR Research Program on Aquatic Agricultural Systems. Program Brief: AAS-2014-29.

³⁴ An overview of concepts, guidelines and tools of various organizations and donors is provided as annex to this report. Information can also be found at OECD/DAC Capacity Development Team, 2009 Inventory of donor approaches to capacity development. What we are learning.

³⁵Swiss Agency of Development Cooperation (2006). Capacity Development in SDC. Working Paper.

FAO and UNDP distinguish between functional capacities (policy and norms, knowledge, partnering and implementation) and technical capacities (task specific) at all three levels. Whereas the Asian Development Bank and the European Commission talk of functional/rational and political dimensions of capacity. The Japan International Cooperation Agency (JICA) identifies three perspectives of CD (individual, organizational and institutional) and distinguishes core capacity (management capabilities, will, attitude and leadership), technical capacity (techniques particularly knowledge and tacit knowledge accumulated by organizations) and the enabling environment (conditions that allow the organization to utilize its capabilities and produce results) as elements of these perspectives.

FAO also defines guiding principles for CD (country ownership and leadership, alignment with national needs and priorities, use of national systems and local expertise, the need to be context specific to have a multi-level approach, be mutually accountable and harmonize action and partnerships). Similarly UNDP identifies basic principles (ownership, addressing power relationships, mindset and behavioral change, recognizing CD as a long term process, ensuring CD is aligned to national systems and is context specific). The NEPAD CD strategic framework talks of the 6 cornerstones of capacity development, leadership transformation, citizens' empowerment, utilizing African potential, skills and resources; evidence-based knowledge and capacity of capacity developers, integrated planning and implementation for results, which could also be viewed as principles of CD.

In addition to principles, UNDP addresses the core issues of knowledge, accountability, leadership and institutional arrangements. These might be regarded as the outputs of CD. While outcomes for UNDP are identified as performance, stability and adaptability. The World Bank Capacity Development Results Framework postulates that outcomes are achieved through the acquisition of new knowledge and information (that is through learning) by agents of change to enhance the conduciveness of the socio-political environment, the efficiency of policy instruments and the effectiveness of the organization arrangements (Otoo et al, 2009:15)³⁶. The African Capacity Building Foundation identifies four clusters of effectiveness of agricultural capacity which might be viewed as outputs. These clusters are the ability to have a good strategy, investment in dynamic capacity including the skills, knowledge, and innovation needed to get results, the explicit role of the private sector in the supply chain and information systems that support farmers, buyers, sellers and other stakeholders in the supply chain including making research relevant to farmers (ACBF, 2012)³⁷.

A recent evaluation methodology for the European Commission sees capacity outcomes at the level of core capabilities of organizations and of the system (2012) stressing the need to delink the intervention logic for capacity development interventions from that of achieving development results. Whilst the European Commission recognizes the connection between capacity development outcomes and development outcomes, capacity development outcomes are regarded as a result in their own right and not linked in a linear manner of capacity development input - output - development outcomes.

³⁶ Otoo, Samuel et al. 2009. The Capacity Development Results Framework. A strategic and results-oriented approach to learning for capacity development. World Bank, Washington D.C.

³⁷ Africa Capacity Building Foundation (ACBF) 2012. Africa Capacity Indicators 2012. Capacity Development for Agricultural Transformation and Food Security. Harare, Zimbabwe.

A further framework that has been adopted by the Dutch Ministry of Foreign Affairs and the European Commission amongst others, is the Five Capabilities Framework of the European Centre for Development Policy Management (ECDPM) to assess the capacity of the system³⁸. Within this framework, they suggest distinguishing between *competencies*, *capabilities* and *capacity* at individual, organizational and systems level, respectively.

Competencies refer to the core knowledge, skills, attitudes and energies that *individuals* need to effectively work within the AIS. “Innovation competencies” include abilities to work and learn with others, to analyze and improve innovation systems, and to facilitate these processes. *Capabilities* refer to the “collective ability of a group or system” to function as effective *organizations* include providing the space for organizational learning, adapting to ever changing circumstances, building effective partnerships and willingness to take risk as well as acting towards organizational goals and acquiring and managing the necessary resources. The collective skills involved may be technical, logistical, managerial or less tangible (i.e. the ability to earn legitimacy, to create trust, to adapt, to create meaning etc.). Whereas *Capacity* refers to the ability of organizations that comprise an *innovation system* to combine individual competencies and organizational capabilities in such a way that their collective potential is realized. This requires effective partnerships based on a shared vision, effective task distribution and, above all, trust.

The framework postulates five core capabilities that constitute capacity of an organization and/or complex system. These are:

- The Capability to Adapt and Self Renew
- The Capability to Act and Commit
- The Capability to Relate to External Stakeholders
- The Capability to Achieve Coherence and
- The Capability to Achieve Development Results

When developing a Common Framework on CD for AIS it will be necessary to clearly formulate inputs, and define at what levels outputs and outcomes of capacity development occur, as well as outline the individual competencies, capabilities of the organization (or network) and capacity of the system.

Steps in the CD process

In line with the methodology adopted by UNDP, five steps in the CD process can be defined.

- Engage stakeholders on capacity development;
- Assess capacity assets and needs;
- Formulate a capacity development response;
- Implement a capacity development response;
- Evaluate capacity development.

There are a wide range of tools and methodologies available to address these various steps. A systematic overview of the tools used by different organizations is provided in

³⁸ Baser, Heather and Peter Morgan 2008. Capacity, Change and Performance. Study Report ECDPM Discussion Paper No. 59B. Maastricht, the Netherlands.

an annex (Annex I) to this report. The most widely referred to in the literature are those of UNDP (2008 and 2009) and the European Commission (2009) cited below in key literature selection. The four FAO learning modules provide the most comprehensive compilation of tools with clear indication of when and where they can be used.

Key guidelines and toolkit to inform the framework are available from:

- Asian Development Bank 2007. Institutional Assessment & Capacity Development Toolkit. [CD_Toolkit_ADB_draft30102007.doc](#) (869kB)
- EuropeAid 2005 Institutional Assessment and Capacity Development. Why What, and How. http://ec.europa.eu/europeaid/sites/devco/files/methodology-tools-and-methods-series-institutional-assessment-capacity-development-200509_en_2.pdf
- EuropeAid 2009, Toolkit for Capacity Development. A Reference Document n. 6
<http://www.capacity4dev.eu/c4d-lib/document/cdtoolkit-march09->
- FAO 2010. Capacity Development Learning Module 1. Enhancing FAO's Practices for Supporting Capacity Development of Member Countries. http://www.fao.org/fileadmin/user_upload/capacity_building/FAO_CD_LM1.pdf
- FAO 2014 Learning Module 2. FAO Approaches to Capacity Development in Programming: Processes and Tools. http://www.fao.org/fileadmin/user_upload/capacity_building/FAO_CD_LM2.pdf
- FAO 2011 Learning Module 3. Good Learning Practice for Effective Capacity Development
http://www.fao.org/fileadmin/user_upload/capacity_building/FAO_CD_LM3.pdf
- FAO 2013 Learning Module 4. Organization Analysis and Development. Learning Mo
http://www.fao.org/fileadmin/user_upload/capacity_building/LM4_v2_WEB_Light.pdf
- Japan International Cooperation Agency, 2008. Capacity Assessment Handbook – Project Management for Realizing Capacity Development. [http://gwweb.jica.go.jp/km/FSubject9999.nsf/03a114c1448e2ca449256f2b003e6f57/3923e49bcc5eb5d54925772800216a5c/\\$FILE/Capacity%20Assessment%20Handbook%20Eng.pdf](http://gwweb.jica.go.jp/km/FSubject9999.nsf/03a114c1448e2ca449256f2b003e6f57/3923e49bcc5eb5d54925772800216a5c/$FILE/Capacity%20Assessment%20Handbook%20Eng.pdf)
- UNDP 2008 Capacity Development Practice Note
http://www.undp.org/content/dam/aplaws/publication/en/publications/capacity-development/capacity-development-practice-note/PN_Capacity_Development.pdf
- UNDP 2008 Capacity Assessment Methodologies. A Users' Guide
<https://www.undp-aap.org/sites/undp-aap.org/files/UNDP%20Capacity%20Assessment%20Users%20Guide.pdf>
- UNDP, 2009 Capacity Development a UNDP Primer.
http://www.undp.org/content/dam/aplaws/publication/en/publications/capacity-development/capacity-development-a-undp-primer/CDG_PrimerReport_final_web.pdf

4.3 Facilitation and learning

Facilitation is an important task for enabling agricultural innovation. The literature suggest that in order to facilitate agricultural innovation processes, we need to broaden classical facilitation tasks – such as, communication and information sharing, listening, convening actors and managing logistics - to foster synergy by managing systemic interactions that link people and resources and enhance their ability to make collective decision and implementation (Pyburn and Woodhill, 2014; Suliaman et al., 2010)³⁹. Innovation actors encounter challenges while assessing their own opinion, interests and resources among others with whom they need to work together. Facilitation is, therefore, a purposeful intervention that enhances interaction and relationships of individuals, organizations, objects, and their social, cultural and political structures through a process of network building, social learning and negotiation (Leeuwis & Arts, 2011)⁴⁰. We need to consider a wide range of actors in the facilitation roles – change agents, advisors, moderators, brokers, catalysts, activists, coordinators, network managers and communication specialists.

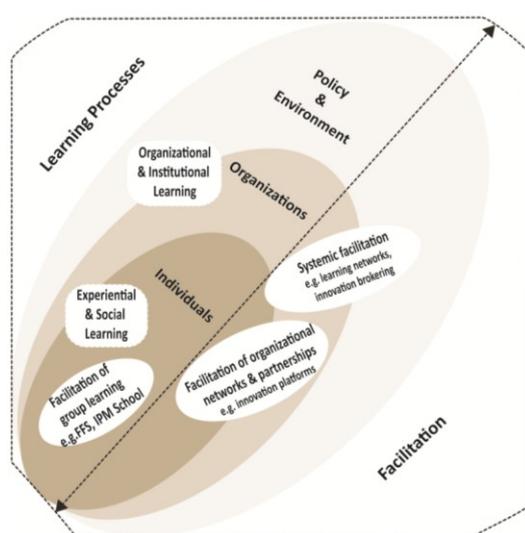


Figure 4. Facilitation and learning as building blocks of agricultural innovation system (source: own illustration)

Learning is essentially an element of innovation processes that needs to be facilitated. The facilitator enables individuals to reflect on their experiences, encourages critical thinking and challenges old and existing assumptions and preconditions. Innovation actors operate at spatial and temporal scales, and may be thought of as comprising a hierarchy of levels where process operating at one level can affect stability and dynamics of other levels (Hall & Clark, 2010)⁴¹. Therefore, it is necessary to consider facilitation tasks and learning processes at individual, organizational and institutional level (policy & environment) levels (see Figure 4).

³⁹ Pyburn, R. & Woodhill, J. (eds.) (2014). *Dynamics of rural innovation. A primer for emerging professionals*. Amsterdam: Royal Tropical Institute.

Sulaiman Rasheed, V., Hall, A., Vamsidhar Reddy, T. S., & Dorai, K. (2010). Studying Rural Innovation Management: A Framework and Early Findings from RIU in South Asia. RIU Discussion Paper No. 11. UK: Research Into Use.

⁴⁰ Leeuwis, C., & Aarts, N. (2011). Rethinking Communication in Innovation Processes: Creating Space for Change in Complex Systems. *The journal of agricultural education and extension*, 17(1), pp. 21 - 36.

⁴¹ Hall, A., & Clark, N. (2010). What do complex adaptive systems look like and what are the implications for innovation policy? *Journal of International Development*, 22(3), pp. 308-324.

Facilitation of group or joint learning is a common task for enabling innovation processes at individual level. The goal is to support experiential learning through methods and tools such as, Farmers Field School (FFS), Farmer Participatory Research (FPR), Integrated Pest Management (IPM) School, Local Agricultural Research Committees (CIALs), Farmer-led research, Participatory Technology Development (PTD), Participatory Innovation Development (PID). According to theory, learning occurs from a continuous feedback (through dialogue and interaction) between thinking and action: concrete actions result in certain experiences, which are reflected upon and subsequently generate cognitive changes, from which new actions can emerge. Experiential learning can be enhanced by clarifying concepts, principles and steps, and by offering new learning opportunities such as encouraging experimentation, stimulating processes of reflection, and assisting in drawing conclusions (cf. Leeuwis & Van den Ban, 2004)⁴².

There is a growing recognition in the literature that individuals learn through interaction within a social and physical context (Knickel et al., 2009, van Mierlo et al, 2010)⁴³. Innovation does not take place at the level of an individual farm rather it involves plurality of actors and lead to a reconfiguration of relational patterns. Social learning captures the fact that a change is connected with individual and/ or collective cognitive changes of various kinds. It is a process through which actors of similar or different groups (see also Figure 1) gradually develop complementary and or overlapping or even fully shared understanding. Learning occurs when people starts getting to know each other in a social space (such as meeting in an organization, or committee/platform) and work together and concretely learn something together through action.

Innovation platforms and local innovation processes are two commonly used approaches identified in the literature. An Innovation platform - a multi-actor configuration deliberately set up to facilitate and undertake various activities around identified agricultural innovation challenges and opportunities – is a common approach used to enhance social learning at individual and organization level (Kilelu et al., 2013; Ngwenya & Hagmann, 2011)⁴⁴. Facilitators require skills for using methods and tools to facilitate the ‘platform’ or ‘social space’ where different actors define and struggle for the same set of resources yet dependent on one another for the realization of their objectives. Facilitators need to establish dialogue and clarify different viewpoints. There is a large body of literature, related to the facilitation of innovation platforms and the capacities needed to facilitate such multi-stakeholder processes (e.g. Boogard, 2013; Wambuga Makini et al., 2013; Nederlof et al., 2011). These platforms are usually formed around a commodity or value chain and there is particular emphasis on this ‘approach’ to agricultural innovation in Sub-Saharan Africa. A value chain refers to “the full range of activities required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers,

⁴² Leeuwis, C., & Van den Ban, A. (2004). *Communication for Rural Innovation: Rethinking Agricultural Extension*. Oxford: Blackwell Science.

