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# Capacity Building In Information And Communication Management (ICM) Towards Food Security

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By

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**Capacity Building In Information And Communication Management (ICM) Towards Food Security**

## SUMMARY

This paper addresses capacity strengthening needs in the area of ICM to support food security initiatives. It fully acknowledges that FS is a state of assuring physical **availability** and economic **accessibility** to enough food in terms of quantity (amount, distribution, calories), quality (safe, nutritious, balanced) and cultural acceptability for all people at **all times** for a healthy and **active life.**

It starts by outlining how ICM can support strategies to ensure ***availability***, ***access***, ***acceptability, adequacy,*** and ***agency*** and it highlights key information needs in each case. A FS Information and Communication Web is developed basing on a generic conceptual framework of determinants of food security. The web delineates information needs that would support strategies to ensure adequacy of food, stability of supply, and access – physical and economical.

The paper then articulates capacity strengthening needs in line with the three dimensions or levels of food security: ***national***, ***community*** and ***household***. Four case studies: (i) *Uganda's ICT policy and Food Security* (ii) *Human Resources needs at community* level drawing experiences from Africa and Asia (iii) *HR Capacity Development Needs in Africa* by the IMF (iv) *Audio visual and farmer skills in Mali* – serve to demonstrate grassroots ICM applications that support food security initiatives, and in each case it points to theme specific capacity strengthening needs. The studies, as a result, demonstrate how enhanced ICM capacity can support food security through: developing suitable ICT policies, empowering communities with ICM knowledge, improving development planning, enhancing agricultural productivity, supporting marketing systems, improving natural resources management and conservation, and through effective execution of early warning systems – all having implications for food security.

The paper concludes by presenting a summary of capacity strengthening needs. These range from sensitization of regional and national policy makers, down to technical skills required by data collectors, analysts and information generators, knowledge disseminators and also knowledge users. To achieve the above the paper proposes roles that may be played by governments, NGOs, education sector, research and development institutions, regional and international organizations, and CTA. The following are key recommendations.

i.       There is need to enhance capacity of regional, national, and local government level policy making personnel in designing and implementing ICM policies that would better govern various regional and national programmes. We ought to recognize that designing and implementing ICM programmes is an evolving process, challenged daily by new technology, methods and processes. Human resource serving at regional and national level ought to stay abreast with such developments.

ii.    For SSA Africa countries to adequately embrace new technology and ICM systems, political, community, and civil society leaders ought to be aware, subscribe to, embrace and support IT and ICM initiatives. They must be adequately knowledgeable about IT and ICM in a manner that they may communicate such information to increase public awareness, mobilize resources towards IT and ICM, and also instill good governance in ICM systems. Executive programs for leaders are a potentially effective means to enhance the capacity of this cadre of stakeholders. We ought to appreciate that sustainability of ICM systems in SSA will ultimately depend on the ability of national and community level organizations to mobilize resources and continuously invest to upgrade the systems. Local leaders are key players in this responsibility and their capacity has to be strengthened.

iii.    Within a nation, local personnel will plan most ICM programmes. There is need to enhance managerial personnel capacity at national and local governments (community) levels. The goal should be to ensure that their day-to-day activities, those related to say agricultural extension and technical advisory services, agricultural development planning, resource mobilization and budgeting, etc, are supported by effective ICMs. It was noted that many graduates leave colleges without adequate sensitization, skills, and know how regarding information technology and proper management of information communication. This skill gap ought to be filled. In line with this effort there is need to strengthen capacities within local universities such that they revise their curricula and institutionalize training and learning processes that place due weight and importance on IT and ICM. We should note that enhanced human capacity through university level training is a very strong pillar for developing local management systems including ICM.

iv.    With regard to technical personnel, a three-thronged strategy is needed. Deliberate efforts ought to be placed to address the three components of ICM:

a.    Skills need to be enhanced for good data collection methods, techniques, and systems including technology and equipment entering the market. Examples are many; techniques and equipment related to remote sensing and GIS suffice to demonstrate the need for revolutionizing perceptions regarding data collection.

b.    Technical personnel at various levels and different institutions ought to be capacitated to be able to effectively analyze data and generate information from it. Knowledge and skills to use computer software, analytical programmes, and related theoretical and empirical models are essential in this case.

c.    Lastly, there is need to enhance capacity of technical personnel in disseminating information. Examples presented in the case studies, pointed to the need to go beyond conventional ways of information dissemination. Not only have we noted the role radios and mobile phones can play, but also the need for the technical personnel to be intuitive in designing proper

products: well timed, packaged to appeal to the end user, and delivered in a socially and cultural appealing form.

The role of CTA may be at two levels. At a higher level, CTA may take-up a facilitating role, develop global products that aim at raising awareness and sensitizing leaders in developing countries about ICM, and the role ICM can play in food Security.

At a lower level, CTA may wish to link with mainstream IT and ICM organizations to develop and pilot exact and specific ICM-Food Security information systems. The goal should be to put in place proto-types that may be scaled-up by national and regional institutions.

# Table of Contents

## List of Tables

## List of Boxes

## List of Figures

**Capacity Building In Information and Communication Management (ICM) Towards Food Security**

## 1. Introduction

Food security and nutrition remains a big challenge in Sub Saharan Africa (SSA) where different forms of food insecurity and malnutrition threaten about 200 million people. At the Millennium Summit in 2000, countries signed up to the Millennium Declaration, under which an agreement was reached on an agenda for international development, expressed in a set of eight goals commonly termed as Millennium Development Goals (MDGs). The first MDG is to eradicate extreme Poverty and Hunger targeting at halving, between 1990 and 2015, the proportion of people whose income is less than $1 a day and halve, between 1990 and 2015, the proportion of people who suffer from hunger by 2015. (Martin-Hurtado et al, 2002).

In SSA, agriculture is central to economic growth, food security and poverty alleviation. The sector accounts for about 35% of the SSAs GDP, 65% of its exports and about 70% of employment (Townsend 1999). Recent studies show that, the number of food insecure people in SSA has more than doubled in the past three decades. In SSA the very limited reduction in the percentage incidence of undernourishment has been more than counterbalanced by population growth, resulting in an increase in absolute numbers of undernourished. Currently 33% of people in SSA are undernourished, this is significantly higher than the 16 percent undernourished estimated for Asia and the Pacific and the 10 percent estimated for both Latin America and the Caribbean and the Near East and North Africa Today, over 180 million people from SSA leave below poverty line and the number is expected to exceed 300 million by the year 2020. With increased imports on food and needs for food aid there is a need to stimulate agricultural growth, which is a key to poverty alleviation, food and nutritional security in SSA (FAO, 2003; Benson, 2004).

SSA faces many challenges and hurdles in its effort to attain the MDGs milestones. Such challenges include misguided agricultural and rural development policies, weak institutions, inadequate well-trained personnel, and underdeveloped technologies (SDRE, 1998). It has further been noted that, even with reasonable food security polices, still weak technical, financial, and administrative capabilities, and sometimes serious lack of cooperation and coordination among relevant sectors, have inhibited progress towards designing and implementing effective food security policies and strategies (Suresh *et.al*. 2004). Yet another significant area emerging as a weak link in attaining food security and nutrition is Information and Communication Management (ICM) for Food Security. Buchanana-Smith and Davies (1995) demonstrate in a very helpful manner how a breakdown in ICM can lead to failures of Early Warning systems. This paper attempts to elucidate the needs for capacity building in ICM for food security in SSA and the roles that various players may take, including CTA.

