Framing of Climate Change News in Four National Daily Newspapers in Southern Nigeria

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Paper Presented at the International Association of Agricultural Information Specialists XIVth World Congress
Emerging Priorities for Scientific & Agricultural Information
July 21–24, 2013
Cornell University, Ithaca, NY USA

Introduction

- Global climate change is certainly one of the most pressing concerns of the 21st century.

- Africa and more specifically, Nigeria is a country which scientists agree is likely to suffer dire consequences of climate change.

- Through media coverage of climate change, there is often a significant acceptance of political and expert voices by the public.

Introduction Cont'd

- To frame is to select certain aspect of a situation and highlight them in the media in a way that promotes a specific definition, interpretation or evaluation of recommendation.

- In other words, different frames highlight different aspects of the options and bring forth different reasons and considerations that influence decision.

Introduction cont'd

- The basis of framing theory is that the media focuses attention on certain events and then places them within a field of meaning.

- In doing this, the media brings public attention to certain topics, influences peoples' perceptions and feedback through ongoing media practices; these feedbacks shape news framing in subsequent phases, and inform ongoing policies, practices and interactions over time.

Introduction cont'd

- It has been observed that journalists do not report climate change risk as major challenges, but they report it as news (Cramer, 2008).
  - *It is therefore argued that, it is for this reason that climate change is found presented within a certain frame.*
- Knowledge of how climate issue has been understood and framed is of vital importance to how the general public and policy makers will be able to respond to lifestyle changes that will aid climate protection.

Introduction cont'd

- If the public are not adequately informed about climate change, it will be difficult for them to make demands on government, even when it is in their own interest.
  - *But how this information is interpreted and translated into decisions and potential behavioral change is complex and dynamic.*

- This brings to the fore the importance of examining the framing of climate change issues in four national daily newspapers in southern Nigeria.

Objectives of the Study

1. determine the number of climate change related articles published in 2009;
2. identify the over all tone used in reporting climate change issues;
3. identify subject matters discussed in the articles analyzed; and
4. determine how climate change issues has been framed in the southern Nigerian newspapers

Methodology

- Four major national daily newspapers in southern Nigeria were purposively selected for content analysis namely:
  - Guardian,
  - Vanguard,
  - ThisDay, and
  - Daily Sun
- The coverage time was from January 1, 2009, to December 31, 2009, yielding approximately 332 articles for the analysis.

Methodology cont'd

- The approach of deciding on the frames used was taken from the perspective of the reader.
  - *How would the reader be likely to delimit a story written in a particular way?*
  - *Would the story result in concluding that climate change is an*
    - *environmental issue?*
    - *a political issue?*
    - *a scientific issue?*
    - *an agricultural issue or a health issue etc.?*

Methodology cont'd

- Objective one was achieved by noting the frequencies of articles appearing under a particular month of the year.

- Objective two was achieved by taking cognizance of the manner in which the stories in the articles were portrayed in terms of neutral headlines, negative headlines or positive headlines.

Methodology cont'd

- Objective three was achieved by identifying the article's subject matter and why the articles were written.

- Objective four wasmeasured by determining how the southern Nigerian print media framed the climate change issues.

Results and Discussion

- *November environmental ministers gathered in advance of climate discussion*
- *December 2009 Copenhagen summit took place*