⁴³ Knickel, K., Brunori, G., Rand, S., & Proost, J. (2009). Towards a Better Conceptual Framework for Innovation Processes in Agriculture and Rural Development: From Linear Models to Systemic Approaches. *The journal of agricultural education and extension*, 15(2), pp. 131 - 146.

van Mierlo, B., Leeuwis, C., Smits, R., & Woolthuis, R. K. (2010). Learning towards system innovation: Evaluating a systemic instrument. *Technological Forecasting and Social Change*, 77(2), pp. 318-334.

⁴⁴ Kilelu, C. W., Klerx, L., & Leeuwis, C. (2013). Unravelling the role of innovation platforms in supporting co-evolution of innovation: Contributions and tensions in a smallholder dairy development programme. *Agricultural Systems*, 118(0), pp. 65-77.

Ngwenya, H., & Hagmann, J. (2011). Making innovation systems work in practice: experiences in integrating innovation, social learning and knowledge in innovation platforms. *Knowledge Management for Development Journal*, 7(1), pp. 109-124.

and final disposal after use” (Kaplinsky and Morris, 2000)⁴⁵. These activities include the direct functions of primary production, collection, processing, wholesaling and retailing, as well as the support functions such as input supply, financial services, transporting and advertising as well as the institutional (KIT et al., 2006)⁴⁶ arrangements in which they are embedded.

The concept of value chain emphasises the creation of value at various stages along the chain. It also stresses the idea that actors along the chain actively support each other so as to increase their efficiency and competitiveness and to empower smallholders, create equity and ensure an enabling environment. Value chain actors are seen to invest time, effort and money, and build relationships in order to reach a common goal (Vermeulen et al., 2008)⁴⁷ and satisfy modern market demands of volume and price that meets stringent quality and safety standards. This requires the creation of new knowledge to respond and adapt to emerging challenges and opportunities and calls for innovation not only in terms of technology adoption⁴⁸ but also in terms of new products processes, services, forms of organisation and policies. Strong, beneficial relationships between chain actors to facilitate the transfer of information, skills and services and to create new knowledge are at the heart of a value chain development.⁴⁹ An agricultural value chain as a multi-stakeholder process is therefore an opportune scenario for AIS.

Facilitation of local innovation process is rooted in the notion of ‘local innovation system’ that encompasses clients (e.g. farmers, pastoralists, fishing community), and facilitating organizations (research, extension, input dealers, local traders) with an aim to solve a specific problem or support particular outcome e.g. enhancing farmers’ livelihood assets. Innovation outcomes depend on iterative, evolving interaction and learning among these actors. The emphasis is on successful application of farmer’s (or local client’s) ideas, creativities, and skills (Wettasinha et al., 2008; Waters-Bayer et al., 2009; Wongtschowski et al., 2010)⁵⁰.

Systemic or system-wide facilitation approaches and tools are less evident in the overall literature. Intermediation and brokering – tasks related to bridging relationships among groups of individual and organization and connecting them to different resources and services – are required for systemic facilitation of innovation processes. The systemic facilitation functions have been described using several concepts and tools such as ‘innovation brokering’, ‘innovation championing’, ‘network facilitation’ (Devaux, et al.,

⁴⁵ Kaplinsky Raphael and Morris Mike, (2000). *A Handbook for Value Chain Research*. International Development Research Centre, Ottawa, Canada

⁴⁶ Institutional arrangements refers to formal and informal “rules”, formal policies, laws and standards and informal patterns of behaviour, beliefs and values as well as various forms of organisation across the state, business sector and civil society. Institutions, both formal and informal, create stability and order in society.

⁴⁷ KIT, Faida MaLi and IIRR, (2006). Chain empowerment: Supporting African farmers to develop markets. Royal Tropical Institute, Amsterdam; Faida Market Link, Arusha; and International Institute of Rural Reconstruction, Nairobi

⁴⁸ Vermeulen, S., Woodhill, J., Proctor, F.J. and Delnoye, R. (2008). Chain-wide learning for inclusive agrifood market development: a guide to multi-stakeholder processes for linking small-scale producers with modern markets. International Institute for Environment and Development, London, UK, and Wageningen University and Research Centre, Wageningen, the Netherlands.

⁴⁹ Cf. Campbell, Ruth n.d. Key Elements of the Value Chain Approach. USAID Briefing Paper

⁵⁰ Wettasinha, C., Wongtschowski, M., & Waters-Bayer, A. (Eds.). (2008). Recognising local innovation: experiences of PROLINNOVA partners.: Silang, Cavite, The Philippines: IIRR/Leusden: PROLINNOVA International Secretariat, ETC EcoCulture.

Waters-Bayer, A., van Veldhuizen, L., Wongtschowski, M., & Wettasinha, C. (2009). Recognizing and enhancing process of local innovation. In: P. Sanginga, A. Waters-Bayer, S. Kaaria, J. Njuki & C. Wettasinha (Eds.), *Innovation Africa: Enriching Farmers’ Livelihoods*. London, Earthscan.

Wongtschowski, M., Triomphe, B., Krone, A., Waters-Bayer, A., & Veldhuizen, L. (2010). Towards a farmer-governed approach to agricultural research for development: Lessons from international experiences with local innovation support funds. Paper presented at the symposium Innovation and sustainable development in food and agriculture, 28 June - 1 July, Montpellier.

2010; Kilelu et al., 2011; Klerkx et al., 2012; Klerkx & Arts, 2013)⁵¹. The concepts and tools are more analytical than practical. There are few cases that described how to embed systemic facilitation functions to strengthen AIS in low-income countries.

Organizations and institutions are vital factors for innovation process because they are the nodes where flows of knowledge and interaction occur among different actors. These flows of knowledge and interactions are determined by culturally defined norms, historically determined institutional development, national priorities and are defined by geographic borders and national policies (Hall, 2000)⁵². Organizations are material infrastructure and resources, the respective space distribution of that infrastructure and materials resources, the set of human beings who integrate them and the functional stratification that assigns roles and function to these people in the material space. Institutions are the ‘*rules of the game*’ – both formal and informal – and include worldview, paradigms, values, norms, theories, beliefs, principles, premises, approaches, models, policies, mission, strategies, priorities, and objectives. The institutions influence the perception, decision and action of those who constitute the organization. The literature stresses that we have to encourage institutional and organizational learning that involve a change in values as well as in underlying strategies or assumptions in organizations comprising the innovation system (Hall et al, 2003, Hall et al, 2004)⁵³. Although organizational and institutional learning processes are widely discussed on topics related to agricultural research and extension system there is a lack of resources regarding tools and methods for facilitating organizational and institutional learning in an agricultural innovation system.

Followings are list of key resources for understanding guidelines, tools, and methods for facilitation and learning in an agricultural innovation system.

- Principles, guidelines, tools and skills required for facilitating interactive processes (e.g. group learning, joint learning and negotiation) see Leeuwis and Van den Ban, 2004.
- Concepts, principles and functions of innovation brokering (see Devaux, et al., 2010; Kilelu et al., 2011; Klerkx et al., 2012, World Bank, 2012).
- Principles and guidelines for network facilitation and learning (van Mierlo et al., 2010; Klerkx & Arts, 2013; Leeuwis and Van den Ban, 2004).
- Principles, guidelines, tools and skills for facilitating multi-actor processes and social learning, <http://portals.wi.wur.nl/msp/>; JOLISSA learning resources bank (<http://www.jolisaa.net/>) available in the repository.

⁵¹ Kilelu, C. W., Klerkx, L., Leeuwis, C., & Hall, A. (2011). Beyond knowledge brokering: an exploratory study on innovation intermediaries in an evolving smallholder agricultural system in Kenya. *Knowledge Management for Development Journal*, 7(1), pp. 84-108.

Klerkx, L., & Aarts, N. (2013). The interaction of multiple champions in orchestrating innovation networks: Conflicts and complementarities. *Technovation*, 33(2013), pp. 193-210.

Devaux, A., J. Andrade-Piedra, D. Horton, M. Ordinola, G. Thiele, A. Thomann and C. Velasco. (2010). *Brokering Innovation for Sustainable Development: The Papa Andina Case*. ILAC Working Paper 12, Rome, Italy: Institutional Learning and Change Initiative.

Klerkx, L., Schut, M., Leeuwis, C., Kilelu, C. (2012). Advances in knowledge brokering in the Agriculture Sector: Towards Innovation System Facilitation. *IDS Bulletin*, 43(5): 53-60.

⁵² Hall, A., Clark, N., Taylor, S., Sulaiman, V. R., Sivamohan, M. V. K., & Yoganand, B. (2000). New agendas for agricultural research in developing countries: policy analysis and institutional implications. *Knowledge, Technology and Policy*, 13(1), pp. 70-91.

⁵³ Hall, A., Sulaiman, V. R., Clark, N., & Yoganand, B. (2003). From measuring impact to learning institutional lessons: an innovation systems perspective on improving the management of international research. *Agricultural Systems*, 78(2003), pp. 213-241.

Hall, A. J., Yoganand, B., Sulaiman, V. R., Raina, R. S., Prasad, C. S., Naik, G. C., et al. (Eds.). (2004). *Innovations in innovation: reflection on partnership, institutions and learning*. New Delhi: National Centre for Agricultural Economics and Policy Research.

- Principles, guidelines and tools for facilitation of innovation platforms, <https://cgspace.cgiar.org/handle/10568/33667>, <http://innovation-platforms.wikispaces.com/> also see Makani et al., 2013, Boogaard et al., 2013, Posthumus & Wongtschowski⁵⁴.
- Principles, guidelines and tools (e.g. PTD, PID) for local innovation processes see <http://www.prolinnova.net/> (under resources).
- Participatory Rural Appraisal Tools, <http://www.fao.org/docrep/003/x5996e/x5996e06.htm>
- Sourcebook of Institutional Learning and Change Initiative (ILAC) provides tools for fostering learning and change, <http://www.cgiar-ilac.org/content/ilac-sourcebook>
- [Rapid Appraisal of Agricultural Knowledge systems, guidelines, tools and windows, available in the repository, and http://www.search4dev.nl/record/422848](http://www.search4dev.nl/record/422848)
- [Gordijn, Femke et al. 2012. Reflection Methods. Trends to make learning more explicit. Manual for Facilitators and Trainers. Centre for Development Innovation, Wageningen, the Netherlands http://www.managingforimpact.org/sites/default/files/resource/gordijn_helder_ernstman_2012_reflection_methods.pdf](http://www.managingforimpact.org/sites/default/files/resource/gordijn_helder_ernstman_2012_reflection_methods.pdf)
- Social System Analysis website, <http://www.sas2.net/>, there are various tools and methods for social system analysis such, identification and analysis of problem, actors and possible options.
- Stakeholder engagement manual, <http://commdev.org/extractives/words-action-stakeholder-engagement-manual>
- DFID's tools for development. <http://webarchive.nationalarchives.gov.uk/+http://www.dfid.gov.uk/Documents/publications/toolsfordevelopment.pdf>
- Participatory Learning and Action- a practitioners journal that provide tools and methods of participatory learning and change, <http://www.iied.org/participatory-learning-action>
- International Institute for Environment and Development (IIED)'s power tools include tools for understanding, organizing, engaging and ensuring, <http://www.policy-powertools.org/>
- ODI handbook, tools for knowledge and learning, <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/188.pdf>

⁵⁴ Wambugha Makini et al. (2013). *Operational field guide for developing and managing local agricultural innovation platforms*. Nairobi, Kenya Agricultural Research Institute.

Boogaard et al. (2013). Critical issues for reflection when designing and implementing Research for Development in Innovation Platform. Draft report prepared for Report prepared for the CGIAR Research Program on integrated Systems for the Humid Tropics. Communication, Philosophy and Technology, Wageningen University.

Posthumus, H. and M. Wongtschowski. (2014). Innovation Platforms. Note 1. GFRAS Good Practice Notes for Extension and Advisory Services. GFRAS: Lindau, Switzerland

4.4 Documentation and knowledge management

Traditionally documentation and knowledge management for agricultural development entails turning data and information into actionable knowledge and making this available and accessible to the right people (usually research and extension organizations and policy makers) at the right time (Nyirenda-Jere & Kazembe, 2014, Horton et al., 2011)⁵⁵. Knowledge sharing, interactive learning within organizations and between organizations and at networks and systems level are emphasized in the field of knowledge management resonating innovation system thinking (Klerkx et al., 2011).

The issue of ‘knowledge management’ is at the heart of the discussion on CD for AIS. The essential difference between the traditional linear and the multidimensional views of the innovation process is essentially about different conceptions on what knowledge is relevant – tacit and explicit – and how this knowledge is identified, captured, evaluated, retrieved, and shared among all stakeholders (Hartwich et al., 2007). In the traditional system knowledge – technologies in a broad sense – is generated by research and then passed along to farmers in a top down process where the issue is essentially one of communication and diffusion. In the multidimensional innovation system perspective, relevant knowledge is much more complex, both in its origins and content (Koutsouris, 2012). All actors are potential sources of knowledge and it includes cultural management practices; new agricultural technologies; diagnostic information about plant and animal disease and soil related problems; market information on inputs and sales (prices, seller, buyers, retailers); market demand and quality of products required for these markets; and land records and government policies.