## 2. Food Security Concepts and Information Needs

Food security has been defined variedly and under different contexts and perspective; nonetheless all definitions aim at the core issue – **access to food** (in its broad context) to everybody. This paper acknowledges that food security, in relation to ICM, is a state of assuring physical **availability** and economic **accessibility** to enough food (in an environmentally and socially sustainable manner) in terms of quantity (amount,

distribution, calories), quality (safe, nutritious, balanced) and cultural acceptability for all people at **all times** for a healthy and **active life** in a manner that maintains human dignity – see for example FAO/WHO (1992). We here revisit the key terminologies used in food security dialogue and link them, in brief, with the role ICM can play to achieve them.

❑ **Availability** refers to the need for adequate, assured and reliable food supplies now and in the future. To achieve this, adequate and reliable information on production, inputs, technology, trade, and policies have to be effectively communicated to stakeholders.

❑ **Accessibility** refers to well-defined distribution channels and purchasing power of people. So as to address the issue of accessibility, information on poverty levels, unemployment, conflicts and wars, and intra-household food allocations is required for proper planning of interventions

❑ **Acceptability**: Information and insights regarding social and cultural diversity of humanity, need to be adequately available and well disseminated for effective food security strategies: production and distribution systems. Knowledge and information about food and food-use-ways are an essential ingredient of effective strategies too.

❑ **Adequacy**: Sustainable food security requires effective management at production, distribution, consumption and waste disposal levels. A sustainable food system is one that satisfies basic human needs without compromising the ability of the future generation to meet their own needs. Relevant information on the link between the ecology, conservation and need for development has to be present and well managed to sustain such an articulated effective food system.

❑ **Agency**: A clear understanding of different food policies and approaches is needed to achieve food security. The conscious use of research results, and past experience, can enable basic attainment of food security. This can only be achieved by having, amongst other things, an effective information and communication system.

## 3. Dimensions of Food Security and Information Needs

Furthermore information and communication needs that address food security may be articulated within the context of individual/household level, community and national levels of food security.

At national level, food security entails assured national availability or supply of food to meet per capita minimum requirements of the population during a reference period. National food security is determined by factors such as the domestic food production, trade policies, world food prices, imported food and food aid. To achieve national food security, a country ought to be able to produce or import food, store and distribute it equitably. However, as is well known now, adequate food supply at the national level does not always guarantee food security at the community and household levels.

There is need to place adequate emphasis on household food security because it is possible that even if adequate food supplies are available nationally, household access to such food depends on its income earning capacity, assets and coping behaviors.

Information needs in food security, therefore, go beyond the concern with aggregate food availability and should include assessments of how much food people can acquire directly through their own production or indirectly through market and other transactions.

Community and household level concerns also brings-up the need for information regarding proper utilization of food. Enough food at household level on its own is not a sufficient condition for improved health/nutrition of all individuals. Once again, we all know of the possibility of cases of under-nutrition in households or communities where there is plenty of food. The most important aspect, therefore, is access by the population to the available food and proper utilization by the body. Information communication and its management are crucial to ensure that national food security translates to community and household food security.
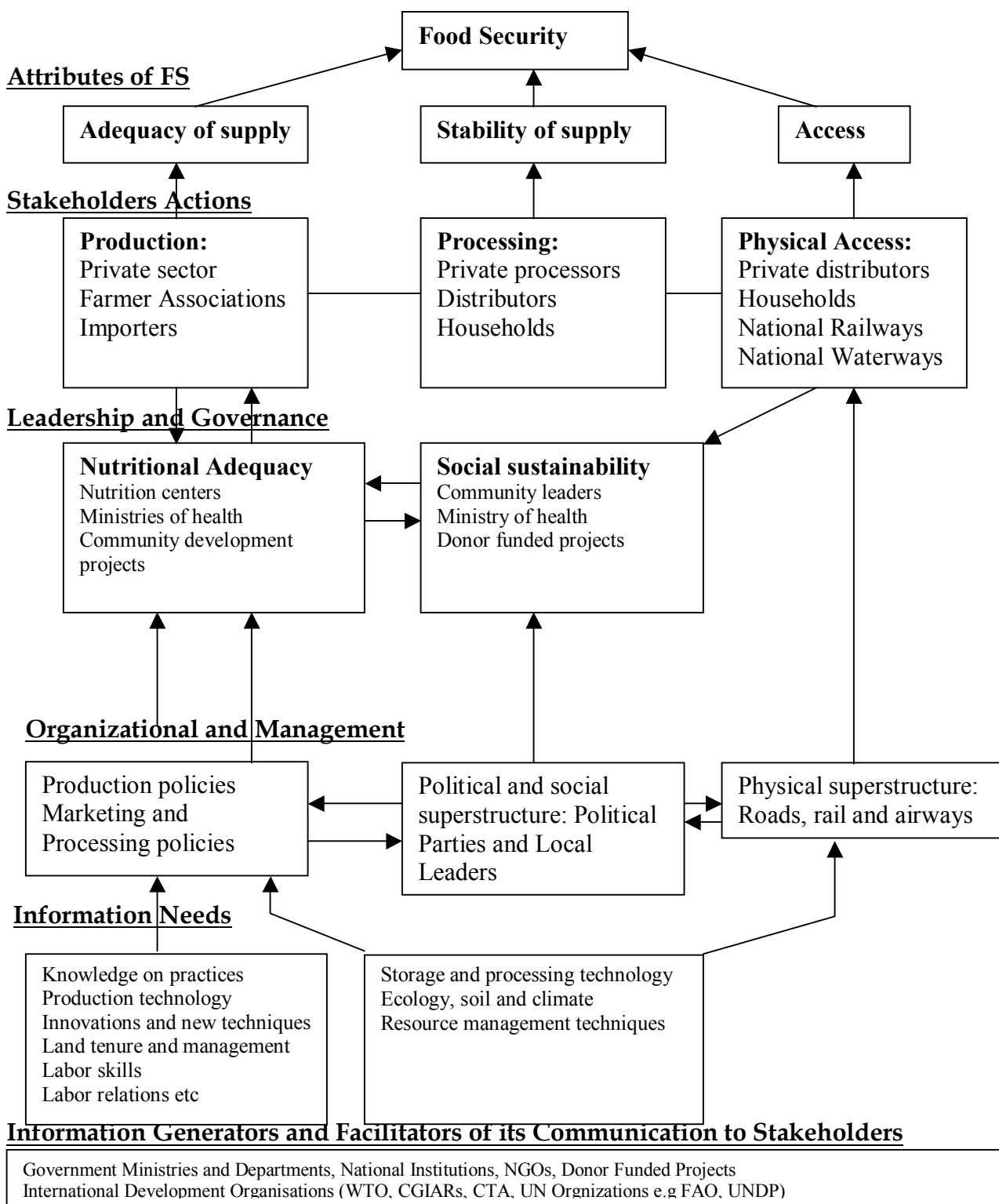
Therefore for national, community and household food security to be achieved, there is a need for revolutions, including information revolution, which is one of the interventions with the potential to ensure that knowledge and information on important technologies, systems, processes, behaviors and attitudes are put in the right hands. Balit (1996) argued for this revolution by pointing out that: knowledge and information are basic ingredients of food security and are essential for facilitating rural development and bringing about social and economic changes. Following an experience in South Asia, it has been increasingly realized that the future of food security is less dependent on resource-intensive agriculture and more on knowledge-intensity. ICM has a great role to play in the latter.