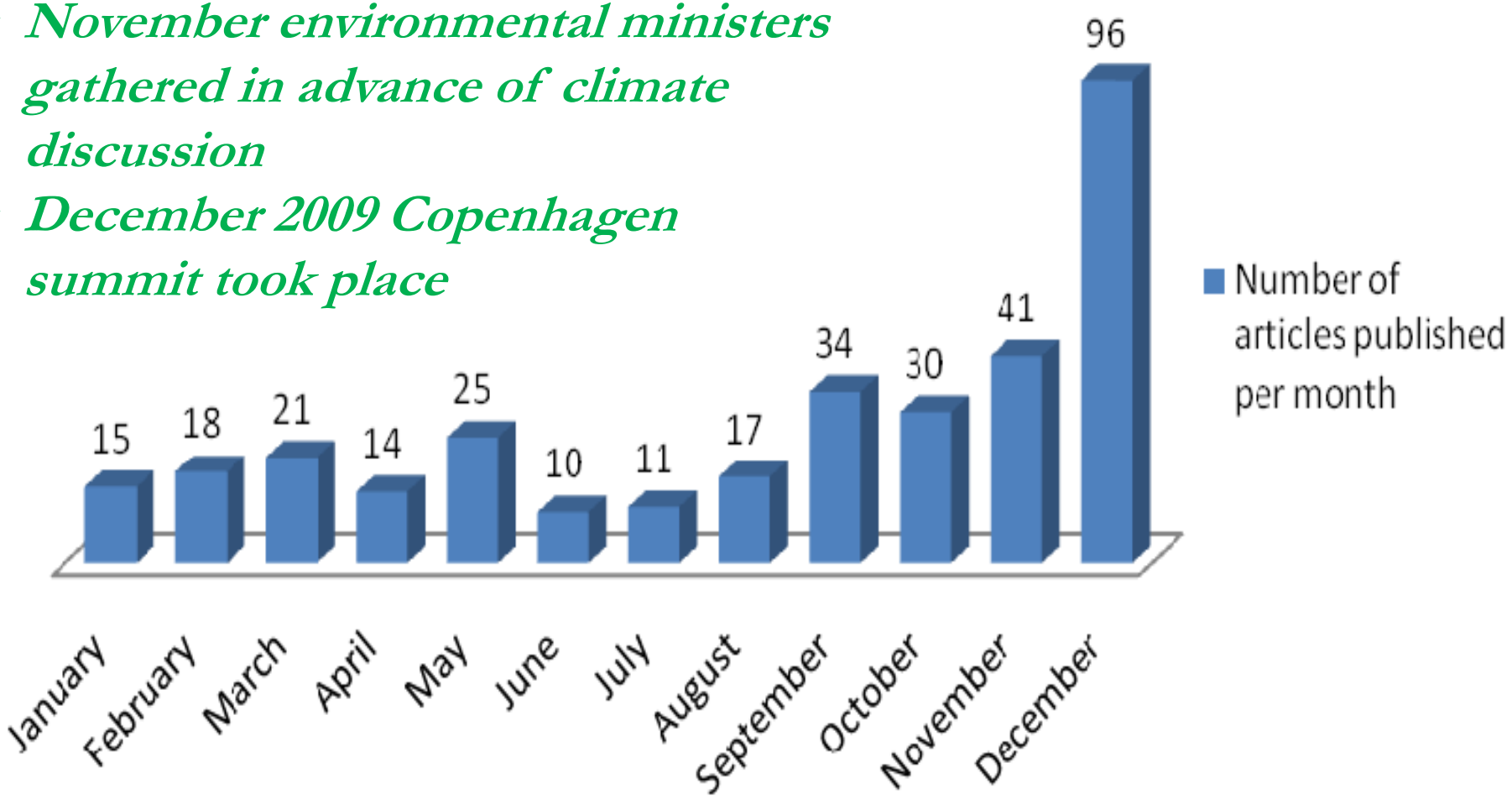

Figure 1: Number of climate change related articles published per month between 1st January and 31st December, 2009

➢ *The greater number of articles with negative tone indicates a larger emphasis placed on the negative impacts of climate change on the environment*