Migrating away from the idea that agricultural science generates technology which extension experts then transfer to users, to the perspective of a more complex adaptive system, where individuals and organizations act and survive by adapting and learning to organize themselves into communities, providing the necessary ground for the creation and improvement of knowledge, requires a significant effort in terms of supporting KM methods and techniques. In this sense modern information technology can offer important options – data bases, expert systems, intranets, other communication technologies, etc. – but there is the need for new approaches aiming at promoting and organizing learning from experience and collective behavior, not managed from above but emergent from the system’s network of interactions, calling for mechanisms facilitating experience documentation, and learning spaces among multiple agents, such as community of practices and other networking tools.

⁵⁵ Nyirenda-Jere, T.P.R. & Kazembe, J.A. (2014). Policymaking for Agricultural and Rural Development in Africa : The role of ICTs and Knowledge Management . IIED Working Paper. IIED, London.

Horton, D., Thiele, G., Oros, R., Andrade-Piedra, J., Velasco, C., & Devaux, A. (2011). Knowledge management for pro-poor innovation: the Papa Andina case. *Knowledge Management for Development Journal*, 7(1), pp. 65-83.

Klerkx, L., Pant, L. P., Leeuwis, C., Cummings, S., le Borgne, E., Kulis, I., et al. (2011). Beyond the conventional boundaries of knowledge management: navigating the emergent pathways of learning and innovation for international development. *Knowledge Management for Development Journal*, 7(1), pp. 1-7.

Hartwich, F., M. Monge Pérez, L. Ampuero Ramos and J.L Soto. (2007). Knowledge management for agricultural innovation: Lessons from networking efforts in the Bolivian Agricultural Technology System. *Knowledge Management for Development Journal* 3(2): 21-37

Koutsouris, Alex (2012), Facilitating Agricultural Innovation Systems: a critical realist approach. *Studies in Agricultural Economics* 114 (2012) 64-70.

Agricultural and development organizations encounter challenges of moving beyond their internal knowledge management system that emphasizes codification of knowledge to be used in their reporting and planning. This influences them to ignore or overlook value of local knowledge (Horton et al., 2011). It is necessary to recognize that knowledge is socially constructed which is mediated and enriched through negotiation and cooperation of different sources (actors) of knowledge. Tacit knowledge is a personal knowledge embedded in individual experiences and involves intangible factors such as personal belief, perspectives, and value systems. Tacit knowledge is relatively difficult to formalize, codify and/ or communicate. In what follows, we need to look into knowledge management task for embedding tools and methods that are sensitive to both ‘tacit’ and ‘explicit’ knowledge, and lead to an inclusive innovation process. For instance, video has usually been used as training and technology transfer tool for agricultural development. Recently, there is a growing amount of literature on approaches and methods of using video as a tool for documentation of knowledge and stimulating group and multi-actor learning processes from an innovation systems perspective in Asia and Africa (please see Van Mele, 2006; Van Mele et al., 2009; Chowdhury et al., 2011; Chowdhury et al., 2015)⁵⁶.

Innovation literature suggests that knowledge management from the ‘situated mutual learning’ perspective, in which different groups and organization, while recognizing their unequal social positions, interact with each other and seek to share and co-produce knowledge with an aim to advance their interests (Horton et al., 2011; Klerkx et al., 2011)¹³. Knowledge management does not take place automatically; this needs to be supported by a process of negotiation and reconciling differences among the participating groups. This issue can also be identified in the discussion of concept and role of ‘knowledge brokering’ in the innovation and knowledge management for development literature (Klerkx et al., 2009; Kilelu et al., 2011; Fisher, 2011; Shaxon et al., 2012)⁵⁷. In a similar vein, we need to consider institutional dimension of knowledge management. Institutions, organization and policy environment determine the goal and objective of knowledge sharing and utilization, ability of actors to share knowledge, the types and legitimacy of knowledge, decision about use of methods and tools of knowledge management (see Nyirenda-Jere & Kazembe, 2014; Klerkx et al., 2011; van der Pol & Nederlof, 2010).

There are various tools and methods that can be used for knowledge management and documentation in CD for AIS. Many of these tools and methods are also relevant for learning and facilitation. For an overview of knowledge management tool we refer to knowledge management course available at www.imarkgroup.org, KM toolkit <http://www.kstoolkit.org/>, CTA Knowledge management and communication program

⁵⁶ Van Mele, P. (2006). Zooming-in zooming-out: a novel method to scale up local innovations and sustainable technologies. *International Journal of Agricultural Sustainability*, 4(2), pp. 131-142. Van Mele, P., Wanvoeke, J., & Zossou, E. (2009). Enhancing rural learning, linkages and institutions: the rice videos in Africa. *Development in Practice*, 20(3), pp. 414 – 421.

Chowdhury, A. H., Van Mele, P., & Hauser, M. (2011). Contribution of Farmer-to-Farmer Video to Capital Assets Building: Evidence from Bangladesh. *Journal of Sustainable Agriculture*, 35(4), pp. 408 - 435.

Chowdhury, A., Odame, H. H., Thompson, S., & Hauser, M. (2015). Enhancing farmers' capacity for botanical pesticide innovation through video-mediated learning in Bangladesh. *International Journal of Agricultural Sustainability*, pp. 1-24.

⁵⁷ Shaxon et al. (2012). Expanding our Understanding of K* (Kt, KE, Ktt, KMb, KB, KM, etc.). . A Concept Paper Emerging from the K* Conference held in Hamilton, Ontario, Canada, April, 2012. Hamilton: Institute for Water Environment and Health, United Nations University.

Fisher, C. (2011). Knowledge Brokering and Intermediary Concepts. Analysis of an e-discussion on the Knowledge Brokers' Forum. Sussex: Institute of Development Studies.

Klerkx, L., Hall, A., & Leeuwis, C. (2009). Strengthening Agricultural Innovation Capacity: Are Innovation Brokers the Answer? *International Journal of Agricultural Resources, Governance and Ecology*, 8(5/6), pp. 409-438.

van der Pol, F & Nederlof, S. (2010). *Natural Resource Management in West Africa: Towards a Knowledge Management Strategy*. Bulletin 392. Amsterdam, KIT Publishers

(<http://www.cta.int/en/our-programmes.html>) and tools/cases (<http://knowledge.cta.int/>). Broadly, knowledge management tools and methods can be categorized as follows:

- Methods and tools requiring face-to-face interaction: Most of the learning and facilitation methods and tools can be used for capturing, storing, and transmitting knowledge to support multi-actor innovation processes.
- Traditional Information and Communication Tools (ICT): These include use of radio, video, mobile phones and podcasting
- New ICTs, online methods and tools: These are broadly internet-based tools that help knowledge sharing and creation through a systemic interaction of different actors. The tools include web 2.0 and social networking sites. A list of tools and cases is available in the repository.
- Hybrid tools: These tools are based on media convergence, integrating online and traditional media, such as integrating mobile SMS with the internet, integrating video and audio with the social networking/ learning and knowledge management systems. Examples of cases and tools are listed in the repository.

4.5 Monitoring and evaluation

Monitoring and evaluation (M&E), understood to be the effective management of performance by implementers so that they can achieve desired outcomes and report their progress to decision makers at all levels – monitoring – and the assessment of impacts and the generation of lessons for future actions – evaluation – are essential capacities for an (agricultural) innovation system to perform effectively (Hall et al., 2012)⁵⁸.

Within the context of CD for AIS, and in terms of M&E, there are two quite distinct challenges. The first is to monitor and evaluate capacity and capacity development for AIS. A task that calls for a clear definition of expected outputs and outcomes and the development of a Theory of Change of how CD leads to a strengthening of AIS. In confronting this we are talking about more than just performance, capacity development should be seen as a result in itself and the M&E approach should explicitly recognize it.

The second challenge is to build within the AIS the capacity to keep track of the effectiveness of its policies and investments and generate the needed information for each of the components to perform *vis a vis* both their specific roles and the system's social objectives. In building his two aspects should be considered (i) AIS interventions involve both short and long term changes, technological adaptations have the potential for immediate impacts, while institutional and policy adaptations have a longer maturation period and continue to develop and have impacts (changes in yield, incomes, food availability, or environmental sustainability) beyond the life of the particular intervention, and many times on issues and problems not identified at the start of the process, and (ii) the need to monitor how effective are the actions to stimulate new ways of doing things, is both a systemic and an organizational need: every stakeholder has monitoring and evaluation needs of its own as a permanent feedback of its performance *vis a vis* its own objectives and those of the system.

The above diversity needs to be clearly reflected in the M&E processes and tools in a way that assures that each of the system components can perform its function, while contributing the information needed for system level – policy and organizational – decision making, to be permanently in line with social objectives. The issue is not to monitor, or evaluate the impact of a particular innovation intervention, the challenge is to build within the system the capacity to keep track of the effectiveness of its policies and investments and generate the needed information for each of the components to perform *vis a vis* both their specific roles and the system's social objectives. Experience with applying monitoring and evaluation principles and approaches with this orientation, is still very limited. There are not many experiences of countries having explicitly innovation within an innovation system perspective as a strategy / tool for agricultural development, so what is available in a diversity of M&E approaches and tools – most of them evolving from applications to others fields – for different types of interventions or levels (policy, organizational, technological, etc.). Some of the most commonly mentioned include innovation and institutional histories, participatory impact pathway analysis, causal process tracing, reflexive monitoring in action, appreciative inquiry, outcome mapping, stories and narratives, performance indicators, theory-based impact evaluation, and the benchmarking of innovation capacities (see

⁵⁸ Hall, A. et.al (2012). The concepts of “monitoring and evaluation”. In, World Bank. Agricultural Innovation Systems: an investment sourcebook (Thematic Notes 7.4 and 7.5). Washington, World Bank.

Hall et al, 2012).

Additionally, there have been some efforts to develop aggregated innovative capacity indicators to complement benchmarking and provide insights into the different factors affecting individual countries innovative behavior and performance (Spielman & Kelemework, 2009)⁵⁹. All these tools, however, have been thought out from an analytical perspective external to the systems themselves, mostly designed as tools to monitor and evaluate specific innovation interventions or to feed into academic discussions, but not as parts of a system's essential functions. In this context, CD for AIS needs to explicitly address the discussion of the types of monitoring and evaluation responsibilities and most appropriate tools at each component and level so to assure a continued and integrated flow of information, which will help to improve the long-term effectiveness of innovation systems performance.

The following resources are relevant for a better understanding of issues related to working with developing the needed monitoring and evaluation system, methodologies and tools for the above context.

- World Bank Institute Capacity Development and Results (2012) Guide to Evaluating Capacity Development Results A collection of guidance notes to help development practitioners and evaluators assess capacity development efforts: Critique of conventional M&E approaches and discussion of alternative/complementary tools (available at <http://wbi.worldbank.org/wbi/approach/capacity-results>)
- <http://impact.cgiar.org/work-program/siac> Extensive coverage of the activities of the CGIAR's community of practice on impact evaluation activities, including databases, methodologies, tools and reports of specific activities of all international centers.
- <http://wbi.worldbank.org/wbi/approach/capacity-results> Resource with extensive coverage of approaches and tools to monitor and assess the results of capacity development programs for greater effectiveness, including among other resources Capacity Development and Results Framework to guide the assessment, design, monitoring, management and evaluation of capacity development efforts, tools for diagnostic and planning tools that are customizable to different settings, databases of indicators that capture capacity development results, and learning and knowledge exchange programs to understand and apply results-focused capacity development
- <http://www.oneworldtrust.org/apro/search/tool/RAAKS> Rapid Appraisal of Agricultural Knowledge Systems (RAAKS): Tool designed for sharing and using knowledge and information from different stakeholders for innovation, aimed to help stakeholders gain a better understanding of their performance as innovators
- Vernooy, Ronnie, et.al. (2009), Learning to evaluate capacity development and collaborative learning about community-based natural resource management: lessons from Asia: Discussion of a framework intended to contribute to understanding and enhancing capacity development strategies, including scaling up, sustainability, and institutionalization. (available at <http://cipotato.org/wp-content/uploads/2014/08/005047.pdf>)
- <http://betterevaluation.org/>: An international collaboration to improve evaluation practice and theory by sharing and generation information about options (methods and processes) and approaches to evaluation.
- Van Mierlo, Barbara et.al. (2010), Reflexive monitoring in action: A guide for monitoring system innovation projects: Offers a practical guidelines which will help putting monitoring systems – including appropriate tools – in place. (available at http://www.falw.vu.nl/en/Images/Reflexive%20monitoring%20in%20Action%20B%20van%20Mierlo%20and%20B%20Regeer%202010_tcm24-399363.pdf)

⁵⁹ See Spielman, David J. & Kelemework, D. (2009) Measuring Agricultural Innovation System Properties and Performance: Illustrations from Ethiopia and Vietnam, IFPRI Discussion Paper 00851, IFPRI, Washington DC