## 4. ICM in View of Food Security Strategies

Information and Communication Management entails more than information technology. It is about the overall information business: the staff involved, skills, culture, and hard and soft infrastructure that is required to ensure quality and timely delivery of information to end-users. The success of food and nutritional security strategies – whether at household, community or national - lies on a requisite that information is widely distributed and effectively used. ICM requires that data is collected, processed, analyzed and interpreted for easy understanding by end-user. The end users often don't care who processes and delivers the service, and in most rural areas they can't distinguish between the different delivery organizations that are involved. What they require is quality, timely delivered information that they can make use of. In addition, a diverse range of information is required to meet requirements of all parties in the ICM and Food Security web. Figure 1, using a generic conceptual framework of determinants of food security, illustrates a summarized version of the complex network that needs to be linked for effective food security information management. The web emanates from the objective of meeting **adequacy**, **stability** and **access** features of a food secured nation. It trickles down to production, processing and physical factors required to ensure that the ultimate goal is achieved. The finer features of a food secured society would entail nutritional adequacy, environmental sustainability of production practices and the economy. At the bottom of the web are examples of information that need to feed into production and processing policies, political and social superstructure and also to the physical infrastructure. The challenge we have is to delineate which organizations: grassroots, national, and international are required to play what roles at which levels? Whether at information generation (bottommost), translation into national policies or community food security

strategies - second level, or at the implementation level, i.e. the level where production and processing takes place. It is pertinent that the web points to all three dimensions: technological, political, and social nature of information that is required to fully address the food security challenge.