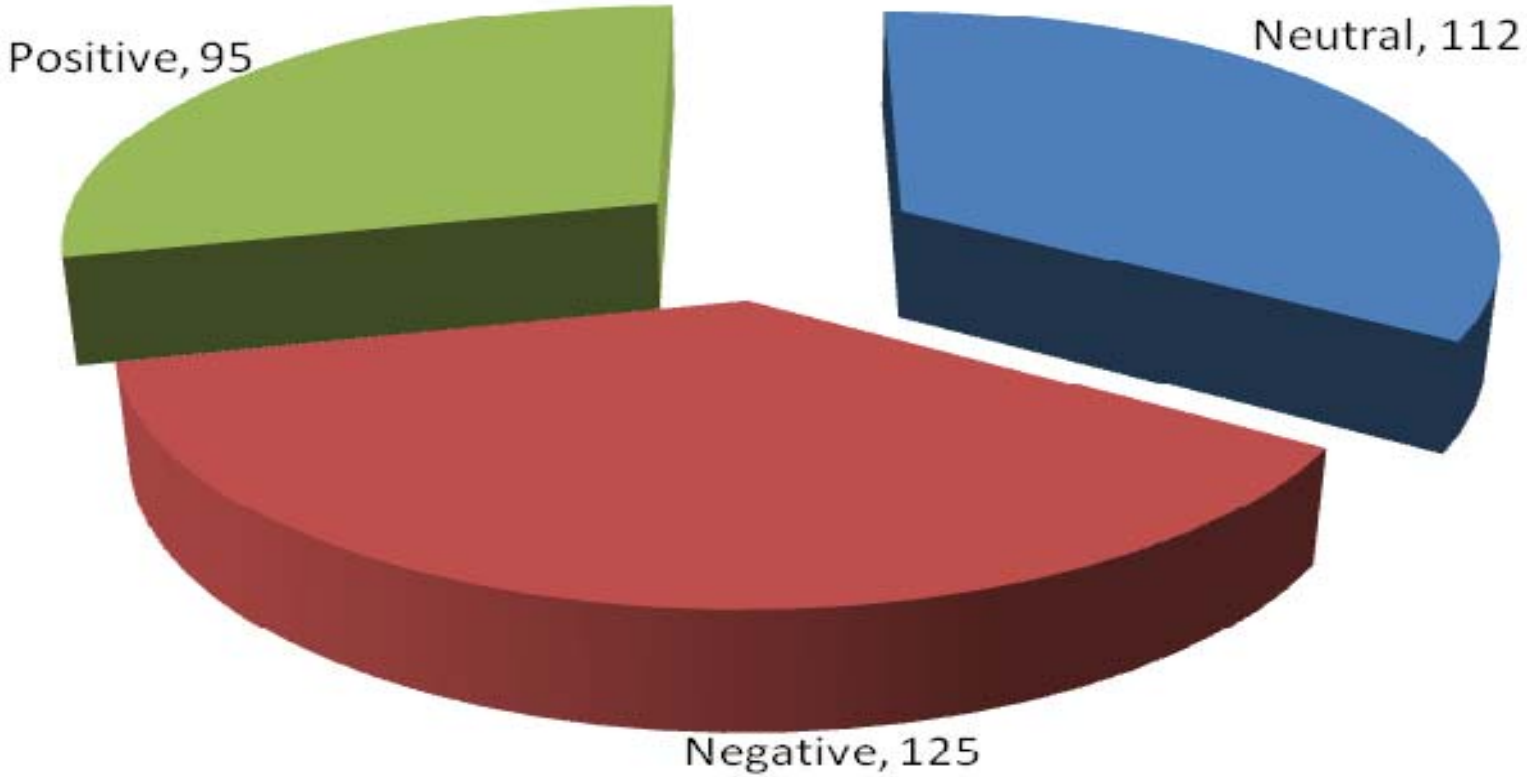

Figure 2: Overall tone used in all the publications relating to climate change

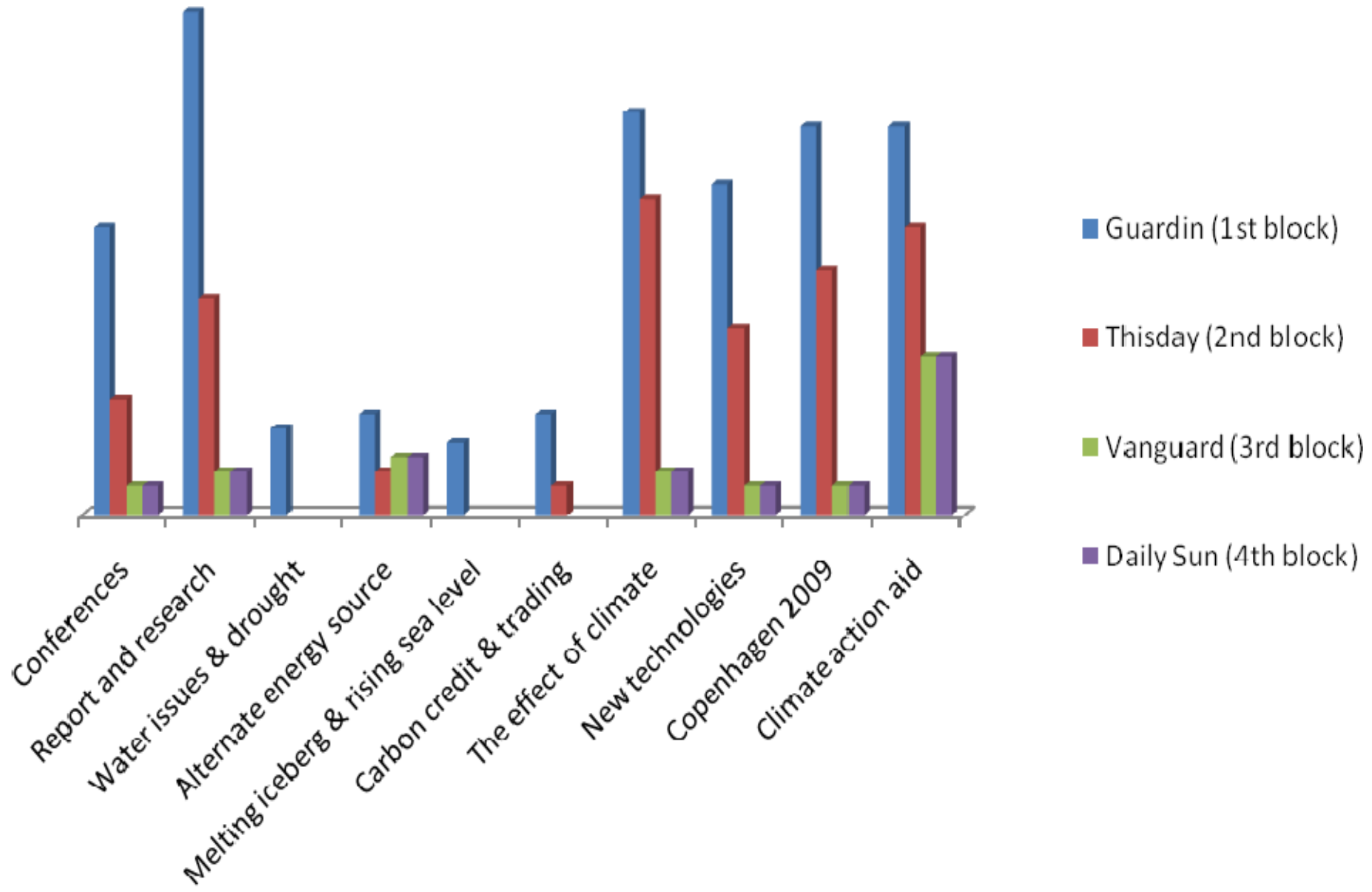

Figure 3: Subject matter discussed in the articles

Dominant frames used in reporting CC news

- ***Blame/ responsibility frame***
- ***Majority (71 articles) of the newspapers framed climate change in terms of "blame/ responsibility" This frame focused on the finger-pointing aspect of climate change. Issues like who was at fault for the occurrences, why and how it happened, and who was going to take the blame constituted the major frames.***
- **In most of the articles, the developed countries and industries such as the oil producing companies were blamed for their highest contribution to the emission of greenhouse gasses. However, several articles placed the blame on agriculture, primarily deforestation and use of high technologies.**

Action Frame

This frames mentioned the actions/ tasks that nations have to perform in mitigating and adapting to climate change effects.

Phrases associated with this frame included “payment of ecological debts”, “reduce emissions by 50 per cent”, “green campaign”, ‘it is time to act”, “ holistic approach”, “plot a survival map”, and “determined commitment at the regional level”.

- ***Political Frame***

  The political frame was revealed in 42 articles. This frame emphasized on the aspects of government, the political side or any issue involving politicians.

  Words and phrases used to convey this frame included "diplomatic hackles", "political agreement", and "calls for signatures". *This frame implies that greater power for dealing with these problems is often attributed to the government.*

- ***Industry Frame***

This frame conveyed not only how climate change is devastating to the agricultural sector in Nigeria, but also how it has had negative implications on the agricultural sector internationally.

The frame was consistently characterized as disaster-causing event for the agricultural industries, which produced a negative tone throughout the articles. The implication of this frame is that it could potentially affect perceptions of agricultural yield/ productivity in general

- ***Economic Consequences Frame***
  - ***Emphasized the impact of climate change on the industries outside the agricultural sector, like transportation, insurance, banks, oil producing companies, etc.,***
  - The first sub-frame was zero economic risk. Here the information presented in the articles reaffirmed that climate change can bring about major development opportunities for Africa, given the anticipated increase in the energy requirements as growth accelerates. Amplified economic risk frame articles were negative implying that the occurrences could be worse and can be of serious economic damage if nothing is done.

- *Environment Frame*

  This focused on the predicted effect of climate change on the landscape and reliefs in Nigeria; and on several other regions.

  Climate change was depicted very clearly as being an environmental issue, and the potential danger of such depictions lays the lack of importance placed on the environment by the average person.

- *Human Impact Frame* -***attempts to show the effect climate change has on people.***
- exposed the negative and the positive impacts of climate change on human being; resulting in different tones resonating from the articles which led to most of the articles having a neutral tone.