- Bennett, Christopher, et.al. (2004) Community-Driven Tools for Data Collection and Decision Making: The PISA Action Guide: Review of an approach which systematically introduces and explains the concepts and strategies needed to make well informed, data-based decisions while empowering key stakeholders in the process, recognizing the need for rapid information exchange in an informationintensive world, this approach establishes a lasting information the communities that seeks to support (available at http://www.rootchange.org/about_us/resources/publications/ThePisaActionGuide.pdf)
- IDS Practice Paper in Brief (September 2013), Learning about Theories of Change for the Monitoring and Evaluation of Research Uptake: Theories of change as a tool for M&E. (acalable at <http://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/2995/PP%20InBrief%2014%20FINAL.pdf?sequence=1>)
- Capurro, Enzo (2012) Rapid assessment of capacity (RAC) proposed approach to assess capacity development in AID programmes: PPT with a review of different approaches to capacity development. (available in repository)
- Van Ongevalle, Jan (2010) Dealing with complexity through Planning, Monitoring & Evaluation (PME) Mid-term results of a collective action research process: exploration of different Planning, Monitoring and Evaluation (PME) approaches with the aim of dealing more effectively with complex processes of social change. (available at <http://www.intrac.org/data/files/resources/736/Praxis-Paper-26-Dealing-with-complexity-through-PME.pdf>)
- Pali, P.M. et.al. (2005), Empowering Communities through Participatory Monitoring and Evaluation in Tororo district: Discussion of cases of application of the Community Based Participatory Monitoring and Evaluation (CB-PME) tool (available in repository)
- Ortiz Alfredo and Peter Taylor (2008), Emerging patterns in the capacity development puzzle why, what and when to measure?: Discussion on how to deal with this paradox, by examining how monitoring and evaluation (M&E) does, or could, make a difference to CD. It explores whether there is something different and unique about M&E of CD that isn't addressed by predominant methods and ways of thinking about M&E. (available in repository)
- Martin, Adrienne et.al. (2011) Review of Literature on Evaluation Methods Relevant to Extension: Review of literature on evaluation methods, in combination with a meta evaluation of extension evaluation case studies. (available at <http://www.g-fras.org/en/knowledge/gfras-publications/file/63-review-of-literature-on-evaluation-methods-relevant-to-extension.html>)
- Lundy, Mark (2013), Monitoring innovation platforms: Discussion of what a monitoring system does, who is involved, how it works, and what to do with the findings. (available at: <http://r4d.dfid.gov.uk/pdf/outputs/WaterfoodCP/Brief5.pdf>)
- Pali Pamela and Kees Swaans (2013) Guidelines for innovation platforms: Facilitation, monitoring and evaluation: guidelines for IP facilitation and the monitoring and evaluation (M&E) of IP processes and outcomes. (available at <https://cgspace.cgiar.org/bitstream/handle/10568/27871/ILRImanual8.pdf?sequence=4>)
- Horton, Douglas e.al. (2000) Evaluating Capacity Development in Planning, Monitoring, and Evaluation A Case from Agricultural Research: Review of tools with a special focus on agricultural research managers and PM&E specialists (available at http://betterevaluation.org/resources/evaluating_capacity_example/evaluating_capacity_example)
- Daane, J. et.al.(2009) Performance Indicators for Agricultural Innovation Systems in the ACP: Region Synthesis Report, International Expert Consultation Workshop: Analysis of key concepts – innovation, innovation system, innovation system framework, innovation system performance – in the context of ACP agriculture, and identification of relevant performance indicators at different levels and mechanisms for monitoring and evaluating performance such that they can be piloted by ACP national organizations. (available at http://www.icra-edu.org/objects/ard-european/Final_Report_CTA_ASTIPerformanceIndicator_2008workshop.pdf)

- Rogers Patricia J. (2009), Using Programme Theory to Evaluate Complicated and Complex Aspects of Interventions: Discussion of how to use programme theory for evaluating aspects of programmes that are complicated or complex, providing specific applications examples (available in repository)
- Mizrahi, Yemile (2003),: the report offers (i) Identifications of indicators of capacity and capacity enhancement in the development related literature produced over the past ten years, (ii) an examination of the difficulties and challenges of measuring capacity enhancement, and (iii) suggests an analytical framework format for designing capacity enhancement indicators. (available at <http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2004/06/23/00000948620040623153452/Rendered/PDF/286140Capac>)
- Keijzer, Niels, et.al. (2011) Bringing the invisible into perspective: comprehensive approach for planning, monitoring and evaluation of capacity and the results of capacity development processes. This capacity framework used centers around 5 capabilities ('5Cs') that together contribute to an organization's ability to create social value. (available at http://www.die-gdi.de/uploads/media/5CS_Reference_Document_2011.pdf)
- Douthwaite, B., Apgar, M., Crissman, C. (2014), Monitoring and Evaluation Strategy Brief: This brief provides an overview of the monitoring and evaluation (M&E) system of the CGIAR Research Program on Aquatic Agricultural Systems (AAS) and describes how the M&E system is designed to support the program to achieve its goals (available at <http://aas.cgiar.org/publications/monitoring-and-evaluations-strategy-brief#.VPhg97OG8oY>)

5. Capacity Development for Agricultural Innovation Systems: Knowledge, Methods and Practice Gap

The review of the literature shows that since the mid-late 1980s there has been an increasing use of the agricultural innovation system perspective when discussing technological change and innovation in both developed and developing countries. The focus on agricultural research and the linear vision where knowledge (technologies) was generated by scientists, handed down to researchers for adaptive research and extension for diffusion, and then finally adopted by farmers, that prevailed for a long period, has given way to a more pluralistic view of the processes where change is the result of more complex interactions among a variety of actors.⁶⁰ The AIS approach and related issues, methodologies and tools is today much more frequent focus of conceptual discussions as well as the design and implementation of capacity development interventions. When looking at the literature, however, there are a number of evident gaps that need to be carefully assessed in designing a framework to guide future actions. These gaps involve issues at all levels; that is system, organizational and individual level issues.

A notable gap is at the level of appropriation of the idea of innovation and innovation systems as the most effective way to approach production and productivity improvement, market access and policy formulation within the context of efforts to fight hunger and poverty and promote sustainable agricultural development. Innovation and agricultural innovation systems have become – no doubt – part of the discourse, but they are still a long way from being fully reflected in analytical work, national policies and capacity development efforts.

In this sense, there is a relatively large literature covering approaches and tools for interventions at the specific situation and field levels – AR4D approaches, innovation platforms, etc. – and issues linked to capacity development for organizations and individuals to work in multi-stakeholder environments, but little about the structure the system itself, either at national, regional or local levels and its governance mechanisms and overall or sector specific innovation policies. While the thinking is about improving agricultural innovation processes, much of the action still continues to be in terms of agricultural research capacity improvement. Much of the work of the development banks (The World bank, the Inter American Development Bank, or the Asian Development Bank), as well as that of other donor and development cooperation agencies, show innovation concepts in their general orientations, but at the strategic and operational level – the definition of their components and the actual activities to be supported – they are not much different than agricultural research and extension improvement of the last decades.⁶¹ At this point in time, the situation is that there is some degree of evolution, mostly reflected in the concepts of Integrated Agricultural Research for Development (IAR4D) or of innovation platforms aiming to explicitly incorporate wider stakeholder interactions in the priority setting as well as the research and technology development processes. These inform the design and implementation of specific capacity development interventions, but the broader AIS concept has to date hardly influenced agricultural innovation policy formulation and implementation.

⁶⁰ Hartwich, Frank, Anastasia Alexaki, and René Baptista, Innovation Systems Governance in Bolivia Lessons for Agricultural Innovation Policies, IFPRI Discussion Paper 00732, IFPRI, Washington DC, September 2007

⁶¹ A good example of this is the relatively recent discussion mobilized within the United States Agency for International Development (USAID) extensively reported in Anderson, Jock et.al. (2012) Towards USAID re-engaging in supporting national research systems in the developing world, USAIS, Washington SC, April 2012.

At the policy level there are not many examples of policies explicitly informed by agricultural innovation systems principles. Prevailing policies go little beyond resource allocation to agricultural research and technology transfer issues. Moving to an AIS perspective calls for governments to commit to setting policies in a more horizontal way, recognizing not only inter-sectorial issues, but also the vertical links existing in the value chains and affecting the different actors' individual and collective creativity and, in the end, innovative performance (OECD, 2013)⁶². A wider discussion of what could be guiding principles for policy design, management and implementation, under different circumstances, the different institutional options for improving AIS governance, and specific policy recommendations for enhancing innovation performance emerging from actual developing countries experiences, are aspects still not well addressed by existing literature.

In a similar vein, it is necessary to caution a presumable divergence between 'policy prescription' and 'policy implementation' that pervasively exists in some of the pilot countries of the CDAIS project (see Sulaiman et al., 2006; Sulaiman & Hall, 2005 for extension policy reforms in Asian countries including Bangladesh and Laos)⁶³. The public-service extension agencies – one of the important players of agricultural innovation system in CDAIS countries – lack capacity in fostering innovation capacity, which include among others new ways of designing effective, efficient and accountable projects, managing innovation supports, developing or assessing pluralistic partnerships and institutions, and facilitating learning (Chowdhury et al., 2014)⁶⁴. The studies that identify existing innovation capacity challenges are descriptive and prescriptive, and mostly conducted by experts from the North. The studies discussed different reasons for 'innovation capacity deficit' such as, existing institutional legacy of 'technology transfer' model, lack of shared understanding of the policy between lower and higher level management of public sector extension agencies, and failure of past and present reform initiatives to induce necessary cultural and organizational change. There are limited studies at country or regional level that provide insights into an institutional analysis of historical and current experiences of implementing different extension and capacity development approaches for agricultural development (see Islam et al., 2011 for example)⁶⁵, and readiness of existing organizational, political and policy arena to support and sustain capacity development from an agricultural innovation systems perspective. It is, therefore, suspected that without this in-depth knowledge CD for AIS may end up with strategies and models that do not result in a sustainable change.

Although the literature emphasises the importance of social equity (fair distribution of costs and benefits), gender and inclusiveness as components of AIS (Pyburn and Woodhill, 2014)⁶⁶ there is little discussion as to how to incorporate a gender or social equity perspective into CD for AIS. Pyburn and Woodhill claim that in many

⁶² See OECD (2013), *Agricultural Innovation Systems: A Framework for Analysing the Role of the Government*, OECD Publishing. <http://dx.doi.org/10.1787/9789264200593-en>

⁶³ Sulaiman, V. R., & Hall, A. (2005). Extension policy at the national level in Asia. *Plant Production Science*, 8(3), pp. 308-319.

Sulaiman, R., Hall, A., & Raina, R. (2006). *From Disseminating Technologies to Promoting Innovation: Implications for Agricultural Extension*. SAIC Regional Workshop on Research-Extension Linkages for Effective Delivery of Agricultural Technologies in SAARC Countries, 20-22 November, 2006.

⁶⁴ Chowdhury, A. H., Hambly Odame, H., & Leeuwis, C. (2014). Transforming the Roles of a Public Extension Agency to Strengthen Innovation: Lessons from the National Agricultural Extension Project in Bangladesh. *The journal of agricultural education and extension*, 20(1), pp. 7-25.

⁶⁵ Islam, M. M., Gray, D. I., Reid, J. I., Kelly, T. C., & Kemp, P. D. (2011). Beyond Recurrent Costs: An Institutional Analysis of the Unsustainability of Donor-Supported Reforms in Agricultural Extension *Journal of International Agricultural and Extension Education*, 18(1).

⁶⁶ Pyburn R and Jim Woodhill eds. 2014 *Dynamics of Rural Innovation A primer for emerging professionals* Rhiannon Pyburn and Jim Woodhill (eds.) 2014.

developing countries there are complex gender issues that can have a significant impact on the opportunities and ability to develop capacity at all levels of society. Yet many key CD documents are gender neutral and do not appropriately consider the different capacity needs of men, women and youth⁶⁷. Gender perspectives tend only to be addressed by assessments focusing on women's issues, linked to donor programmes specifically targeting women. CD for AIS will need to make transparent the relationships and between men, women, youth and children and analyse power dynamics based on socially constructed gender roles. These will vary from one cultural context to another. Gender analysis tools such as gender audits and gender in value chains⁶⁸ will need to be adapted to the context of CD for AIS. Hawkins et al (2009)⁶⁹ recommend the use of frameworks such as the Harvard framework to analyse power relationships and social equity or Women's empowerment framework to screen projects from the specific perspective of women's development needs.

Within the CD and AIS literature the development of 'Theories of Change' to inform areas of CD are conspicuously missing. Whilst there is agreement on the need to carry out CD at individual, organizational and institutional levels, the literature offers mainly very limited case studies referring to one organization or an institute of higher education. How to simultaneously address the different levels and track the interconnectedness and results (planned or unintended) is an area that will require more consideration. In addition, the lack of harmonisation of approaches (levels, dimensions, issues and principles) and methodologies and common understanding on the type of outcomes to be achieved through CD interventions requires that the Common Framework on CD for AIS clearly specify these.

There is large body of literature on ICT for agricultural development – such as, internet and mobile phone technology, which highlight their effect on knowledge production, exchange and utilization in bringing socio-economic change. The discourse has progressed mainly in line with the 'digital-divide' or 'information access' for development. There is a paucity of literature on the methods, tools and processes of using ICT technologies for bringing 'systemic' interaction in an innovation system. The 'digital evolution' with an increasing availability of internet and mobile phones – and opportunities for convergence of old and new media – offer new avenues for creating, processing and communicating knowledge and enabling conversations among different stakeholders leading to collective action and solution of development problems. The complex and dynamic nature of food and agricultural development requires: consolidation of local, indigenous and formal scientific knowledge, disciplinary cooperation by looking into agriculture beyond biological science to social, natural and policy research, while establishing effecting and trustful partnerships along a broader stakeholder groups beyond the formal science and development. Very few examples and case studies are evident that document potential applications of video, mobile phones, radio and virtual platforms including social networking media in fulfilling above modalities by allowing new types of relationships, networking, and negotiation process where local, national, regional and global actors of research, development and public spheres can jointly learn from each other based on their comparative advantages.

⁶⁷ Jenny Pearson, 2011. Training and Beyond: Seeking Better Practices for Capacity Development. OECD Development Co-operation Working Papers No. 1

⁶⁸ For instance Sender, Angelica et al. 2013 Gender in value chains. Practical toolkit to integrate a gender perspective in agricultural value chains development. Agriprofocus.

⁶⁹ Hawkins, R et al 2009 Integrated Agricultural Research for Development (IAR4D). A concept paper for the Forum for Agricultural Research in Africa (FARA) Sub-Saharan Africa Challenge Programme (SSA CP). Accra Ghana

Moreover, power and participation issues in the accumulation of data and the creation of inclusive information flows raise questions on conditions, and contexts under which ICTs shape relations, institutions and practices. The literature review identified a lack of discussion on the contexts and conditions for successful application of ICT for agricultural and rural development that include multi-stakeholder processes, and how such applications depend on broader innovation support system.