**Figure 1: Information and Communication Web for Food Security**

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                              ┌─────────────────────┐
                              │    Food Security    │
                              └─────────────────────┘
Attributes of FS
         ┌──────────────────┐   ┌──────────────────┐   ┌────────────┐
         │ Adequacy of supply│   │ Stability of supply│  │   Access   │
         └──────────────────┘   └──────────────────┘   └────────────┘
Stakeholders Actions
   ┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
   │ Production:      │   │ Processing:      │   │ Physical Access: │
   │ Private sector   │   │ Private processors│  │ Private distributors│
   │ Farmer Associations│ │ Distributors     │   │ Households        │
   │ Importers        │   │ Households       │   │ National Railways │
   │                  │   │                  │   │ National Waterways│
   └──────────────────┘   └──────────────────┘   └──────────────────┘
Leadership and Governance
   ┌──────────────────┐   ┌──────────────────┐
   │ Nutritional Adequacy│ │ Social sustainability│
   │ Nutrition centers │   │ Community leaders │
   │ Ministries of health│ │ Ministry of health│
   │ Community development│ │ Donor funded projects│
   │ projects         │   │                  │
   └──────────────────┘   └──────────────────┘
Organizational and Management
   ┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
   │ Production policies│  │ Political and social│ │ Physical superstructure:│
   │ Marketing and    │   │ superstructure: Political│ │ Roads, rail and airways│
   │ Processing policies│  │ Parties and Local │   │                  │
   │                  │   │ Leaders          │   │                  │
   └──────────────────┘   └──────────────────┘   └──────────────────┘
Information Needs
   ┌──────────────────┐   ┌──────────────────────────┐
   │ Knowledge on practices│ │ Storage and processing technology│
   │ Production technology│ │ Ecology, soil and climate│
   │ Innovations and new techniques│ │ Resource management techniques│
   │ Land tenure and management│ │                     │
   │ Labor skills     │   │                          │
   │ Labor relations etc│  │                          │
   └──────────────────┘   └──────────────────────────┘
```

Information Generators and Facilitators of its Communication to Stakeholders

Government Ministries and Departments, National Institutions, NGOs, Donor Funded Projects
International Development Organisations (WTO, CGIARs, CTA, UN Orgnizations e.g FAO, UNDP)

**Source:** Adapted and Modified from NATURA PROGRAM (1993).

In turn, therefore, ICM capacity strengthening at national and regional levels in the sub-Sahara Africa regions, ought to be viewed in terms of filling the desired information *generation, translation*, *transferring* and *utilizing* of information appropriately.

In summary, ICM Capacity strengthening ought to be the process by which individuals, groups, organizations, and communities enhance their ability to identify and meet ICM challenges in a sustainable manner that ensures availability, accessibility, adequacy and acceptability of adequate food and nutrition, nationally and locally. Central to the process are human capabilities and skills, organizations (including government and civil society organizations), and sound institutions (laws, rules, and regulations).

### 4.1 Justification for Strengthening Capacity

Enhancing national human resource capacity is the foundation for achieving the broad goal of capacity strengthening in ICM for food security. At minimal level the goal should be to bridge the digital divide: a phenomena where there is a gap between those with and those without, more so between the North and the South. The gap manifests itself in form of simply the access to Information and Communication Technology, access to the contents of hard information that would benefit them socially and economically; gaps in skills that ought to enable them make use of ICT infrastructure, gaps in communication services and facilities; and also, in terms of the ability to pay for information equipment, and or services. The major focus of this paper is on the human capabilities.

A government's capacity to use, manage and disseminate information for improved food and nutritional security is however also determined by the political system, the financial resources available, the strength of the state, the motivation and capacity of the decision-makers, and the capacity of civil society to participate. Effective ICM in food security also depends on the collaboration of all sectors and players in implementation issues that include; making the approach meaningful, lowering technology adoption risk levels, securing of financing, changing of culture, facilitating changes, handling impact in individual staff members in terms of skills and additional work load. All these administrative and managerial responsibilities require able Human Resource Capacity. HIV/AIDS imposes an additional challenge that has a capacity-strengthening dimension. Not only does the food security situation on the ground become more complex with HIV/AIDS, but also deaths caused by HIV/AIDS have reduced trained human resource in the region calling for concerted efforts to build capacity in SSA.

Among the challenges, beyond human capacity, to be faced in the effort to link ICM and food security are: inadequate local information technology infrastructure; IT institutional weaknesses; lack of clear strategies and approaches that deliberately aim to draw upon IT for problem solving, weaknesses in monitoring and nurturing the sustainability of few existing ICT investments and inadequate planning for future capacity generations. The capacity, therefore, to design and implement successful ICM policies, strategies and programs that directly link with food security issues in SSA has remained weak, both at national and community levels.

External technical assistance aimed at strengthening human and institutional resources for ICM will continue to have only limited impact due to inadequate absorptive local human and technical capacities and poor infrastructure. Expatriates are often hired because

donors often require parallel operational structures in their project units, or expatriates fill positions that government cannot afford to fund, or local staff reject low-paying jobs with unattractive working conditions, or it is perceived that expatriates can do the IT based jobs more effectively. But expatriates often lack the local experience needed to understand local problems and find appropriate solutions. Therefore, policies and ICM programs implemented solely by expatriates may not be that successful. In the long run, what is required is adequate local capacity in the area of ICT and ICM.

The capacity to undertake food security ICM initiatives: diagnose a problem well in advance, analyse information that is coming from the field- meaning the grassroots -, and to generate information that would enable food security stakeholders to take actions in order to prevent short and long term food insecurity consequences are not developing at a desirable pace. For ICM policies and programs to be sustainable, the next generation of managers, program designers, and implementers must be developed. Many of today's university students are graduating with very limited understanding of issues concerning ICM in food and nutrition security or what role ICM can play in promoting sustainable food security. Efforts to monitor such institutional, curricula and human capacity gaps are also deficient. Unless adequate attention is paid to the quality and quantity of ICM capacity at various levels, progress towards harnessing the role that IT and ICM can contribute towards food and nutrition security will be difficult.

Finally, capacity building in SSA, in general, has been mainly through external financial aid. It is now high time for this to change. Considering the significance of ICM in food security, SSA, both at regional and national levels, must redirect resources for ICM capacity strengthening. This requires the involvement of government, private sector, non-governmental and international institutions in building capacity in ICM. Sensitization of top-level (regional and national) leaders is therefore crucial to ensure local resources are directed towards investments in ICM capacity strengthening; this in itself is an important capacity-strengthening niche.

## 4.2 Generic Capacity Strengthening Needs

In order to identify who should play what role in strengthening the capacity to deploy ICM for food security, it is important to note that information in itself is a broad term. We can break it down and categorize it into *data*, *information* per-se and *knowledge*. The three are commonly and loosely dubbed information. They are however different, and capacity to manage the three levels differ in the region. Data are simply the compiled and preliminarily processed facts and figures, often collected using information systems. Information is, in turn, the analyzed data. Information is normally presented in a form that is specific for the type of use it is going to put into. The use of data therefore is the process of transforming it into usable form, i.e. information.

At a slightly higher level we have knowledge, which is basically the assimilation, and understanding of the information generated from data. The use of information is therefore

a process of generating knowledge. The use of knowledge is the action taken in response to assimilated information.[2]

Nonetheless, an effective ICM system ought to manage the transformation of primary data across the three levels, and ultimately enhance the use of knowledge for effective food security strategies by governments, non-governmental, and international organization. The three levels of information and processes take place in a political, social and technological environment. A conducive socio-political environment will therefore enable smooth processes and flow of information; a non-conducive one would impair the process.

**Table 1: Information Levels for effective ICM and Capacity Strengthening Needs**

| Information Level | Features of the Processes | Human Resource Capacity Issues |
|---|---|---|
| Knowledge | **Source:** Informed personnel, e.g. researchers. **Use:** Decision making, program planning, policy formulation, implementation of actions. **Quality Criteria:** Positive feedbacks | The need to comprehend IT based/generated information. |
| Information | **Source:** Focused data **Key input:** Observational filters. **Use/processes**: Problem identification, analyses/synthesis, subjecting them to methodologies. **Quality criteria:** Reliability, Validity | The need to use IT to translate data into information. The need to receive data and transmit information using IT. The need to appreciate the benefits, advantages of IT over conventional methods. |
| Data | **Sources:** Diverse facts and figures. **Key inputs:** Observations made, preliminary processing. **Use/process:** Preserving (storing) and transmitting. **Quality criteria:** Timely, accurate. | Various skills, techniques, and use of equipment to collect and store facts and figures |

Besides the relatively generic capacity strengthening needs above, i.e. data collection, data analysis and information generation, transmission, and use of the resulting knowledge. The following discussion points to a selected few types of ICM specific capacity strengthening needs that are apparent in Africa. We have used policy formulation,