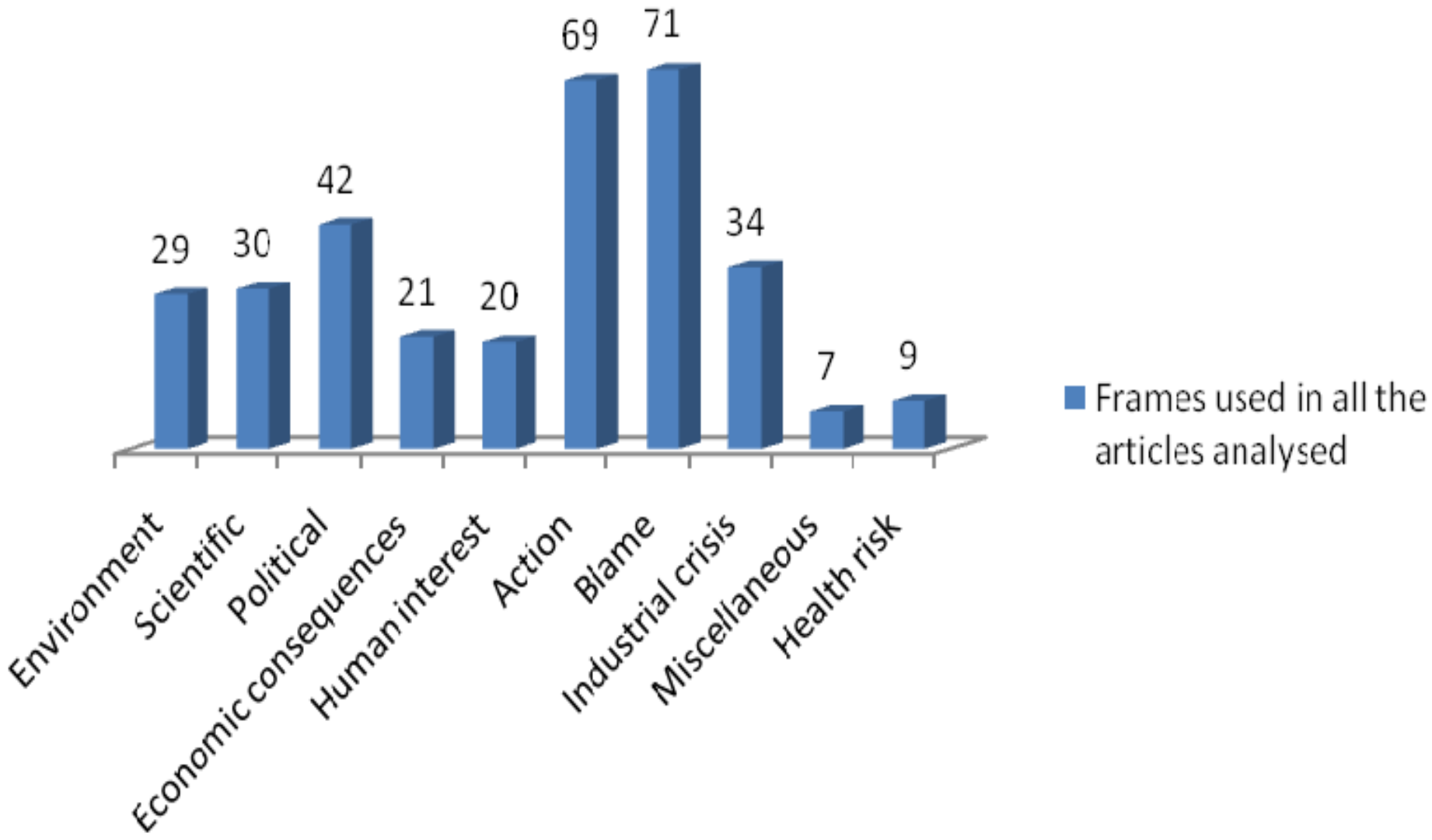

Figure 4: Dominant frames in climate change articles analyzed in four Nigeria dailies

Recommendations

- The study recommends that agricultural and media organizations should re-allocate some of their time and energy away from explaining the science behind why global climate change is happening to explaining more of the specifics behind the mitigation and adaptive solutions that would help the general public deal with global climate change, and aid climate protection.

Recommendations cont'd

- Agriculture organizations should keep in mind that as they present agricultural climate change related research findings to the mass print media audience, they should provide many solutions.

- Organizations should not be afraid to go into great detail about the policy solutions they are advocating for, explaining thoroughly what makes them good policy solutions.

Recommendations cont'd

Finally, the media should report farmers-centered climate change stories to make the issue relevant to the public and agriculture sectors in particular.

Thanks

for your

audience

ACCESS AND USE OF INFORMATION COMMUNICATION TECHNOLOGIES BY WOMEN STAFF OF PUBLIC EXTENSION SERVICE IN NORTH CENTRAL ZONE OF NIGERIA

A paper presented at the 14th Annual IAALD world congress
Held at Cornell University, Ithaca, New York, USA

By

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Date: 22nd to 24th July 2013

INTRODUCTION

- Agricultural extension personnel utilize strategic vital agricultural information for the improvement of the farmers and general development of agriculture.

- Considerable research has been done on gender related issues in Nigerian agriculture which led to:
  - **the creation of Women- in- Agriculture (WIA) units in several states and Federal Government Ministries of Agriculture and the Agricultural Development Programmes (ADPs) (public extension agency) in Nigeria.**

Introduction Cont'd

- WIA is one of the main tools for increasing agricultural productivity of rural women in a sustainable way.
- However, with about one or two extension workers being assigned to work with up to 1000 farm families, the need for information and communication technology becomes imperative if extension must succeed in this all important task.

Introduction Cont'd

- Because of its unique benefits, ICT has been recognized as a tool for empowering men and women.
  - **However, the question is - can women really be empowered through ICT if they are digitally excluded and without quality access to information?**
- Already, information and knowledge gaps exist in the society and majority of women - rural and urban - don't appear to be on the right side of the divide.

Introduction Cont'd

- The fact that ICTs are necessary tools for information exchange between WIA and the rural women has been established.
- The fact that WIA is a major source of information dissemination to rural women in Nigeria is also clear;
- Also, the fact that there is a digital divide in which women seem not to be on the favoured side has equally been pointed out.