6. Recommendation for the Framework

The proposed Common Framework CD for AIS synthesized in Fig. 5 evolves from two interrelated ideas. The first is that, in most of the developing countries, the innovation system perspective is not a well-established concept informing agricultural development strategies and policies. The most frequent situation is one where “innovation” policies and processes – even if they are addressed using that terminology – are concentrated on science and technology, research, and extension, maybe including some simple public and private good considerations, and visualized mostly as a linear, technology transfer process (Hartwich et al, 2007; Spielman, 2005)⁷⁰. The second idea, is that given this fact capacity development needs to be approached as a sequential process, starting with the creation of the appropriate environmental conditions for capacity development to take place, which implies, at the very least, a firmly appropriated understanding of the innovation process and its multidimensional nature by all key stakeholders.

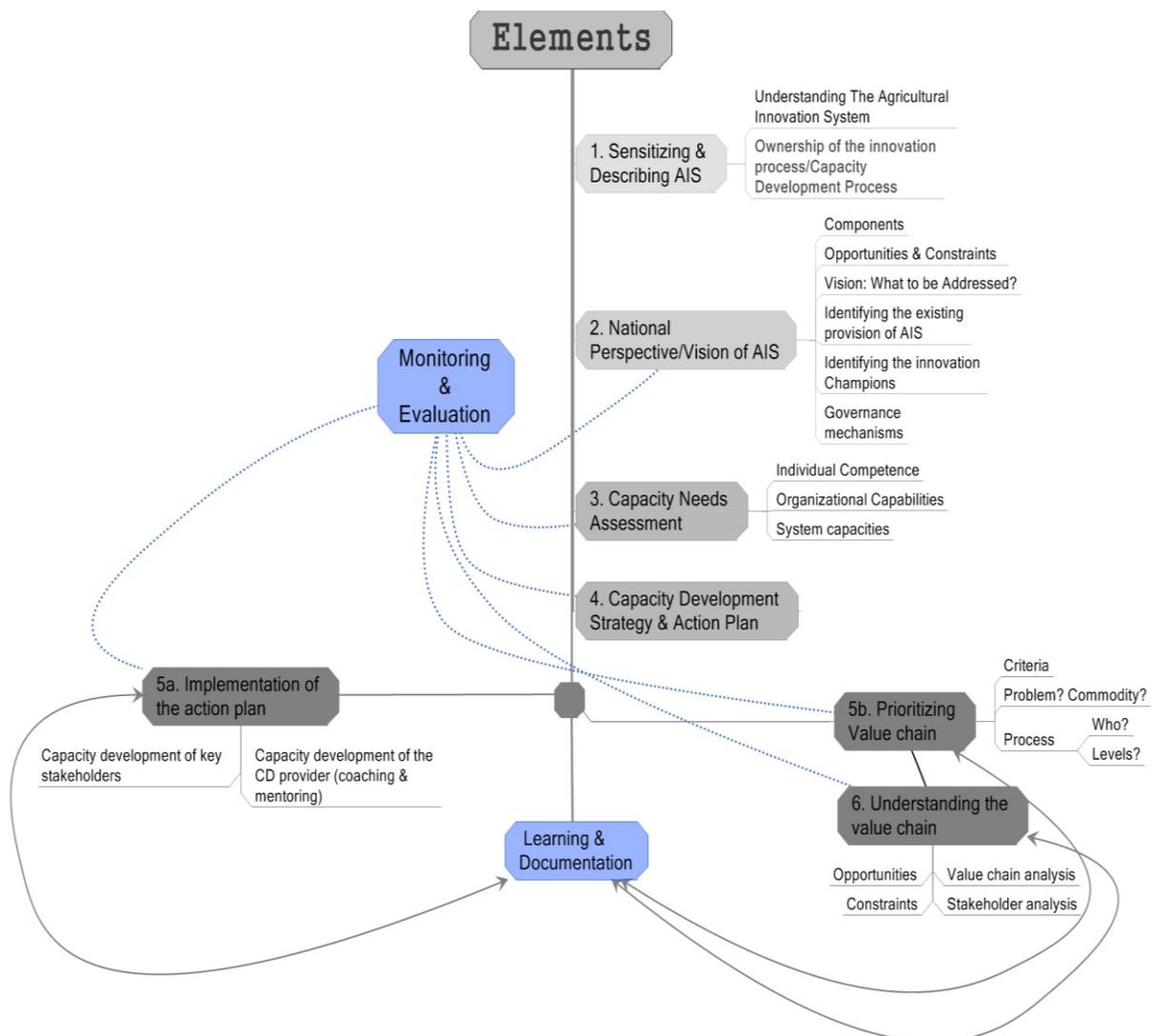


Figure 5: Preliminary outline of elements for the Common Framework on CD for AIS

⁷⁰ Hartwich, Frank, Anastasia Alexaki, and René Baptista. (2007). Innovation Systems governance in Bolivia Lessons for Agricultural Innovation Policies, IFPRI Discussion Paper 00732, IFPRI, Washington DC.
 Spielman, David. (2005). Innovation Systems Perspectives on Developing-Country Agriculture: A Critical Review, ISNAR Discussion Paper 2, IFPRI, Washington D.C.

Within this context it is proposed that the framework to be developed considers a sequence of five main action lines, and a number of other complementary actions, which essentially cut across the whole CD for AIS process. Figure 5 presents a schematic representation of preliminary thinking about the main components of the framework; more details of each step are presented below.

6.1 Sensitizing key stakeholders and describing the agricultural innovation system

As indicated above, very few developing countries conceive agricultural innovation as part of the multidimensional process implied in the agricultural innovation systems perspective. In most cases the predominating perspective is closer to the traditional view where change is the result of a lineal process, where knowledge – in the form of new physical technologies, cultural practices, etc. – is essentially generated by research (research organizations), and passed on to the extension system for its transference to and adoption by farmers, in a process that may or may not, involve complementary adaptation to local conditions work (World Bank, 2012)⁷¹. As a consequence, there is the need to “install” in local actors the AIS perspective both at the policy level as well as among the different stakeholders directly involved in the innovation processes. Only if key stakeholders and policy makers develop common, shared perspective of the existing components and main interactions making up the local (national) agricultural innovation system, can capacity development needs be discussed.

As a first approximation, the implementation of this step should involve the development of a first description of the structure of the local AIS through some process of rapid appraisal aiming to identify⁷² (i) stakeholders map and governance mechanisms (specific actors, areas of work and main activities) mechanisms by which decisions are made) (ii) existing policies and other public actions that influence innovation processes, that is, the development and diffusion of product and process innovations, and (iii) the main modes of interaction among the different components (public-private, national, international).

Given the “political” nature of this step of the process – “political” in the sense that the objective is to develop a minimum level of understanding of the AIS perspective and commitment to act in consequence – the implementation of the gathering of information and identification of the main activities and interactions taking place, should be developed through a highly participatory process, involving as many as possible of the different policy making and implementing agencies (government bodies with responsibilities public and private agricultural research organizations, agricultural education institutions, civil society orgs., bridging institutions, including agricultural extension institutions and stakeholders platforms, farmers orgs, value chain and input suppliers organizations, etc.). For more information about at this level and relevant literature on the involved issues see section four.

⁷¹ World Bank. (2012). Agricultural innovation systems : an investment sourcebook. The World Bank Washington DC.

⁷² The diagram included in Figure 1 above should serve as a general guideline to the elements to include in this general description.

6.2 Development of an AIS shared vision

Once a reasonable description of the existing AIS is available, there is the need to advance in the clear identification of

- What are the main opportunities and constraints limiting the evolution of the innovation process in general, and in specific cases.
- Strength and weaknesses at different levels and identify “innovation champions”⁷³
- The vision of the AIS: what is the shared perspective of what different stakeholders want to achieve.

Addressing the above questions/issues need not necessarily be approached sequentially to the activities included in step 1. Most probably they could be organized in parallel as the key to their success is their organization through a participatory methodology, which allows to gather information and at the same time is developing the needed levels of consensus and ownership of the work plans among the different actors.

6.3 Capacity needs assessment

The development of the capacities of the agricultural innovation system needs to focus not only on the competencies and capabilities required to achieve given technical or productive results, but also on what it takes to define effective policies and incentives to promote innovative behavior among all actors, build more effective and dynamic relationships among them and to “facilitate resourcefulness” as well as the ability to continuously learn and adapt to new challenges at the organizational and individual levels. CDAIS long-term objective is to enable “individuals, organizations and systems to adapt to new and constantly changing environments, to learn and analyze internal and external context and relate and build partnerships”.⁷⁴ In this sense, the CD is not a one off deal, but a process of successive approximations to the stated objectives in which each stage generates feedback loops on focus and effectiveness of tools and approaches.⁷⁵

In this context, there is the need to evaluate what are the **competencies** (*the energies, skills and abilities of individuals*), **capabilities** (*the collective ability of a group or a system to do something either inside or outside the system*) and **capacities** (*the ‘overall ability of an organization or system to create value for others’, whereby the system must balance and integrate the many capabilities it has developed*) **required at individual, organizational and systems level, respectively**, to achieve the system’s stated vision and objectives.⁷⁶ Individuals and organizations are always embedded in a given social and institutional context and interact within this framework through formal and informal mechanisms. Adequate measures for capacity development must therefore systematically analyse for each level capacities **for what, for whom and how, as well as the most appropriate time sequence with which specific actions should be undertaken.**⁷⁷

⁷³ Individuals who are socially recognized to have the capacity to make things happen

⁷⁴ CDAIS Project Document

⁷⁵ http://www.hiproweb.org/fileadmin/cdroms/Biblio_Renforcement/English/contenu1.htm

⁷⁶ The definitions used here are those in UNDP (2010), Defining and measuring capacity development results. New York (One Page Summary). <http://content.undp.org/go/cmsservice/download/publication/?version=live&id=2688568>

⁷⁷ Some useful references for capacity assessment include (not exhaustive): FAO (2010) **FAO Capacity Assessment Approach and Tools**; European Commission, EuropeAid (2005) **Institutional Assessment and Capacity Development: Why, What, and How?** Tools and methods Series, Reference Document No 1.; European Commission.EuropeAid (2010), **Toolkit for Capacity**

6.4 Capacity development strategy and action plan

Starting with the identification of capacities for what, whom and how, the capacity development strategy and action plan, which should include (i) objectives of the plan, (ii) key areas requiring capacity building (levels of capacity, types of capacities, themes for application, cross cutting issues), (iii) mechanisms for implementation, including specific strategies (formal-informal, training the trainers, mentoring, etc.), timeframe and funding of activities, (iv) learning and feed-back mechanisms. It should clearly state the expected output and outcomes of CD for AIS and outline a theory of change as to how CD will contribute to the strengthening of the AIS.

6.5a Implementation of capacity development action plan

Up to this stage the process is defined at system level, that is the functionalities and performance of the system as a whole, without entering into specificities of given stakeholders, lines or types of innovations. From this level onwards it is proposed that activities are divided into two separate action pathways, one which will continue to work at system level, looking at the system in its integrity, and the second going more in-depth into a number of prioritized specific innovation environments and multi-stakeholder processes (for instance product value chains, natural resources management issues, etc.), selected on reason of their representativeness of the system characteristics and in agreement with the community of stakeholders.

The reason for this approach is of a practical nature. Agricultural producers – farmers of all types – are one of the essential stakeholders of agricultural innovation systems; consequently for any capacity development intervention to be successful/effective, their design and implementation should clearly reflect their specific characteristics, needs and behaviors. Farmers, however, are very diverse and different types of agriculture demand different approaches. It is virtually impossible to reflect all their CD needs. The recommendation here is to take a “middle of the road” approach and selecting a few, representative “innovation situations” – defined in terms of value chains, or existing innovation platforms organized around given products or problems – to go in depth into their specificities. By following this approach it is expected that it would be possible to learn enough about the existing differences among different types of farmers and farming situations to appropriately feed them into overall capacity strengthening strategies and policies.

Capacity development at system level will vary in emphasis over time. During the initial phases of the CD plan it is suggested that the focus should be on the more macro policy, institutional (governance, regulations, etc.) and organizational level issues, such as capacity for policy design and implementation, system governance (decision making processes and rules), institutional interactions, organizational learning. Capacities at farmer level may not be a significant component initially, but only grow as feedback from “value chain” experiences are developed and synthesized in system wide farmer level capacity development activities, with Learning & Documentation and Monitoring & Evaluation (see below) playing key roles in this process.

6.5b Prioritizing and understanding the value chain

As indicated, the issue here is to focus on specificities: farmers, types of innovations, specific market(ing) mechanisms, knowledge exchange mechanisms, etc., and should start with the selection of representative cases – defined around specific problems or commodities – on the basis of a previously agreed set of criteria reflecting the system vision and characteristics. Once that the specific multi-stakeholder processes or “value chains” have been selected what follows is (i) the analysis of the value chain itself (including the identification of its components – stakeholders – and linkages mechanisms, opportunities and constraints), (ii) the assessment of the capacity development needs within the value chain, and (iii) the preparation and implementation of a specific action plan to meet the identified needs.

6.6. Learning & documentation

Learning & documentation represents the key feedback mechanism from implementation into the capacity development action plan. Learning is essentially an element of innovation processes through which individuals reflect on their experiences, encourage critical thinking and challenge old and existing assumptions and preconditions. Innovation actors operate at spatial and temporal scales, and may be thought of as comprising a hierarchy of levels where process operating at one level can affect stability and dynamics of other levels.⁷⁸ Learning processes need to be considered at individual, organizational and system (policy & environment) levels (see section four).

As indicated in the previous step, going into value chain analysis was justified on the basis of the need to take capacity development to the level of specific situations as a way to both recognizing existing diversity and to get as close as possible to the innovation process actors in the farming community. In this context key questions are those of the effectiveness of the different approaches? The degree to which given stakeholders adopting the logic of innovation systems and acting in consequence? What is the relative efficiency of the different CD instruments used in each specific case? Are there best practices emerging from them?