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[2] Buchanana-Smith and Susanna Davies (1995) make a relatively similar argument while they focus on early warning systems. See also FAO (1986).

intensifying agricultural production, community empowering, nutrition security strategies, development planning, natural resource management, and early warning systems - simply as few examples of strategic linked with food security to demonstrate capacity gaps and point to exact needs.

## 5. ICM, Food Security and Capacity Strengthening: Experiences and Challenges

### *5.1 ICT Policy and Economic Development*
A critical factor in meeting the challenge of ensuring economic growth, food and nutritional security in SSA is designing of appropriate policies. However, most African countries often lack effective information and communication policies. Capacity strengthening in this area ought to include provision of opportunities for informed dialogue that could help policy makers develop the appropriate ICT policies. ***Box 1*** illustrates how, in Uganda, an effective ICT policy triggered innovative strategies in the area of information communication directly related to agricultural development. The most important lesson from the case study, however, is that not only is a favorable policy and conducive environment adequate, but also continuous upgrading of the skills of those engaged in gathering, processing and disseminating the subject specific information is crucial. The case study traces a policy change: liberalization of information and communication sector, the resultant growth in number of service providers, and the emergence of innovative agricultural information products. It concludes by pointing out challenges encountered and ways forward. Apparently all the listed recommendations point to capacity strengthening needs. It is worth noting the nature and diversity of capacity strengthening needs – from institutional to human levels.

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**Box 1: Uganda's ICT Policy and Food Security**
**Background**
This case study is an extract of findings by a joint DFID, FAO and ODI fact-finding mission to Uganda in 2001 to illustrate the influence of ICT policies and strategies on agricultural development.

**ICT Policies, strategies and Observed Trends**
The Policy on Communications 1996 and Uganda Communications Act 1997 opened the way for private investment. As a result, the country's second fixed line supplier, MTN, was licensed in 1998; and, Uganda Telecom was privatized one year later. The two companies are guaranteed a 2-provider system for 5 years. There are three cellular providers – MTN UT and CelTel. As a result the current tele-density, on average, stands at 1 telephone per 100 people. With such developments, now Uganda has useful experience of providing information in support of agriculture and sustainable livelihoods, including practical extension, farmer field schools, rural radio, telecentres, and the Internet, and mobile phones. This is however not without constraints and challenges. Challenges: (i) *access and empowerment on farmers' side. While* a number of agencies are involved in providing information directly to farmers, many informants stressed the problems of media and scale. (ii) *Content and context inappropriateness.* Government and non-government are generating potentially

useful information on agricultural production and livelihoods (e.g. NARO, Makerere University, MAIFF and others), but much is too academic, too specific, or just in the wrong language for farmers.

**The Way Forward: Building Capacity to Improve Existing Systems**
Stakeholders at all levels stressed the need for greater capacity in *assessing information needs*, developing *information strategies, transforming and delivering information to address the two key challenges*. Specific opportunities to build capacity include:
i. *Building a coalition of individuals who have practical experience of innovative approaches to communication (e.g. CBS Radio, MTN Mobile Data Services, FFS, COARD project etc), to raise the profile of communication activities, publicize successful approaches and address specific issues.*

ii. *Helping PMA to develop appropriate internal information systems to help them manage their diverse, multi-partner information activities more coherently; using intranet, www – based systems, and understand audience needs better.*

iii. *Working with UCC to help develop appropriate content to promote the roll-out of internet points of presence at District level and/or with MTN to develop and test mobile-phone text message systems for farmers relevant information needs.*

iv. *Working with NARO and NAADS to explore new methods to transform research results to extension and farmer messages (e.g. by scaling up the CABI project)*

v. *Working with farmer organisations and/or research institutes to develop and test electronic mechanisms for information sharing (e.g. FarmNets or VERCONs).*

vi. *Strengthening MAIIF and UBoS to collect and disseminate agricultural statistics (building on existing FAO systems – eg FIVIMS), for monitoring the PMA process.*

vii. *Strengthening the capacity of the media in Uganda (e.g. Radio Uganda nad/or private FM stations etc) to develop and deliv*er appropriate information.

Source; FAO, 2003

## *5.2 Empowering People at Community level*

Information and knowledge has the potential to play a key role in ensuring food security and sustainable development. The purposes of ICM should be to provide information and services in a more accessible and efficient way and to improve communication, which gives benefits to the community. These benefits of effective information sharing at community level include: increased public confidence, more openness, open learning environment and knowledge sharing. Efforts towards changing cultures, more so at grassroots community level, is not an easy process but can be facilitated through effective information and communication. Box 2 sheds light on capacity strengthening needs that if pursued would empower people, and communities, for maximum impacts of ICT initiatives. It points clearly to the exact capacity strengthening needs in this area. In summary, ICT itself should be a core training subject matter, and ICT training programs are needed at a broad range of personnel and local leaders in SSA.

**Box 2: Human Resources Needs at Community level**
To ensure more meaningful participation in rural development, and to pave way for the creation of a critical mass of people that effectively harness ICTs in developing countries, training and capacity building must be an integral part of all ICT projects. It has been observed, "a critical factor in meeting

the challenge of ensuring food security in Africa is human resource development through knowledge building and information sharing" (Forno 1999). Users of ICTs have to be trained in the use, application and maintenance of ICTs before they become confident and comfortable enough to use them (Richardson and Rajasunderam 1999).

Most staff managing ICT-based projects lack adequate training that would enable them take full advantage of the new technologies. There is need to invest in training and advisory services for information intermediaries, telecentre staff, frontline workers and women's groups. Norrish (1999) has pointed out the need to identify the best training approaches for rural communities targeting different user categories and different technologies. Such training could be done through conferences, workshops or training of trainers' courses. Introductory and sensitising workshops could be organised for different categories of users and local experts could provide ongoing on-line support. People in rural communities of developed countries are already reaping the benefits of electronic distance education and developing countries could offer similar services through selected centers (Richardson 1999).

Focus should be on such skills as how to use ICTs through practical and participatory approaches. The 'Self Employed Women's Association' in India, for example, has trained rural women in the production and use of video to generate income, disseminate new skills and to advocate for changes in policy (Balit 1999:21). Some key players in the training activity have been FAO, CTA, IDRC, IFAD, UNESCO and ministries of agriculture. Traditional media will remain important and should continue being used alongside new ICTs. "It is through the use of a variety of media and their integration with local communications networks that more people throughout Africa can be heard and can be reached" (FAO 1998:20).

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Source; FAO. http://www.fao.org/waicent/vercon/default.htm

## 5.3 Improving Development Planning by Capacity Strengthening using ICT

ICM may not be an end in itself when we address the issue of economic development and food security. Capacity building in ICM may also be viewed as a way to put in place an alternative and additional way to further strengthen capabilities of the human resource in Africa. Enhancing ICM infrastructure holds the promise of enabling a broader range of stakeholders to participate and interact fully in aspects of economic, social, cultural, and democratic life. While information, education and training allows policy makers, technocrats, and farmers to make use of respective knowledge and technologies, communication is vital for stimulating awareness and participation for improving knowledge and capabilities among the communities. Communication is crucially essential for assisting governments and local authorities to enter into participatory development processes with rural people, with mutual trust, and in a genuine expression of common cause and future. So, effective ICM can be deployed for training and other processes that further build local capacity. Box 3 illustrates the experience of IMF in capacity building initiatives. The argument put forward is that traditional training and human resource development methods may not meet the growing demand of capacity strengthening in Africa. There is need to build local capacity in ICT such that training programmes can be delivered through them. An example is distance learning using ICT.

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**Box 3: HR Capacity Development Needs for Africa**

During the 1990s, the average number of participants from Africa in IMF Institute courses—in Washington and overseas—tripled, averaging about 300 a year, compared with 100 a year during the 1980s.

What is particularly important is that the strong demand for training has originated within the African authorities. This signals a deep shift regarding the perceived need for capacity building and suggests the authorities' increased sense of ownership of reforms. A survey, conducted by an external consulting firm, of national authorities on the IMF's training provided in Africa indicates that it has improved the analytical skills and expertise of agencies' staffs in a wide range of areas. This training has clearly strengthened their countries' capacities in economic management. Policymakers get more useful advice and are themselves better trained than their predecessors.

Although the amount of training the IMF provides to African officials has increased considerably, more needs to be done to meet the growing demand for training in Africa. According to estimates obtained from the above-mentioned survey, over the next five years there will be about 8,000 potential candidates from Africa for IMF training courses, or more than five times the number of African participants trained during 1995-99.