Objectives of the study

- This study sought to investigate how far the WIA sub-programme of ADPs has found ICTs applicable in extension services.
- Specifically, it focuses on the followings:

1. identify the ICTs available to WIA staff;
2. identify the various ICT facilities that WIA staff had access to;

Objectives Cont'd

3. determine the level of ICT utilization among WIA sub-programme staff in the ADPs;

4. ascertain the WIA activities in which ICTs were used; and

5. ascertain the perceived constraints in the use of the various ICT tools among WIA sub-programme staff of the ADPs.

Methodology

- The study was conducted in North Central Nigeria. The zone comprises six states (Benue, Kogi, Kwara, Nassarawa, Niger and Plateau) as well as the Federal Capital Territory (FCT), Abuja.
- All staff of the WIA sub – programme of the ADPs in North Central zone of Nigeria constituted the population for this study.

Methodology Cont'd

- Three states out of the six states were randomly selected using the simple random sampling technique, while FCT was purposively selected.

- Data for the study were collected from the respondents through the use of structured interview schedule.

Table1: Sampling procedure

Respondents	No	Total
WIA Director	1 x 4	4
Deputy Director	1 x 4	4
SMS WIA	3 x 4	12
BEA	15 x 4	60
Total	80	80

Data analysis

- Objectives 1and 2 were analyzed using frequency and percentage.

- Objectives 3, 4 and 5 were analyzed using frequency, percentage and mean scores.

RESULTS AND DISCUSSION

Table 2: Percentage distribution of respondents by to ICT tools available in their offices (N=80)

ICT tools	Frequency	Percentage
Radio	27	33.8
Video machine	18	22.5
Television	22	27.5
Telephone	32	40.0
Printer	11	13.8
calculator	10	12.5
Computer	17	21.2
CD-ROM	8	10.0
Internet website	4	5.0
Duplicating machine	15	18.8

Respondents' access to ICTs

- Majority of the respondents had access to telephone, television and radio respectively:
  - Telephone – 87.0%
  - Television – 85.0%
  - Radio – 80.0%
  - Video machine – 57.5%
  - Computer – 32.5%
  - Internet website – 28.8%
  - Photocopier – 18.8%
  - E-mail – 12.5%

➢ ***Internet is one of the most fascinating phenomena that powers our access to information, offers new ways of communicating and serves many on-line services.***