6.7. Monitoring and Evaluation

Regarding M&E, the framework should include considerations and tools to cover two very different perspectives. One is with respect to the capacity development intervention at hand, which is the M&E of the actions to be implemented through the CDAIS project in the different pilot countries. The second is regarding the AIS monitoring and evaluation function, both at system level as well as for the different stakeholders to implement with respect to their specific activities and innovation challenges.

M&E within the CDAIS project can be addressed through a variety of already existing program/project level tools, and its objective is to assist (i) the piloting process, and (ii) facilitate the learning link from the pilots to the broader TAP objectives, resource use effectiveness, identifying what it works and what not, alternative approaches and,

⁷⁸ Leeuwis, C., & Van den Ban, A. (2004). *Communication for Rural Innovation: Rethinking Agricultural Extension*. Oxford: Blackwell Science.

eventually best practices (for more on information on M&E approaches, methods and tools see section four).

The AIS M&E function – a key segment in the CD action plan – as indicated above in section, needs to consider two different dimensions. The systemic level, which is the monitoring of the overall performance of innovation processes as a feedback mechanism to policy making and system governance; and a more disaggregated approach focused on the component organizations, programs and projects. The framework needs to consider criteria to identify the most appropriate tools and capacities required at each level and the strategies to follow to develop them.

Annex I: Overview of CD Concepts, Dimensions, Approaches and Tools of Different Development Agencies and Key CD Providers

The table below provides an overview of the CD concepts, approaches and tools used by major development agencies and other organizations involved in Capacity Development.

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
African Capacity Building Foundation	<p>Emphasis on building the capacity of research institutions and establishing relationship between research institutions and farmers; Citizens' participation; Promotion of good governance and comprehensive agrarian reforms that uphold the individual and collective/ community rights of access to and control over territories; promotion of direct democracy in the agricultural sector.</p> <p>Outputs target a specific policy reform; provide inputs for the implementation of a particular development program; build a particular skill for the implementation of well-specified tasks; induce or strengthen a social movement.</p> <p>Outcomes at national Level: responsive fiscal, monetary and financial policies and programs; transparent budgeting process; enhanced accountability in the use of public resources; accountability for results in work performance; effective and efficient management of public debt; effective and efficient public service delivery at the sectoral level; greater participation of stakeholders in policymaking or enhanced stakeholders consultation.</p>	<p>No specific tools but elaborate indices for:</p> <ul style="list-style-type: none"> • Strategic choices for capacity development • Policy environment/Efficiency of instrument • Dialogue mechanisms for capacity development • Strategic policy choices for improving the capacity of statistical system • Financial commitment for capacity development • Aid effectiveness related to capacity development activities • Gender Equality • Social inclusion • Partnering for capacity development • Capacity profiling and capacity needs assessment • Inputs/outputs related to capacity development <p>Provides an analytical framework for a sociological analysis of agricultural policy in Africa</p>	<p>Peter K. Arthur, 2012. Food Security and Food Sovereignty in Africa: Issues, Policy, Challenges and Opportunities. Occasional Paper No. 17. Harare</p> <p>Africa Capacity Indicators 2012. Capacity Development for Agricultural Transformation and Food Security. Harare</p>

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
African Union (AU)/New Partnership for Africa's Development (NEPAD)	<p>6 cornerstones of CD:</p> <ul style="list-style-type: none"> • Leadership transformation • Citizenship transformation • Knowledge and evidence-based innovation • Utilizing African potential, skills and resources • Developing capacity of capacity developers • Integrated planning and implementation for results. 	Not applicable	NEPAD 2010 Capacity Development Strategic Framework.
AGRINATURA	<p>Focus on Agricultural research and training institutes. Definition of CD <i>'the process of improving the ability of agricultural research organizations and systems to perform their assigned tasks in an effective, efficient, and sustainable manner. Such capacity development involves strengthening the capabilities of individuals, and organizations and linkages among them'</i>.</p> <p>Three levels (individual, organizational and institutional) differentiated</p> <p>Capacities to be developed are systems skills, organizational and managerial abilities, the capacities for effective communication, partnership building negotiation, conflict management, lobbying and advocacy.</p> <p>Crosscutting issues of gender and Youth.</p>	Not applicable.	<p>2012 Capacity Development for Agricultural Research for Development Policy Brief.</p> <p>Ludemann Ruud et al. 2012 Capacity Development in Agricultural Research for Development</p>
Asian Development Bank	<p>Emphasis on CD organizations and individuals. CD entails changes in knowledge, skills, work processes, tools, systems, authority patterns, management style etc. CD is seen as an endogenous process and local ownership key to success.</p> <p>The capacity of an organization is as an element in a wider system. Distinguishes political and functional dimensions of organizations as well as internal and external dimensions. Political covers the power, the incentives, the tensions, and conflicts— provides the energy that brings motion, purpose, direction, and change, for good or bad</p> <p>The guide is built around 3 elements leading to change: dissatisfaction, change process, and vision.</p> <p>Linear view of connection between input, output, outcome and impact.</p>	<p><i>Open systems model</i></p> <p>Tools cover:</p> <ul style="list-style-type: none"> • Setting the stage, delimiting the sector • Sector Governance Mapping • Scanning the Institutional and Political Economy Context • Assessing Organizational Capacity • Stakeholder and Actor Analysis of Capacity Development Readiness • How to Manage the Design of Capacity Development Change • Sequencing and Scoping of Capacity Development and Reform <p>Logical Design of Processes and Support to Capacity Development.</p>	<p>2011 Practical Guide to Capacity Development in a Sector Context</p> <p>2007 Institutional Assessment & Capacity Development Toolkit</p>

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
World Bank	<p>Distinguishes “<i>Capacity for development</i>” - the availability of resources and the efficiency and effectiveness with which societies deploy those resources to identify and pursue their development goals on a sustainable basis</p> <p style="text-align: center;">and</p> <p>“<i>Capacity development</i>” - a locally driven process of learning by leaders, coalitions and other agents of change that brings about changes in sociopolitical, policy-related, and organizational factors to enhance local ownership for and the effectiveness and efficiency of efforts to achieve a development goal.</p> <p>Recognises four levels of CD (individuals and groups, organizational, sector and institutional). Focus on capacity factors that impede the achievement of development goals, on individuals and groups as agents of change and on learning interventions. Strong focus on governance issues.</p> <p>Presents a “new paradigm” for capacity development embodying six lessons from experience:</p> <ol style="list-style-type: none"> 1. Address dual objectives of enhancing government effectiveness and raising social inclusion. 2. Emphasis on Governance for successful and sustained CD. 3. Unleashing existing capacity and making better use of local and diaspora talent. 4. Establish firm foundation of skills, knowledge, and human competence development by strengthening the capacity to build capacity. 5. Change in provision of donor support for capacity without destroying capacity or detracting from institutional development. <p>Balancing good practice with the diversity of country context.</p>	<p>Tools</p> <ol style="list-style-type: none"> 1. Comparison of a CDRF Program Cycle with a Program Logic Model 2. Steps for Design, Monitoring, and Evaluation of Capacity Development Programs 3. Template for a Program Logic Document 4. Indicators of Capacity for Development <p>Learning Outcomes, Models, Methods, and Tools</p>	<p>Otoo, Samuel et al. 2009 <i>The Capacity Development Results Framework. A strategic and results-oriented approach to learning for capacity development</i></p> <p>Nadim Matta 2004 <i>Unleashing Implementation Capacity Rapid-Results Approach</i>. World Bank Institute</p> <p>2005. <i>Capacity Building in Africa. An OED Evaluation of World Bank Support</i>.</p> <p>Capacity Building in the Agricultural Sector in Africa. 1999, Précis World Bank Operations Evaluation Department, Spring Number 180</p> <p>The World Bank Task Force report on Capacity Development</p> <p>See also World Bank Capacity Development Resource Centre http://go.worldbank.org/TFIPT5BOR0</p>
Inter-American Development Bank	<p>Framework for viewing organizational capacity consists of eight interrelated areas that underlie an organization's performance. These are strategic leadership, organizational structure, human resources, financial management, infrastructure, program and services management, process management, and inter-organizational linkages.</p>	<p>Environmental Assessment Questions Organizational Assessment Tools</p>	<p>Lusthaus, Charles et al. 2002 <i>Organizational Assessment. A Framework for Improving Performance</i>.</p>

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
European Union	<p>Capacity Development (CD) is a change process internal to organizations and people. Local ownership is vital. Organizations seen as operating in a context. They interact with external environment through formal as well as informal mechanisms. Open Systems Model and linear thinking - Performance leads to outputs and output leads to outcomes and impact.</p> <p>Focus on outputs as the immediate step in the chain and proxy indicator for capacity.</p> <p>Introduce concept of the “demand-side” or external factors. (e.g. from citizens, clients, politicians)</p> <p>Identify change elements and drivers of change and the functional and political dimensions of organizations.</p> <p>The evaluation by DRN, however, emphasises the need to delink CD outputs and outcomes from development outcomes. It proposes an adaptation of the 5Cs Framework.</p>	<p>Toolkit of eight tools:</p> <ol style="list-style-type: none"> 1. Quick Scanning Matrix and Process Checklist 2. Assessing Organizational Capacity checklist and guide for making terms of reference for an assessment. 3. Partners’ Roles in CD Processes to maintain and strengthen local ownership 4. Setting the Stage: Mapping sector and governance actors 5. Political Economy and Stakeholder Analysis. 6. Change Management 7. Sequencing and Scoping of CD and Reform. 8. Logical Design of CD Processes and Support to CD. Logical framework approach adapted to the logic of output-oriented CD. 	<p>DRN, 2012 Evaluation Methodology & Baseline Study of European Commission Technical Cooperation support. Final Report.</p> <p>EC. 2011. Toolkit for Capacity Development. A Reference Document No 6</p> <p>European communities. 2007. Institutional Assessment and Capacity Development. Why What, and How.</p> <p>JOLISSA – Joint Learning in Innovation Systems in African Agriculture, Resources Bank 2014.</p>
European Centre for Development Policy Management (ECDPM)	<p>Adopts a systems perspective and multi-stakeholder approach. Capacity seen as a multi-faceted phenomenon based on different competencies or capabilities that combine and interact to shape the overall capacity of a purposeful human system. This can be a single organization, group of organizations, social institution or sector.</p> <p>Highlight the tangible and intangible dimensions of a system and the connections between them. Context and power dynamics are important. Capacity emerges and cannot be planned in a linear fashion, nor can it be predicted.</p> <p>In the framework, Capacity is referred to as the overall ability of an organization or system to create value for others. Capabilities are the collective ability of a group or a system to do something either inside or outside the system. The collective skills involved may be technical, logistical, managerial or generative (i.e. the ability to earn legitimacy, to adapt, to create meaning, etc). Competencies are the energies, skills and abilities of individuals.</p> <p>To achieve its (development goals) every organization/system must have five basic capabilities:</p> <ul style="list-style-type: none"> The capability to act and commit The capability to deliver on development objectives The capability to adapt and self-renew The capability to relate to external stakeholders The capability to achieve coherence 	5 Capabilities Framework	<p>Keijzer, Niels et al. 2011. Bringing the invisible into perspective. Reference document for using the 5Cs framework to plan, monitor and evaluate capacity and results of capacity development processes.</p> <p>Baser, Heather and Peter Morgan 2008. Capacity, Change and Performance. Study Report. Discussion Paper No 59B</p> <p>Engel, Paul, Niels Keijzer and Tony Land, 2007. A balanced approach to monitoring and evaluating capacity and performance. A proposal for a framework.</p> <p>Morgan Peter 2005. The Idea and Practice of Systems Thinking and their Relevance for Capacity Development.</p> <p>K.N. Nair and Vineetha Menon, 2002. Capacity Building for Demand-led Research: Issues and Priorities. Policy Management Brief 14</p> <p>Land, Tony 2000. Implementing Institutional and Capacity Development: Conceptual and Operational Issues</p>

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
Food and Agriculture Organization (FAO)	<p>CD is the “the process whereby individuals, organizations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time”</p> <p>Define Guiding Principles:</p> <ul style="list-style-type: none"> Country ownership and leadership Alignment with national systems and local expertise Use of national systems and local expertise No “one size fits all” approach Multiple level approach Mutual accountability Harmonization of action and partnerships <p>Two types of capacity, functional (covering policy and normative capacity, knowledge capacity, partnering capacity and implementation capacity) and technical covering skills and knowledge to achieve designated tasks. These two types are applicable to three dimensions (individual, organizational and enabling environment).</p> <p>Identify five key steps for CD in programming, core competencies for CD and roles from implementation to facilitation.</p>	<p>The most comprehensive compilation of tools and resources available with clear guidelines on how to apply them. The numerous tools cover, among others, the topics:</p> <ul style="list-style-type: none"> • Learning needs, design and implementation • Capacity needs assessments • Organizational Analysis, Performance and Development • Institutional and Political Economy Context Analysis • Stakeholder Analysis • Power dynamics • Strategic Planning • Monitoring and Evaluation 	<p>FAO. 2010. Capacity Development Learning Module 1. Enhancing FAO’s Practices for Supporting Capacity Development of Member Countries.</p> <p>FAO. 2012. Learning Module 2. FAO Approaches to Capacity Development in Programming: Processes and Tools.</p> <p>FAO. 2013.FAO. Learning Module 3. Good Learning Practice for Effective Capacity Development</p> <p>FAO. 2013 Learning Module 4. Organization Analysis and Development.</p>
INTRAC	<p>Focus on impact assessment of organizations</p> <p>Differentiate the role of CD Process:</p> <p>Legacy Role: identifying, analysing and documenting what changes have occurred in order to record their impact;</p> <p>Communication Role: communicating achievements and celebrating long term successes in such a way that motivates staff and stakeholders (including donors), and encourages others to adopt similar processes or make similar investments;</p> <p>Governance Role: ensuring a degree of accountability by monitoring investment into specific activities and outputs, and tracking their outcomes and impact in a systematic and transparent manner; Learning Role: generating information and perspectives on the change, and analysing and disseminating them in such a way that all stakeholders can learn from the relationships and processes involved and adapt their behaviour and interventions accordingly;</p> <p>Policy Role: generating data and analysis that can be used to reform policies, develop new strategies, improve government or donor practices, or strengthen advocacy campaigns.</p>	<p>Tools for measuring changes in capacity:</p> <p>Capacity scoring systems to quantify the extent of capacity changes over time. This requires a credible baseline through questionnaires, recording narrative testimony, or questions that indicate the extent of agreement with a particular statement.</p>	<p>Hailey John et al. 2005. Rising to the Challenges: Assessing the Impacts of Organizational Capacity Building. Praxis Paper No. 2</p>