**The way forward to meet the growing demand for capacity building in HR**
To meet part of this strong demand, the IMF Institute has been expanding its coverage of topics and issues, fostering its regional partnerships, and diversifying training. The following specific steps have been taken:

- *Offering yearly high-level seminars on policy issues particularly relevant to Africa, such as private sector development, trade liberalization and regional integration, in sub-Saharan Africa;*
- *Intensifying long-standing collaboration with the training centers of the Central Bank of West African States and the Bank of Central African States;*
- *Expanding partnerships in Africa to include Anglophone countries through collaboration in offering courses with the Macroeconomic and Financial Management Institute in Harare, Zimbabwe, and the West African Institute for Financial and Economic Management in Lagos, Nigeria;*
- *Introducing distance learning to meet the training needs of officials who are unable to attend long courses abroad.*

Source; IMF finance and development magazine Vol. 37 no. 4

## 5.4 Enhancing Agricultural Production
It is important for development interventionists, agricultural researchers and even agricultural policy makers to be informed, alert and conscious of how relevant information and communication means can support the goal to enhance the adoption and use of improved agricultural technologies. Broad availability of information on better practices: methods and principles in food production, at all levels: international, national and local, will spur efforts to food availability. Even if international research centers generate good and substantial amounts of such information packages, if at local levels people are not connected and involved in translating the same into field experiences, then expected impacts will not be achieved. Information and communication management, and information and communication technologies ought to be tailored to break barriers for such trickle down of information about relevant technological packages **(Box 4)**

It is therefore obvious that there is need for local human resource in SSA countries to be improved by scaling-up initiatives such as those demonstrated by the MALI FAO project.

## 5.5 Smoothening and Facilitating Efficient Agricultural Marketing

There is substantial evidence, and logic prevails, that improved information systems enhance food-marketing systems. In turn, improved agricultural marketing translates into improved household incomes and food security. Furthermore, food scarcities, and at times severe shortages, are not necessarily, or purely, a result of failures in production and distribution systems. Often times, communication breakdown and weak transmission of eminent shortages at certain localities results into such shortages. Where produce is distributed sub-optimally, deficit zones will definitely suffer undesirable consequences. Efficient information and communication systems stand good chances to reduce such negative consequences. ICT has significant roles to play where farmers are not integrated in national, regional or international markets. Good quality information on markets – price and information that can be generated from price trends – reduces risks and uncertainty and hence enhances nature and degree of market participation. Such information sheds light on the farmers' side on where the buyers are, the need to target certain periods to dispose commodities, whether it is necessary to manage reserves in stores or own houses. In addition, all this knowledge provides leverage to the farmers in negotiating deals with traders. Radio broadcasts on information about markets are an initiative that has proved useful in Uganda. Food Net of IITA is behind this initiative. The core activities of the Uganda Market Information Service are collection, compilation and dissemination of markets information – mainly prices. The process of collecting information covers the whole country. The program has trained collectors on market information, market analysis and reporting methods. The collected information is broadcasted using 9 radio stations through 12 programs per week. Insights to the program reveal several intuitive initiatives. One, it recognizes that simply hard price information may not be attractive to the listeners; hence efforts are deliberately directed to making the dissemination programs listener friendly and attractive. Timing of the radio programs is crucial and the program has been reviewing the time when programs are in the air for greatest impact. Training, intuition and strategic planning of information communication to suit local culture, life style and mixing it with pleasure are cornerstones of the achievements there. There is great need for capacity strengthening across Africa on such skills: the ability to tap on common media outlets for useful agricultural production and marketing related information.

## 5.6 ICT and Nutrition

Romeo Bertolini (2004) reports that the most important ICT applications addressing malnutrition relate to educating personnel and enabling efficient networking. He cites the FAO's Food And Nutrition division work that provides online training materials on many nutrition-related topics as an important source and FAO contribution in enhancing developing countries capacity. In relation, the key lesson is that health and nutrition information is usually disseminated to the general public via mass media, ICTs have the capacity to enhance the accuracy and timeliness of information flowing to journalists. Enhancing the capacity of local personnel to monitor nutrition status, generating broad pictures and maps of nations nutrition, and effectively disseminating them to the media in an easily comprehendible form, is an area that ICT and effective ICM have a role. A practical example in this area is the Food Insecurity and Vulnerability Mapping, FAO FIVIMS, that are increasingly implemented to assemble, analyze, and disseminate information on who the food insecure and malnourished are, where they are and why they are at risk. In line with this process, such information can support early warning systems, strategic reserve systems, and ultimately disaster management. Needless to say that currently such initiatives are only at limited areas in Africa. Investments in capacity strengthening to enable local personnel acquire skills for such information management would clearly support food security efforts.

## 5.7 Natural Resource Management, Conservation for Food Security

Proper management of natural resources, particularly soil and water, are an additional corner stone to enhancing food and nutrition security. ICM has a role in this area too, and capacity strengthening in SSA so as to deploy ICT in natural resource management deserves due weight. Geographical Information Systems have enabled mapping of land and water resources, distribution of land use in a watershed, mapping human settlements versus natural resource sites, establishing the degree of habitat fragmentation, establishing trends of resource use over time, and pointing to actions that need to be taken for sustainable use.

Other forms of ICT can also be used to enhance natural resources management. SSA has a number of land tenure challenges. Decision making regarding land tenure can be effective if relevant information is sought, compiled and disseminated using IT. GIS and related information management systems avails accurate and updated cadastral maps that are primary requisites for successful land use planning and policy making for any country. The challenge for SSA countries is principally the low levels of training, knowledge and skills required for such processes to be daily routine activities. Much that happens in land and natural resource management using advanced IT has a heavy dose of technical expertise from the north, undertaken under projects context, often of short term and lacking sustainability after the projects term. Deliberate efforts to bridge the skill gap between north and south in this area would go a long way to help African countries achieve food security through proper management of natural resources.

## 5.8 Early Warning, Food Security and Nutrition Monitoring Systems in SADC Countries

Accurate, timely and relevant information are necessary to be able to predict famines and other disasters. Early warning systems are but sub-systems of much broader systems of agricultural information. Table 2 summarizes a sample of Early Warning Systems that have been implemented in the SADC region in the past. Two aspects are of interest to us as we dwell on capacity strengthening needs. First – the nature of data that is collected for EWS. Out of a sample of EWS from 9 countries, we observe 10, very different core indicators being collected; four data collection methods: surveys, administrative records, clinic records and remote sensing are used to collect the information. This by itself points to the diversity of skills called-upon to ensure accuracy, validity and reliability. Second – the purpose to which the data and generated information is put to sheds light on the complexity and hence the skills required for achieving the ultimate goal: policymaking, advocacy, and timely warnings. Each requires special skills, knowledge and experience. In summary, therefore, within broad agricultural information systems there are complex sub-systems e.g. the early warning systems that, by themselves, pose surmountable challenges to the available human resource on the ground, calling for a broad range of capacity strengthening initiatives.

**Table 2: Examples of Early Warning Systems in SADC Countries**

| Country | Name of System | Purpose[a] | Level of Use | Source of data | Data collected[a] |
|---|---|---|---|---|---|
| Angola | National Early Warning System (News | TW | National | Administrative | FS:1,2,3,4,5,6,7 |
| Botswana | Early Warning System (incorporates NEWS)<br>National Food I Nutrition Information System | TW, ME & PP<br><br>PP & AD | National<br><br>National | Administrative<br><br>Administrative | FS: 1,2,3,4,5, 6,7,<br>CN:2<br>CN |
| Lesotho | National Early Y Warning System (NEWS)<br>National Food $ Nutrition Information System | TW<br>PP & AD | National<br>National | Administrative<br>Administrative<br>Survey | FA: 1,2,3,4,5, 6,7,<br>FS:1,2,3,4,5, 6,7,<br>CN:1,2 |
| Malawi | Household Food Security & Nutrition Monitoring System<br>National Food Security & Nutritional Surveillance System<br><br>National Early Warning Systems (NEWS)<br><br>Clinic-based Nutritional Surveillance System | PP & AD<br><br>PP & AD<br><br><br>TW<br><br>PP & A | National District<br><br>National<br><br><br>National<br><br>National | Survey<br><br>Administrative survey Research<br><br>Administrative<br><br>Administrative | FS:1,2,3,10 CN:1<br>SES:1 FS:1,2,3,4,5, 6,7,8<br><br>CN:2 |
| Mozambique | Commercial Food Security Information System<br><br>Agricultural Sector Food Security Information System (incorporates NEWS)<br><br>Nutritional Surveillance system | PP<br><br>TW<br><br><br>PP | National<br><br>National<br><br><br>National | Administrative survey<br><br>Research Administrative<br><br>Administrative survey Research | FS:1,2,3,4,6,<br><br>FS:1,2,3,4,5, 6,7<br><br>CN:1,2 |
| Swaziland | National Early Warning Systems (NEWS) | TW | National | Administrative | FS:1,2,3,4,5, 6,7 |
| Tanzania | National Early Warning Systems (NEWS)<br>District Nutritional surveillance System<br>Community National Surveillance System<br>Crop Monitoring & Early Warning System | P & AD<br><br>PP & AD<br>PP & ME | National<br><br>District<br>Village | Administrative survey<br><br>Administrative survey | FS:1,2,3,4,5, 6,7<br><br>FS:1,2,3,4,5, 6 |