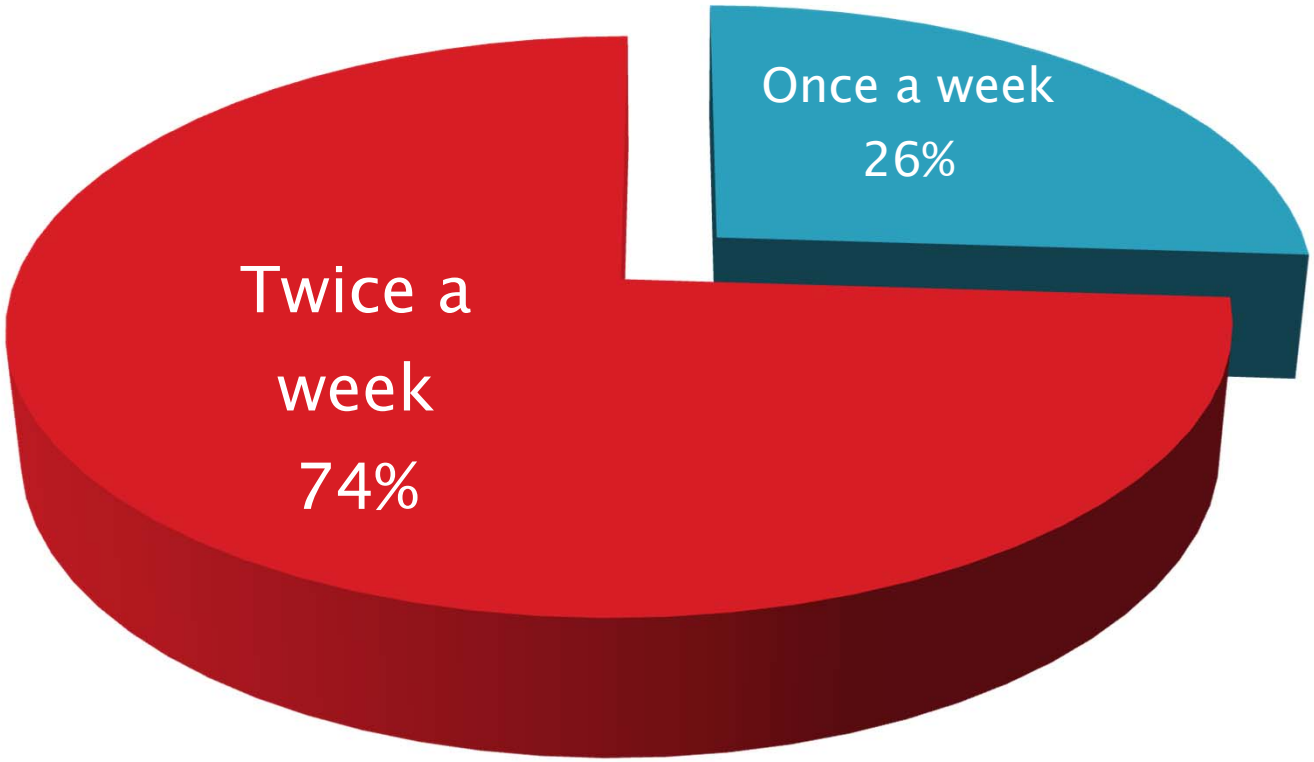
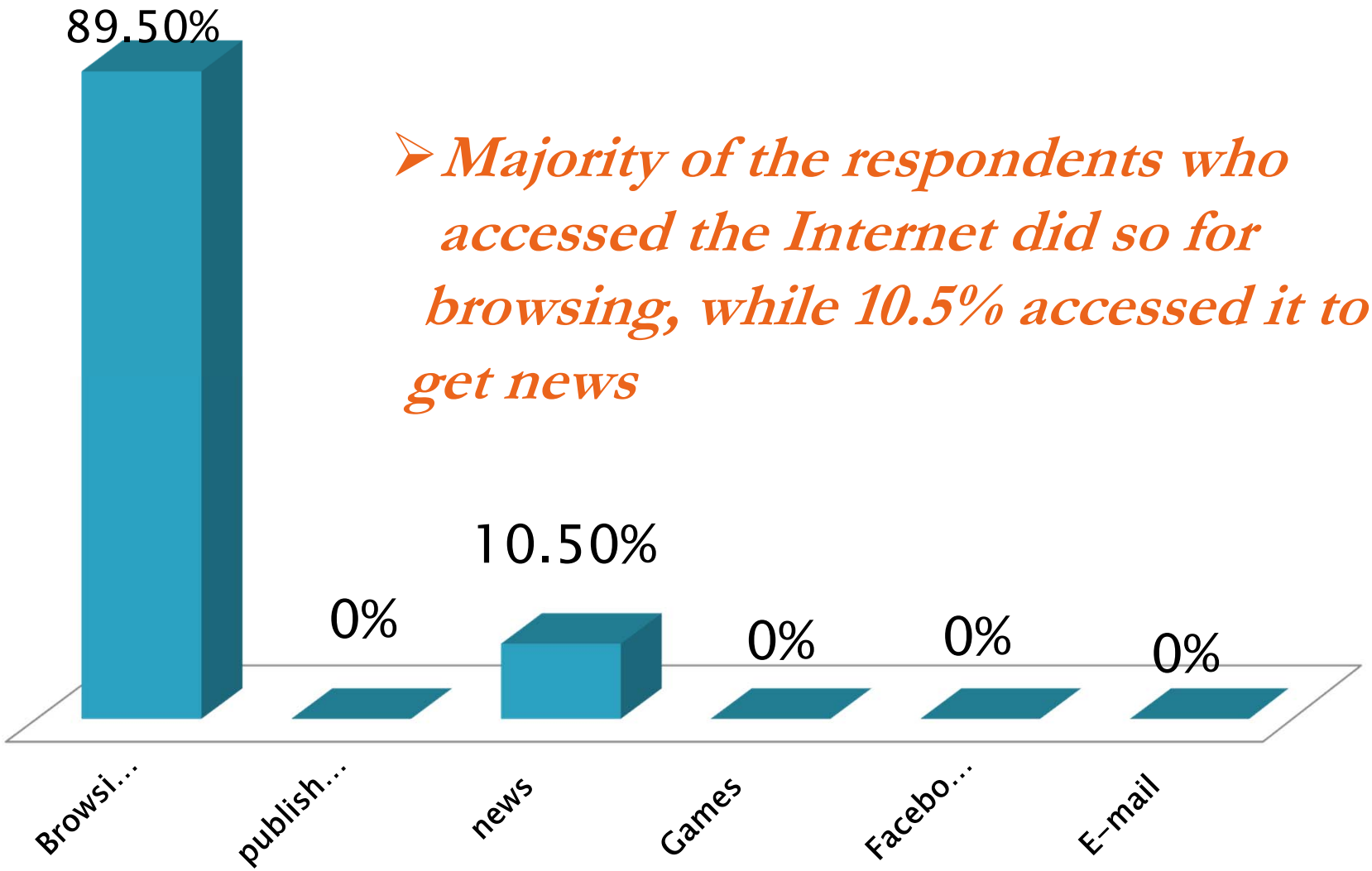


Fig. 1: Respondents' frequency of use of the internet



➢ *Majority of the respondents who accessed the Internet did so for browsing, while 10.5% accessed it to get news*

Fig. 2: Purpose of accessing the internet

Respondents' extent of utilization of ICT tools

- The mean scores of the extent of the utilization of ICTs by respondents show that radio (M=3.70), Video machine (M=3.58), television (M=3.14) and telephone (M=3.49) were used by the respondents to a large extent.

- **This implies that communication among staff and between staff and farmers was made easier and probably more effective by these tools.**

WIA activities in which ICT tools were used

- Majority (62.5% and 56.2%) of the respondents used telephone and radio respectively for root and tuber processing work
- For fruit and vegetable processing work, 62.5% and56.2% of the respondents used telephone
and radio.

WIA activities cont'd

- Majority (52.5%) of the respondents used telephone for food fortification activities.
- For HIV and AIDS awareness campaign, only 20.0%, 18.8% and 12.5% of the respondents used telephone, radio, television.
- The commonly used ICTs for WIA activities were telephone, radio and television

constraints to the use of ICTs

Major problems perceived by the respondents to be serious constraints to the use of ICTs include:

- Lack of training opportunities (M=2.25),
- Insufficient availability of ICT facilities (M=2.06) and
- Lack of technical know-how (M= 2.05)

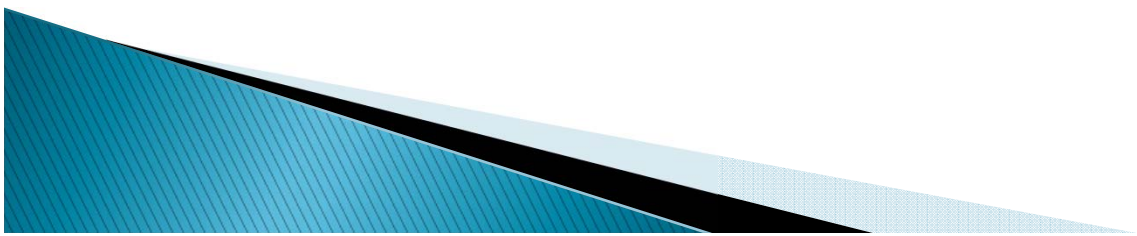
Recommendations

- Efforts should be made by all ADPs to establish functional ICT centres with departments for WIA in all the states.
- Efforts should also be made to facilitate ownership of modern ICTs by WIA staff through loans and hire purchase procedures from their offices.