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
Organization for Economic Co-operation and Development (OECD)/ Learning Network on Capacity Development (LenCD)	<p>Three analytical levels are identified at which capacity development objectives are pursued: individual, organizational, and the wider enabling environment. Within this framework, the enabling environment influences the behaviour of organizations and individuals in large part by means of the incentives it creates. Assessing context and the enabling environment. Capacity needs assessment and analysis at two levels. Country or sector level, providing a baseline for more focused lower-level assessments and encouraging harmonisation among donors and providers.</p> <p>Power issues</p> <p>Strong demand-side pressures for improvements are exerted from outside (from clients, political leaders, etc.); Successful efforts to promote capacity development require attention not only to skills and organizational procedures, but also to issues of incentives and governance.</p> <p>Factors for success of organizational CD</p> <ul style="list-style-type: none"> • Leadership for change, promotes a clear sense of mission, encourages participation, establishes explicit expectations about performance, and rewards well-performing staff (recognition, pay, and promotions based on merit); • Change management is approached in an integrated manner; • A critical mass of staff members, including front-line staff, are ultimately involved; • Organizational innovations are tried, tested and adapted; • Quick wins that deepen commitment for change become visible early in the process; • Top management and change agents manage the change process strategically and proactively, including both internal and external aspects 	<p>Refer to ADB Assessment Matrix</p> <p>Key questions for a “learning perspective” in assessments to identify contextual constraints to learning and change</p> <p>Refers to EC Toolkit and UNDP toolkit</p> <p>PESTLE analysis (political, economic, sociological, technological, legal, and environmental) effectively an audit of an organization’s context, which can guide decision making and highlight factors that will be positively or negatively influential on CD processes. It is considered to be most effective when used as a self-assessment tool.</p> <p>Design and implementation table of learning practice approaches, tools and techniques:</p> <p>Learning Practices for Individuals - Learning Practices for Individuals and Groups to support the learning of individuals and peer groups, either within an organization, or across multiple organizations. –</p> <p>Learning Practices for Organizations and Sectors Generally these processes are more complex because they are dealing with a higher order of system complexity, whether applied to single organizations, or a large and diverse group across a sector.</p>	<p>OECD. 2006 The Challenge of Capacity Development. Working towards good practice. A DAC Reference Document.</p> <p>OECD & DAC. 2009. Capacity Development. Inventory of Donor Approaches to Capacity Development: What are we Learning?</p> <p>Jenny Pearson, 2011. Training and Beyond: Seeking Better Practices for Capacity Development. OECD Development Co-operation Working Papers No. 1</p> <p>Tools & Techniques – learning activities /LenCD</p> <p>LenCD Learning Package on Capacity Development</p>

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
<p>United Nations Development Programme (UNDP)</p>	<p>Capacity must bring about transformation that is generated and sustained over time from within. <i>Transformation goes beyond performing tasks to changing mindsets and attitudes.</i></p> <p>Three levels organizational, individual, institutional. In some earlier publications 'institutional' refers to 'organizational level'. Distinguish technical and functional capacities at all three levels as well as Four core issues: Institutional arrangements - policies, practices and systems that allow for effective functioning of an organization or group including 'hard' rules such as laws or the terms of a contract, or 'soft' rules like codes of conduct or generally accepted values. Leadership (formal or informal) - the ability to influence, inspire and motivate others to achieve or even go beyond their goals. <i>It is also the ability to anticipate and respond to change.</i> Knowledge - what people know, underpins their capacities and hence capacity development. Accountability exists when rights holders are able to make duty bearers deliver on their obligations. Covers willingness and abilities of public institutions to put in place systems and mechanisms to engage citizen groups, capture and utilize their feedback as well as the capacities of the latter to make use of such platforms.</p>	<p>Provide tools for:</p> <ul style="list-style-type: none"> Assessing Capacity Assets and Needs Operational Guidelines for Capacity Assessment Define Capacity Development Strategies Including progress indicators and costing of strategies. 	<p>UNDP. 2009. Capacity Development a UNDP Primer</p> <p>UNDP. 2008. Capacity Development Practice Note</p> <p>UNDP. 2008 Capacity Assessment Methodologies. A Users' Guide</p> <p>UNDP. 2005. Measuring Capacities: An Illustrative Catalogue to Benchmarks and Indicators</p> <p>UNDP. 2005. A Brief Review of 20 Tools to Assess Capacity</p> <p>Post-2015 Dialogue on Implementation: Strengthening Capacities and Building Effective Institutions. Report of the Expert Meeting 29-30 September 2014, Bonn, Germany</p> <p>Capacity Development and Capacity Assessment – A Training Course The Capacity Development Team UNDP Regional Centre in Bangkok</p> <p>1998 Capacity Assessment and Development in a Systems and Strategic Management Context</p> <p>Capacity Development. Management Development and Governance Development Technical Advisory Paper 2. 1997</p> <p>Hopkins, John 1994 Handbook on Capacity Assessment Methodologies: An Analytical Review.</p>

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
United Nations Economic Commission for Africa (UNECA)	<p>This is a strategy on how the UNECA will support countries and Regional Economic Communities to strengthen their capacity building efforts. Builds on the 6 cornerstones of the AU/NEPAD strategic framework</p> <p>Capacity development as systems change: understanding of capacity challenges and approaches to conceive and deliver policy research.</p> <p>Integrated and coherent approach: Integrates key issues around capacity development through “opportunity markers”.</p> <p>“Good-fit”: sensitive to context and dynamics seizing opportunities as they emerge.</p> <p>Quality of engagement: creating trust and vibrant relationships with open dialogue and flexibility to adjust to evolving circumstances and opportunities.</p> <p>Evidence-based: Policy options are based on clear evidence through calibrated research, sound statistics and continued learning, including on capacity development challenges and solutions. Results oriented: strategic interventions aim at effectively influencing development</p> <p>Partnerships: with international, regional and country partners.</p> <p>Capacity development traction: delivering policy options and knowledge, leverages African potential and strengthens relevant regional and country set ups, think tanks, and universities as knowledge providers and capacity development bodies</p>	<p>Use of “opportunity” markers :</p> <ul style="list-style-type: none"> • Leadership transformation • Citizen transformation; inclusion, participation, equity and empowerment • Evidence-based knowledge and innovation • Utilising African potential, skills and resources • Capacity of capacity developers • Integrated planning and implementation results • Public sector accountability and access to information • Human, material and financial resources • Advancement of women and gender parity • Environmental sustainability 	<p>UN. 2015 Capacity Development Strategy, Addis Ababa</p>

Organization Agency/CD Providers	Concepts and Dimensions	Tools/Approaches	Key Resources/Reference
CGIAR	<p>The three systems' research programmes define capacity of the system to innovate as:</p> <ul style="list-style-type: none"> The capacity to continuously identify and prioritize problems and opportunities The capacity to take risks, The capacity to mobilize resources The capacity to relate others. The capacity to collaborate and coordinate with others: <p>Nine capacity development elements that underpin the CD framework for Centre Research Programmes (CRPs). These are:</p> <ol style="list-style-type: none"> 1 Capacity needs assessment and intervention strategy design 2. Design and delivery of innovative learning materials and approaches 3. Develop CRPs and Centers' partnering capacities 4. Developing future research leaders through fellowships 5. Gender-sensitive approaches throughout capacity development 6. Institutional strengthening 7. Monitoring and evaluation (M&E) of capacity development 8. Organizational development 9. Research on capacity development <p>Adopt an innovation systems approach depending on effective collaboration, networking between interdependent social actors and other forms of coordinated action. Also emphasise social learning approach.</p>	<p>Refer to ADDIE Framework: Analyze, Design, Develop, Implement, Evaluate</p>	<p>Leeuwis C, Schut M, Waters-Bayer A, Mur R, Atta-Krah K and Douthwaite B. (2014). Capacity to innovate from a system CGIAR research program perspective. Penang, Malaysia: CGIAR Research Program on Aquatic Agricultural Systems. Program Brief: AAS-2014-29</p> <p>CGIAR. 2014. Capacity Development Framework Working Draft Prepared by CGIAR Capacity Development Community of Practice ahead of the second round of CGIAR Research Programs (Version date: 24November 2014)</p> <p>CGIAR. 2014. Workshop Report from the CGIAR Consortium CapDev Community of Practice Annual Meeting, Montpellier, September 10-12, 2014</p> <p>Staiger, S. et al. 2013 Lessons learned and ways forward on CGIAR capacity development: A discussion paper</p>

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Global Forum for Rural Advisory Services (GFRAS)	<p>Focuses CD of Extension and Advisory Services (EAS) to perform broader innovation functions in an agricultural innovation system. Recognizes CD at three levels-</p> <ul style="list-style-type: none"> • <i>Individual</i>: relates to knowledge and skills (technical and managerial) and attitudes that can be addressed through facilitation, training and competency development • <i>Organizational</i>: relates to public, private and civil society organizations and networks of organizations in terms of: a) strategic management functions, structures, and relationships; b) operational capacity (relationships, processes, systems, procedures, sanctions, incentives, and values); c) human and financial resources; d) knowledge and information resources; and e) infrastructure • <i>The enabling environment</i>: relates to political commitment and vision; policy, legal and regulatory and economic frameworks; national public sector budget allocations and processes; governance and power structures; infrastructures; incentives and social norms. <p>GFRAS approach recognizes that some functional capacities identified by FAO are required at three levels. These are policy and normative capacity, knowledge capacity, partnering capacity, and implementation capacity.</p>	<p>There is no specific tool, but emphasizes good practice of existing approaches and tools. A focus is on mobilizing potential of EAS through following five areas: <i>focusing on best-fit approaches, embracing pluralism, using participatory approaches, developing capacity, and ensuring long-term institutional support</i>. GFRAS recommends following actions at different levels for effective CD of EAS:</p> <ul style="list-style-type: none"> • <i>National level</i>: Diagnosis and reforms; partnerships and networks; technical backstopping; monitoring and learning; training and education; and ensuring public funding • <i>Regional level</i>: establishment of regional and sub-regional networks; collect and synthesize evidence on different aspects of EAS; develop policy briefs and position papers to influence policy processes; develop and promote new knowledge frameworks and methodologies related to EAS; organize and sub-regional consultations and training programmes. • <i>Global level</i>: networking and policy advocacy for EAS; strengthen, support and coordinate regional networks; develop resource materials (frameworks, tools, training modules etc.); liaise with donors, promote inter-regional sharing of experiences with new reforms and approaches; long-term financial and technical support; develop a research programme on extension and capacity strengthening. 	<p>Sulaiman, R. & Davis, K. (2012). The “New Extensionist”: Roles, Strategies, and Capacities to Strengthen Extension and Advisory Services. Global Forum for Rural Advisory Services.</p> <p>GFRAS. (2012). Building Knowledge Systems in Agriculture: Five Key Areas for Mobilising the Potential of Extension and Advisory Services. Position paper. Global Forum for Rural Advisory Services</p>

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Centre for Development Innovation	<p>Emphasise key aspects of the capacity development dynamic: assets (and their distribution), persuasions (and related values), emotions (and the resulting attitudes), cultural, organizational and political institutions & styles, and functions and their performance.</p> <p>Seven success factors in relation to capacity development support:</p> <ol style="list-style-type: none"> 1. Clarify the overall approach 2. Comprehend the context 3. Cultivate commitment and ownership 4. Customize the envisaged contribution 5. Clarity of cause by capturing change through appropriate M&E; 6. Adaptive management; 7. Creating competent support conditions <p>Distinguish More Evident Capacities (Infrastructure and equipment; Formal hierarchies, mandates, procedures, rules and regulations; financial assets; Human resources, number of employees and skills and Less Evident Capacities (informal institutions and cultural disposition, attitudes and emotions, including motivation, human energy, likes and dislikes, habits, styles of work and unwritten rules, values and virtues)</p> <p>Distinguish between micro, meso and macro, (for instance the micro level may be a team, the meso level the organization, and the macro the sector)</p>	<p>A number of suggested outlines are provided, which could be adapted and used as checklists in assessing (planned) efforts in support of capacity development.</p>	<p>Wigboldus Seerp et al. 2011 Critical success factors in capacity development support. An exploration in the context of international cooperation. Project Report</p>