| | (incorporates NEWS) | TW& AD | National | Community monit. System Administrative | CN:1 FS:1,2 CN:1 FS:1,2,3,4,5, 6,7 |
|---|---|---|---|---|---|
| Zambia | National Early Warning Systems (NEWS) National Nutrition Surveillance Programme | TW PP & AD | | | FS:1,2,3,4,5 6,7 CN:2 |
| Zimbabwe | National Early Warning Systems (NEWS) Nutritional Surveillance Systems | TW PP & AD | National National | Administrative Administrative survey | FS:1,2,3,4,5 6,7 CN:1,2 |

Source: Quinn, V.J. and Kennedy, E. (1994)

**Key**

[a]Purpose:  TW-Timely warning; PP – Policy planning; AD – Advocacy;  ME – Monitoring & evaluation
[b]Types of data:

Food Security (FS) data:    7 – Remote sensing technology    Child Nutrition (CN) data: Socio-economic (SES) data
1 – Crop                          8 – Pest monitoring                 1 – Survey based           1 - Demographic
2 – Stock levels                 9 – Food entitlement indicators     2 – Clinic based           2 – Migration patterns
3 – Prices                        10 – Food acquisition coping strategies
4 – Marketing board purchases/sales
5 – Meteorological conditions
6 – Food aid statistics


# 6. Capacity building in ICM for Food Security: Proposals and Recommendations

## 6.1 General

Effective Information and Communication Management is therefore a key component of human resource development for sustainable agricultural production and improved food security in Africa. Meeting the above-discussed and exemplified challenges will entail improvements in ICM capacity building initiatives. In general this can be achieved through:

i.    Sensitize decision makers on the importance of ICM such that they may free resources to build capacity for technologies to integrate international, regional and local organizations on matters related to ICM.

ii.   Raising awareness among a broad range of stakeholders about the importance of ICM. Research is needed to identify benefits of capacity building in ICM. Positive and negative lessons from past experience should be the basis for such awareness raising initiatives.

iii.  Creating local capacities to use the available studies, i.e. data, information and knowledge so as to gain an understanding of the countries' pattern of agricultural production and consumption, price and market behavior, domestic and international trade and the policy environment. There is much in databases, world-wide-webs, and reports that is inadequately comprehended by key decision makers, partly because of weak ICM skills and knowledge.

## 6.2 Awareness Raising, Training and Sensitization for Capacity Building in ICM

Overall the goal should be to enhance local capacity in information storage and dissemination in order to reduce the gap between information providers and users. The following sections points to capacity strengthening areas that seem most relevant to the three levels of organizations.

Specific areas that need to be emphasised here are deduced from both the information flow presented in the conceptual framework of the determinants of food security, and from practical observations from case studies. Effective ICM has to ensure a smooth process from data assembly, information generation to knowledge, and effective use of the knowledge.

v.   There is need to enhance capacity of regional, national, and local government level policy making personnel in designing and implementing ICM policies that would effectively help to govern various regional and national programmes. We ought to recognize that designing and implementing ICM programmes is an evolving process, challenged daily by new technology, methods and processes. Human resource serving at regional and national level ought to stay abreast with such developments.

vi.   For SSA Africa countries to adequately embrace new technology and ICM systems, political, community, and civil society leaders ought to be aware, subscribe to, embrace and support IT and ICM initiatives. They must be adequately knowledgeable about IT and ICM in a manner that they may communicate such information to increase public awareness, mobilize resources towards IT and ICM, and also instill good governance in ICM systems. Executive programs for leaders are a potentially effective means to enhance the capacity of this cadre of stakeholders. We ought to appreciate that sustainability of ICM systems in SSA will ultimately depend on the ability of national and community level organizations to mobilize resources and continuously invest to upgrade the systems. Local leaders are key players in this responsibility and their capacity has to be strengthened.

vii.   Within a nation, local personnel will plan most ICM programmes. There is need to enhance managerial personnel capacity at national and local governments (community) levels. The goal ought to be to ensure that their day-to-day activities, those related to say agricultural extension and technical advisory services, general and agricultural development planning, resource mobilization and budgeting, etc, are supported by effective ICMs. As noted, many graduates leave colleges without adequate sensitization, skills and know how regarding information technology and proper management of information communication. This gap, currently apparent in the managerial level, ought to be filled. In line with this effort there is need to strengthen capacities within local universities such that they revise their curricula and institutionalize training and learning processes that place due weight and importance in IT and ICM. We should note that enhanced human capacity through university level training is a very strong pillar for developing local management systems including ICM.

viii. With regard to technical personnel, a three-thronged strategy is needed. Deliberate efforts ought to be placed to address the three components of ICM:

a. Skills need to be enhanced for good data collection methods, techniques, and systems including technology and equipment entering the market. Examples are many; techniques and equipment related remote sensing and GIS suffice to demonstrate the need for revolutionizing perceptions regarding data collection.

b. Technical personnel at various levels and different institutions ought to be capacitated to be able to effectively analyze data and generate information from it. Knowledge and skills to use computer software, analytical programmes, and related theoretical and empirical models are essential in this case.

c. Lastly, there is need to enhance capacity of technical personnel in disseminating information. Examples presented in the case studies, pointed to the need to go beyond conventional ways of information dissemination. Not only have we noted the role radios and mobile phones can play, but also the need for the technical personnel to be intuitive in designing proper products: well timed, packaged to appeal to the end user, and delivered in a socially and cultural appealing form.

## 6.3 Governments' Roles

It is important that governments take overall responsibility in capacity building in ICM so as to achieve national food and nutritional security goals. Among other roles, such as creating an enabling and motivating political, economic, and social environment, the government would need to be heavily involved in: -

❑ Clearly defining objectives and their strategies for information technology in the agricultural sector and develop a national strategy for the use of information technology. Although most ICT policies in the region touch on capacity building, none addresses, in an adequate manner, issues related to food and nutrition security. E.g. Tanzania ICT policy-2003; Uganda NICI policy- 2002.

❑ Where there is need for effective training and skills development for ICM, unfortunately, the private sector is less attracted. Understandably, the sector would not wish to invest in such skills development with no clear foresight of how they would recoup their costs through profits. Such capacity strengthening is costly and requires a variety of approaches. To go around such a hurdle, an alternative would be government-private sector partnership in ICM capacity building. Nonetheless, it is the government that ought to take a first step towards facilitating such partnerships. Governments therefore have the responsibility to forge private-public relationships and entice the private sector into joint ventures.

❑ Enhancing Local capacity in information collection, storage and dissemination in order to reduce the gap between information providers and users. Education leading to basic literacy and numeracy of marginalized groups should be a priority on the government's side. Tailoring primary and post primary education curricula towards incorporating IT and ICM is a good starting point. Governments need to improve strategies designed to promote ICM knowledge in the education system. By enhancing certain types of knowledge, it is possible to see improvement in related sectors of the economy. Since ICM education is very specialized, it is important for the future of the society to have an efficient system that can train a substantial number of persons. The main skills to acquire are technological, managerial and human skills in ICM.

❑ Promoting and implementing programmes for developing skills to apply new information technology in government machinery. Such initiatives appeal as a responsibility of the government especially within the already existing government processes. SSA governments ought to have deliberate efforts to transform dated, mainly "paper and cabinet" systems into IT based systems.

### 6.4 NGOs' Roles

Today, NGOs' are proving to be effective ways to enhance skills at the communities level. NGOs have an advantage of operating at the very low levels – grassroots. Their mission in the ICM development could be one of raising awareness. NGOs are also best placed to strengthen the values of ICM at local levels; and more important, they can contribute effectively towards social acceptance of the ICM by locals. By making ICM acceptable to the society, NGOs' would be building capacities amongst the major stakeholders of food security. This helps to open up communication channels between citizens and the government, or the private sector.

NGOs can also play the following roles in line with ICM.
    i.    Provision of skills, and sensitizing communities towards adoption of acceptable standards, norms and regulations in ICM.
    ii.   Providing assistance towards national and local level computer literacy and training on ICT applications. NGOs would cover areas where governments and the private sector might not be prepared or able to devote the required degree of attention.
    iii.  They can also provide training to disadvantaged groups.
    iv.   By reviewing best practices from other countries, NGOs can also play a crucial role in career planning, professional education, and in helping workers to adapt to the new ICM world.

It is necessary and absolutely essential that donors, governments and the private sector companies facilitate and accommodate NGO's role in ICM capacity building.

### 6.5 Role of The Education Sector, Research and Development Institutions
Food security stakeholders are rapidly coming to understand that knowledge is central to development, that, in effect, "knowledge is development". The educational sectors' missions ought to be directed towards narrowing the knowledge gap, not only by disseminating knowledge, but also by creating it and making it accessible and applicable.