Recommendations Cont'd

- Finally, ADP management and government should set up projects that will make ICT trainers and training materials available for WIA to meet their training needs and usage of ICT facilities.

Thanks for listening



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Agricultural Innovations Systems among small scale Pineapple farmers in the Akuapem South Municipal Assembly in Ghana

Daniel Adu Ankrah (Doctoral Researcher)

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Outline

- Introduction
- Justification
- Objectives
- Study Area
- Study Methodology
- Sampling procedure and sample size
- Socio-demographic characteristics
- Results
- Conclusion
- References

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Introduction

- The Millennium Challenge Account (MCA) is a novel performance-based aid program instituted by President G.Bush in March 2002.
- It is being administered by the Millennium Challenge Corporation (MCC) based in the US.
- The MCA is given to countries that govern justly, invest in their citizenry and encourage economic freedom (Soederberg, 2004).

Introduction-cont-

- The MCA administers 2 types of grants known as compacts and thresholds program
- A compact is an agreement that has multiple years between the MCC and an eligible country
- The threshold makes available small amounts of financial assistance for countries that narrowly missed on some specific indicators to help such countries bridge such gaps
- MCC has so far approved over $8.4 billion in both compact and thresholds program in areas such as health, education, agriculture, anti-corruption among others(MCC, 2013)

Introduction – cont-

- Ghana had a 5-year compact of $547 million targeted at poverty through improvement in farmer incomes via private sector led growth in 2006
- Against this backdrop there were the creation and strengthening of Farmer Based Organizations (FBOs)
- FBOs are bigger umbrella units that encapsulates cooperatives, farmer associations, producer organizations, formed principally to provide input services, marketing and educational services for farmers (Shankariah and Shingi, 1997)
- In Ghana the MCC programme is managed by the Millennium Development Authority (MiDA)

Introduction – cont-

- Under the MiDA programme, there were various capacity building programs for FBOs in order to modernize agriculture and increase farmer incomes
- Various innovations emerged from farmers and key stakeholders belonging to such FBOs
- Innovation can neither be defined as technology or science but the successful application of knowledge of varied kinds to achieve expected social and economic outcomes(Rajalahti et al., 2008)

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The AIS Approach

- Agricultural Innovation Systems (AIS) approach is considered as the outcome of the process of networking and interactive learning among heterogeneous set of actors such as farmers, input industries, processes, traders, researchers, extensionists, government official and civil society organisations (Leeuwis, 2004; Hall et al., 2006 and Röling, 2009)

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Justification for Study

- There is very little empirical research undertaken in the area of AIS in Ghana. This study proposes to ascertain whether large scale government programs encourages innovation among small holders or not

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Objectives

1. To establish the extent to which the MiDA program aligns with the AIS concept
2. To establish factors that affect farmers' innovation behavior and examine the role played by MiDA in the innovation system and processes.
3. To identify the types of innovations used by farmers and other stakeholders as a result of the MiDA programme and examine the extent to which such innovations has led to increases in output and income levels of MiDA farmers as opposed to non-MiDA farmers

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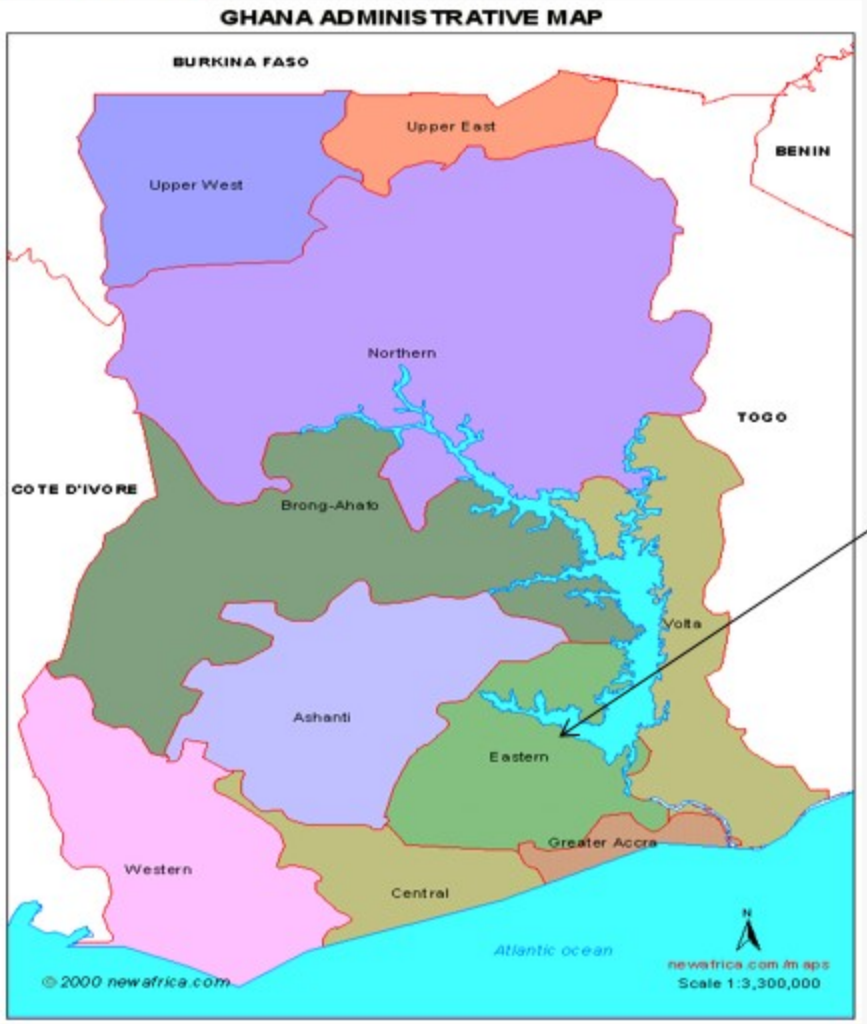
Research objective 2

- To establish factors that affect farmers innovation behavior and examine the role played by MiDA in the innovation systems and processes
  - How do farmers innovate?
  - What challenges do farmers face in innovating?
  - What extent do farmers innovate and use innovations?