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Austrian Development Cooperation	<p>Distinguish Individual, Organizational and Institutional levels and relationship between them.</p> <p>Differentiates operational capacities (values, competencies and abilities to cope with upcoming tasks and solve problems, define goals and to regulate relations) and adaptive capacities (competencies and abilities required to learn from experiences made and to adjust to changes)</p> <p>Capacities for planning, management, implementation and accountability in policies and programmes are essential in order to achieve specific development goals and results.</p> <p>Special importance placed on the ability for systematic analysis, constructive dialogue and continuous documentation of results and experiences.</p> <p>Differentiates hard and soft capacities. Soft capacities include, strategic management capabilities, process steering- or interaction- and cooperation competencies.</p>	Refers to UNDP (2008) and EC toolkit (2009).	Pultar, Anna Waltraud Rabitsch (eds.), 2011 Manual Capacity Development. Guidelines for Implementing Approaches and Methods.
Danish Ministry of Foreign Affairs (DANIDA)	<p>Works with organizations or networks of organizations in a specific sector. Focus of CD is on outputs. Define ‘capacity’ as the ability of an organization to produce appropriate outputs.</p> <p>Organizational and network capacity orientation supplemented by other analyses of e.g. desirable and feasible sector policy options, poverty and social impact, longer term fiscal impact etc.</p> <p>Organizations viewed as open systems.</p> <p>Both a “functional-rational” and ”political” perspective of organizations distinguished.</p>	Open Systems Analysis Model ROACH Approach	<p>Ministry of Foreign Affairs. 2011. Addressing Capacity Development in Danish Development Cooperation. Guiding Principles and Operational Steps.</p> <p>Boesen, Nils and Ole Therkildsen, 2005. A Results-Oriented Approach to Capacity Change.</p>
German Agency for International Cooperation (GIZ)	Capacity Works is a management model for sustainable development. It operationalises approaches to managing and steering complex projects and programmes. <i>“The model delivers effective capacity development support by sustainably improving the performance capability of people, organizations and social institutions”.</i>	Capacity Works manual	These materials are not openly available

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Canadian International Development Agency (CIDA)	<p>Distinguish four levels of capacity: individual, organizational, sector or network and enabling environment.</p> <p>CD seen as both a means and an end and is particularly concerned with the intangible dimensions (or core capabilities) of development. CD is about increased ability to use and increase existing resources, in an efficient, effective, relevant and sustainable way. CD approach recognizes the primacy of learning by doing, takes a holistic approach that recognizes the interdependence of actors and systems, and seeks to balance the need for short term results in satisfying social needs with the need for long-term improvements in capacity.</p>	Not applicable	<p>Lavergne Réal and John Saxby .2001. Capacity Development: Vision and Implications. Capacity Development <i>Occasional Series</i> CIDA Policy Branch No. 3.</p> <p>Bolger, Joe. 2000. Capacity Development: The What, Why and How. CIDA Policy Branch Occasional Series Vol. 1. No.1</p> <p>Morgan, Peter 1998. Capacity and Capacity Development – Some Strategies. Policy Branch, CIDA.</p>
International Development Research Centre (IDRC)	<p>Does not go into conceptual issues of CD but focuses on change management of organizations.</p> <p>See also Inter-American Development Bank</p>	<p>Tools for self-assessment</p> <p>Tool 1. The five-easy-pieces model for a quick self-assessment</p> <p>Tool 2. Stakeholder assessment</p> <p>Tool 3. Performance-issues worksheet</p> <p>Tool 4. Culture audit</p> <p>Tool 5. Work breakdown</p> <p>Tool 6. Person-day analysis</p> <p>Tips for designing data-collection instruments</p> <p>Tip 1. Group techniques</p> <p>Tip 2. Interviews</p> <p>Tip 3. Questionnaires</p> <p>Tip 4. Basis for judgment</p> <p>Sample questionnaires</p> <p>Sample 1. Staff questionnaire</p> <p>Sample 2. Donor questionnaire</p> <p>Sample 3. Cover letter for donor questionnaire</p> <p>Sample self-assessment exercises</p> <p>Exercise A1. Who is XYZ? What are the strengths and weaknesses of our internal environment?</p> <p>Exercise A2. Our external context</p> <p>Exercise A3. Dreaming about the future</p> <p>Exercise A4. Beginning to bridge the gaps</p>	Lusthaus, Charles et al. 1999. Enhancing Organizational Performance. A Toolbox for Self-Assessment. IDRC.

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Dutch Ministry of Foreign Affairs (DGIS)	<p>Main emphasis on the capabilities and capacities of organizations. Identifies six elements for an organization to gain capacity and be effective in order of hierarchical importance</p> <ul style="list-style-type: none"> • Conceptual framework reflecting organization's understanding of the world; • Attitude incorporating the confidence to act in a way that the organization believed can have impact and accepts responsibility for the social and physical conditions it encounters in the world • Sense of confidence and responsibility, purpose and will; • Organizational structures and procedures that reflect and support the vision and strategy; • Relevant individual skills, abilities and competencies in accordance with first four elements; • Sufficient and appropriate material resources. <p>Takes a systems approach to CD and differentiates double and triple loop learning.</p>	Five Capabilities Framework (see ECDPM).	Ministry of Foreign Affairs of the Netherlands.2011. Synthesis report of the evaluation of Dutch support to capacity development. Facilitating resourcefulness IOB Report no. 336.
Department for International Development (DFID)	<p>Looks at Capacity development of individuals, organizations and the broader institutional framework to deliver specific tasks and mandates. These three levels are inter-related.</p> <p>Strong emphasis on the institutional level. Principles: Endogenous process and local ownership Domestic leadership, transparency, empowerment, accountability Looks at 'best fit' (i.e. context specific) as opposed to "best practice". Linear Approach regarding input, output, outcome linkage. Identify the 3 Es of CD Economy: Assesses the cost inputs, given the quality and quantity of the outputs Efficiency: Assesses how well a programme converts inputs into intended outputs. Effectiveness: Assesses whether your outputs are effectively delivering your expected outcome</p>	<p>Assessment of Institutional Capabilities Impact Analysis Sponsor Evaluation Change Forecasting Open Systems Model 7-S Seven key interdependent organizational variables. SWOT analysis Organizational Elements Model Problem Tree Analysis Risk Management Matrix Benchmarking Business Process Reengineering Change Management Force Field Analysis Burke Litwin Model Stakeholder Management EFQM Excellence Model</p>	<p>DFID. 2013 How to Note Capacity Development</p> <p>DFID. 2010. How to Note- A DFID Practice Paper.</p> <p>DFID. 2006 Developing Capacity? An Evaluation of DFID-funded Technical Cooperation for Economic Management in Sub-Saharan Africa Synthesis report</p> <p>DFID. 2003. Promoting Institutional and Organizational Development. A source book of tools and techniques.</p>

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Japan International Cooperation Agency (JICA)	<p>Emphasis is on capacity assessment of organizations, mainly at national level. JICA defines Capacity Assessment as “the process of broadly assessing both the current state of the developing countries’ capabilities for handling issues (capacity) at multiple levels—including the individual, organizational, and societal level—and the extent to which development process has brought about positive changes (CD), and then sharing the results from this with concerned parties in order to formulate CD strategies”.</p> <p>Within organizations identify Technical Capacity refers to technical explicit and tacit knowledge Core Capacity refers to the will, attitude, leadership, and management capabilities to activate technical capacity. Enabling environment: The conditions that allow them to utilize its capabilities and produce results.</p> <p>Define basic characteristics of a system of the overall system; visibility/invisibility; nonlinear growth and short-term change/long-term change</p> <p>CD seen as showing results in terms of independent capabilities for handling issues. CD has its goal in resolving development challenges. Impact is the visible results of improvement in activities, outcomes defined as improved performance, capacity is the capabilities for resolving issues to elicit this performance.</p>	<p>Capacity Assessment Tools</p> <p>Policy Analysis:</p> <ul style="list-style-type: none"> Policy Characteristics Analysis: Policy Characteristics Questions Country Policy and Institutional Assessment (CPIA) Policy Environment Mapping Reform Readiness Analysis: Preliminary Assessments of Borrower Commitment Administration and Civil Service Assessment <p>Situational Analysis:</p> <ul style="list-style-type: none"> Environmental Scan Capacities and Vulnerabilities Analysis Power Distribution Matrix <p>Organizational Analysis:</p> <ul style="list-style-type: none"> Assessment of Institutional Capabilities SWOT Analysis Discussion-Oriented Organizational Self-Assessment (DOSA) <p>Strategy Drafting:</p> <ul style="list-style-type: none"> Balanced Scorecard (BSC) Concerned Party Analysis: Wants/Able Analysis Stakeholder Analysis Collaboration Matrix <p>Risk Analysis:</p> <ul style="list-style-type: none"> Risk Analysis 	<p>JICA. 2008 Capacity Assessment Handbook – Project Management for Realizing Capacity Development</p>

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Norwegian Agency for Development Cooperation (NORAD)	<p>“Capacity is the ability of people, organizations and society as a whole to perform assigned tasks well, solve problems, and set and achieve objectives”.</p> <p>Capacity Development is then: “Processes/activities designed to improve desired ability”.</p> <p>2 Dimensions: levels (individual, organizational and institutional) capacity process, what is a meaningful way of identifying and isolating the useful characteristics of successful capacity processes?</p> <p>Three levels of capacity individual (acquisition of new or additional skills and knowledge); organizational (producing new organizational structures, instruments and processes) and institutional or the societal level: changes to framework laws, formal and informal rules of behaviour etc.).</p> <p>Outputs of CD</p> <ul style="list-style-type: none"> (i) strong local ownership, both to the process and to the product (ii) collaborative interactions: people brought together, communications established or strengthened, increased involvement participants appreciated the opportunities for getting together to address joint concerns, and independent of whatever results were achieved, (iii) Country Context 	Refer to UNDP manuals	Disch A. et al. 2008. Synthesis Study on Best Practices and Innovative Approaches to Capacity Development in Low-Income African Countries

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Swiss Agency for Development Cooperation (SDC)	<p>Four Dimensions of Capacity Development:</p> <ul style="list-style-type: none"> Individual competencies Organizational development Development of the system Development of networks <p>Capacity includes, generically, the ability to understand and to solve problems, to set priorities, to recognise opportunities, and to effectively and efficiently attain performance.</p> <p>Output changed or improved performance expression of learning and corresponds to increased capacities. The term is primarily applied to organizations, a network or a system, whereas the term “Competencies” is used in reference to an individual and includes the methodical and specialised know-how and practical experience to structure complex processes, social competencies such as intercultural communication, the capability for teamwork, for dealing with conflicts and the ability for self-reflection.</p> <p>Capacity also designates the specific knowledge, skills and competencies/capabilities that are the prerequisite for achieving results. Outcome of capacity development is empowerment.</p>	Not applicable	<p>SDC. 2006 Capacity Development in SDC. Working Paper</p> <p>SDC. n.d. Capacity Development: a Process for Change</p>
Swedish International Development Cooperation Agency (SIDA)	<p>Capacity within a given external environment is in the form of – individuals/professions – organizational units – organizations – systems of organizations, and – institutional frameworks. These levels are interrelated. Identify five levels of analysis of CD needs:</p> <ol style="list-style-type: none"> 1. Knowledge and competence of individual 2. Formal structure and culture of organizations. A combination of these affect the outputs of the organization. Improved performance of the organization is seen as the output of CD 3. Systems level – interaction between individuals, groups, organizations and institutional framework 4. Formal and informal frameworks that help or hinder achievement of objectives 5. Basic social and economic conditions that affect the capacity of the individual or organization. <p>Stress the importance of organizational learning; local ownership of the development process, resources and results; understanding context; building on existing capacity; understanding CD as an ongoing process.</p>	<p>Approaches to CD implementation:</p> <ul style="list-style-type: none"> • Education, study visits and other forms of training • Twinning • International expertise for participation in implementation: implementing consultants, technical advisers, high-level advisers and the “consultant mix” • Support to networks • National/Regional development funds <p>Participatory reflection and learning cycle Stakeholder analysis Dialogue Format for contextual analysis</p> <p>The Octagon. A tool for the assessment of strengths and weaknesses in NGOs</p>	<p>Schulz, Karin et al. 2005 Manual for Capacity Development. Methods Document. Department of Policy and Methodology.</p> <p>Bergström, Lage. 2002. Methods for Capacity Development A report for Sida’s project group “Capacity development as a strategic question”. Sida Working Paper No. 10</p> <p>SIDA. 2000. Analysis of Needs for Capacity Development. Capacity Development. Sida Working Paper No. 4</p>

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United States Agency for International Development (USAID)	<p>Main emphasis on the organization, whilst recognising that and organization is embedded in a wider political, economic and social environment. Role of CD is to strengthen an organization's ability to provide quality and effective services, while being viable as an institution. This means supporting an organization to be programmatically sustainable (providing needed and effective services), as well as organizationally sustainable (with strong leadership and having necessary systems and procedures to manage by), while ensuring that it has sufficient resources (human, financial, and material) that are utilized well.</p> <p>CD support must enable an organization understand the external environment it operates in, and to develop a relationship with it that is sufficiently stable and predictable.</p> <p>Key areas to be address through CD are:</p> <ul style="list-style-type: none"> • Administrative and support functions • Technical Program functions • Organizational Culture and structure • Resources 	<p>Human and Institutional Capacity Development (HICD) Initiative Planning Tool; HICD Partner Information Collection Tool; HICD Tool for Evaluating Multiple Partners; Memorandum of Understanding (MOU) Template; HICD Tool: Stakeholder Group Formation; USAID Request for Performance Assessment; Template Questions for Identifying Performance Gaps; Performance Solutions Package Template; Performance Solution Request Form Template Measuring Results;</p> <p>Institutional Assessment Tools</p> <ul style="list-style-type: none"> • Participatory Results-Oriented Self-Evaluation (PROSE) • Discussion-oriented organizational self-assessment (DOSA) • The institutional development framework (IDF) • Organizational capacity assessment tool (OCAT) • Dynamic participatory institutional diagnosis (DPID) • The organizational Capacity indicator (OCI) using Appreciative Enquiry • The Yes/No Checklist or 'Scorecard' • Customer Service Assessment • Result level indicators. 	<p>USAID. 2000. <i>Measuring Institutional Capacity. Recent Practices In Monitoring and Evaluation Number 15.</i></p> <p>USAID. 2010. <i>Human and Institutional Capacity Development Handbook. A USAID Model for Sustainable Performance improvement</i></p>