Training and skills development is a continuous process until all stakeholders have technical abilities to take full advantage of the technology. Capacity building in ICM, therefore, requires education institutions to promote 'skills upgrading processes' which may range from short courses for casual users, to advanced technical training at universities for those involved in development and maintenance of various ICM products.

Higher learning institutions should be more focused and engaged in solving national problems e.g. food security. They may achieve this by frequently revising their curricula, develop desired skills, and produce graduates that meet the changing needs of ICM. Faculties at all levels need to re-equip themselves with some of the more recent teaching methodologies and analytical tools that address the use of ICM in food security. This can be successful by having local (South) universities collaborating with overseas (Northern) universities.

Research and development (R and D) centers' prerogative is also the creation of knowledge. Their role is also to improve what is called the "absorptive capacity" of the country for technology transfer. Research and development centers should conduct more researches on ICM and its' relation with food security. The thrust here should be on the role that ICM can play in poverty alleviation and ensuring food and nutrition security. Also, comprehensive surveys of human resources in ICT in SSA should be conducted. It is fairly obvious that the needs for some ICT skills exceed the current supply, and research needs to identify the exact magnitudes of such gaps.

### 6.6 Roles of Regional and International Organizations

Regional and International organizations have different specific objectives and different areas of specialization and expertise. However, despite the differences, there are similarities in the broad operational focus on agricultural and rural development. These organizations have been assisting in capacity building though in different ways. What is needed is not to change the methods but rather to incorporate capacity building in ICM towards food and nutritional security in the following ways: -

   i.   Incorporate and encourage development, dissemination and adoption of internationally acceptable standards in ICM in information networks and through their direct operations in developing countries.

   ii.  Facilitate the adoption and implementation of ICM standards, and link them to programmes aiming at capacity building in domestic institutions. This in turn, will assist SSA countries to better integrate themselves into the world economy.

   iii. The international organizations should continue providing training in ICM within frameworks of specific projects implemented in a particular country. This will ensure that the international organizations address very specific local problems.

   iv.  Incorporate ICM training in collaboration with regional training and research institutions to facilitate knowledge transfer. For example, introduce a course on information technology management in food and nutritional security with the

Joint Africa Institute (JAI) and African Economic Research Consortium (AERC) **(Box 5)**

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**Box 5: The Joint Africa Institute**
The Joint Africa Institute (JAI) was established in Abidjan, Côte d'Ivoire, in November 1999 as a collaborative effort between the African Development Bank, the IMF, and the World Bank. This partnership has provided African nationals with more opportunities to obtain training closer to their home countries. Moreover, by establishing this training center in Africa, the three institutions have been better able to integrate into the training program issues relevant to the region and to make fuller use of the skills of African trainers. The JAI provides high-quality, policy-related training to a wide spectrum of participants, including government and central bank officials and representatives of civil society of African countries. With about 400 participants a year attending its courses and seminars, the JAI should have a significant impact on capacity building in Africa.

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v.     The organizations should facilitate networking and cooperation for sharing knowledge. Main services among others should include: online training modules, research findings, case studies and best practices, and information on ICM development projects. All of these services may be arranged according to the needs of specific audiences, such as community leaders, policy makers, local government officials, private investors and academics (Box 6).

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**Box 6: Cooperative Initiatives Involving the United Nations**
Here are some other examples of cooperation between UN bodies, non-governmental organization and/or private sector: The Global Digital Opportunity Initiative was launched in 2002 as a partnership between the UNDP and the Markle Foundation and the International Partners Group, and consists of business, non-profit and international entities. The initiative is committed to providing countries with pro bono expertise and resources to create strategies and solutions that advance development goals.
The Digital Partnership initiative has planned to mobilize used ICT equipment from major companies to develop integrated and networked E-learning centers in disadvantaged schools and community settings and also provides location-specific training and content development (www.iblf.org/digitalpartnership). Digital Partners is a non-profit organization that aims to support innovative revenue-generating efforts in education/literacy, health care, micro-enterprise and other forms of economic empowerment. The key aim is to link established entrepreneurs in the ICT sector with social entrepreneurs and start-ups that are experimenting with the use of digital technology for empowerment of the poor (www.digitalpartners.org).
The World Agricultural Information Center not only provides the information systems platform to access FAO's information, statistics, knowledge, and expertise in support of Member Nations, but it also can serve the inter-governmental process as a normative mechanism to resolve information management problems in general, and to assist in the establishment of National Agricultural Information Systems.
Source: ESCWA, Jan 2003

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<ol type="i" start="6">
<li>Regional bodies can develop and run programmes that attract and direct development partners' assistance into ICM capacity building and development. It should also be emphasized here that, these organizations should only play a significant role of supporting and let the countries have the primary responsibility for building their capacity in future.</li>
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## *6.7 CTA's Role*

CTA may be involved in two ways:

At a higher level, CTA may take-up a facilitating role; develop global products that aim at raising awareness and sensitizing developing countries leaders on ICM, and the role it can play in food Security

At a lower level, CTA may wish to link with mainstream IT and ICM organizations to develop and pilot exact and specific ICM-Food Security information systems. The goal should be to put in place proto-types that may be scaled-up by national and regional institutions.

### i) Facilitation Role

CTA may facilitate the involvement of African stakeholders (governments, researchers, NGOs, civil society, etc.) in setting their ICM agendas and implementing regionally agreed upon strategies and plans to enhance the use of IT in food security initiatives.

CTA may wish to anchor itself more on the concern of the digital divide, hence design and facilitate new and creative ways for North-South partnership and collaboration in ICM – always tailoring such activities towards food security. The challenge is to work towards a global society with less inequality and a narrowed digital divide. CTA deserves a responsibility to be in the forefront to achieve this.

In summary, the key challenge is how CTA can advance ICM dialogue for: policy makers, technological, and front-line practitioners, within developing countries, and across north and south –for more effective uptake of ICM in developing countries. CTA would be aiming at:

<ol type="i">
<li>Facilitating ICM dialogue across borders: north and south and within the SSA region.</li>
<li>Providing an opportunity for African practitioners to learn from each other, and from the North on ICM achievements and challenges; providing examples of lessons learned and best practices in the field. In doing so CTA will be providing a vehicle for interfacing among the islands of experiences and champions of change.</li>
<li>Undertaking peer reviews and hence providing insights about ICM developments and acting as mediating platform of expertise.</li>
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### ii. Piloting Initiatives

CTA may wish to take stock of potential national and regional ICM-Food Security initiatives, and then design pilot cases, implement them, and publicize results with a clear goal that they be scaled-up by regional organizations and national governments. A key factor here is for CTA to work with collaborators in identified areas. CTA at all times will focus on ensuring the pilots have a significant and sustainable capacity-strengthening component. Examples of such pilots would be:

(i) Conducting IT and ICM user needs assessments, and carrying out an inventory and evaluation of existing national data and information systems that may contribute to food security strategies; and recommending on how a country would improve its ICM for food security, placing clear emphasis on Capacity Strengthening needs.

(ii) Piloting capacity strengthening activities: conducting needs assessments, design of training modules, and running in-country or regional courses. This may be linked, and worked together, with local training institutions such that the latter takes-up the responsibility for future activities.

(iii) Pilot production of improved food security information products, involving consolidation of the available information from local sources into an operational food security information system. Potential collaborators in this area would be paired research organizations or higher learning institutions from the North and South. The ultimate aim is to leave behind proto-types of training modules that can be scaled-up.

## 7 Conclusion

Information Communication Management (ICM) has a significant role to play in efforts to address food and nutrition insecurity (FS&N) in Africa. Human resource capacity in SSA, however, falls short of the demand considering the magnitude of the FS&N problem. Apparent demands of ICM capacity are in the areas of policy-making, development planning, agricultural production enhancing strategies, natural resource management and land tenure designs, and in community empowering. The exact nature and scope of ICM capacity strengthening needs range from simply sensitization at regional level, awareness raising and mobilization at national and grassroots community leaders level, and technical skills for data collectors, data analysts who generate information, and transformation and communication skills for knowledge users i.e. planners and decision makers. Tools, equipment, and ICM infrastructure are needed in SSA, and human resource and expertise to manage such infrastructure is also needed. The paper has outlined the role that NGOs, regional and national governments, educational and research institutions, international organisations, and CTA may play to achieve the above.

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