Study Area



Akuapem South Municipal Assembly

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Methodology

- Mixed Methods
- Quantitative Approach
  - The use of a survey instrument (questionnaire)
- Qualitative Approach
  - The use of Focus Group Discussion (FGDs), Key Informant Interviews (KIIs)

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Sampling procedure and sample size

- Simple Random Sampling
- Purposive Sampling for selection of KIIs
- 115 MiDA FBO members for survey instrument
- 17 non-MiDA members for survey instrument
- 6 members each for 5 MiDA FBOs in FGDs. A total of 30 farmers in all
- 11 members in total for 2 non-MiDA FBOs in FGDs
- 20 KIIs

Socio-demographic Characte-ristics of non-MiDA FBOs

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Name of FBO	Number and compositio n of FBO	Educational Attainment	Age range (Years)
Oman Fruits and Vegetables Cooperative	6 members (4 males, 2 females)	MSLC, SSCE and no formal education	35 - 50
Enkakyi Cooperative	6 members (5 males, 1 female)	MSLC and no formal education	37 - 50

Socio-demographic charact-eristics of MiDA FBOs

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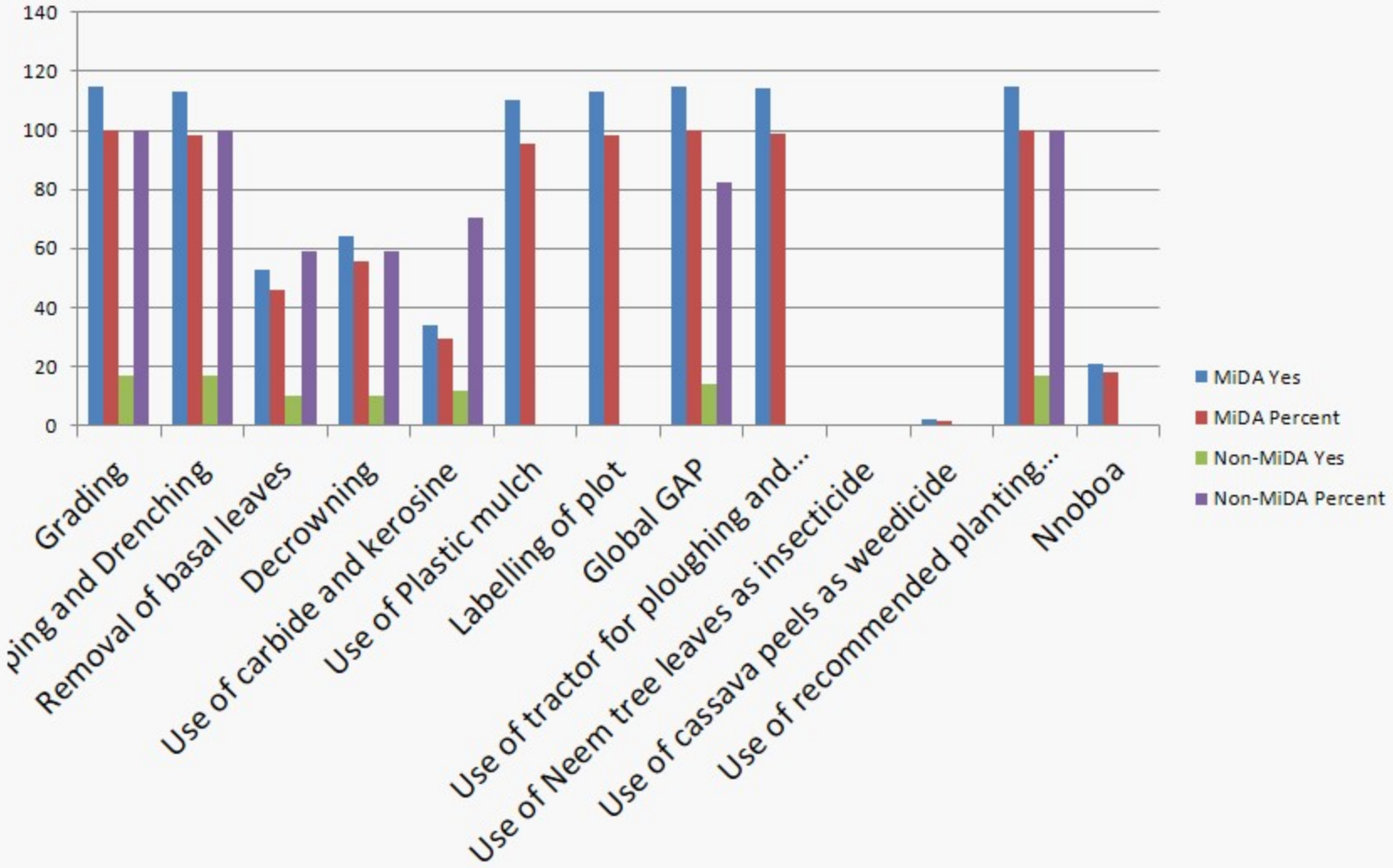
Name of FBO	Number and composition of group	Educational Attainment	Age range (Years)
Adonten Cooperative	6 members (4 males, 2 females)	MSLC	35 - 55
Pokrom Patriotic Cooperative	6 members (5 males, 1 female)	MSLC	35 - 50
Apesika Cooperative	6 members (4 males, 2 females)	MSLC and no formal education	30 - 50
Fotobi Cooperative pineapple Growers and marketing Society	6 members (5 males, 1 female)	MSLC and no formal education	35 - 45
Nsabah	6 members (5	MSLC and SSCE	35 - 50

Results

- How farmers innovate
  - Through trainings received by Ministry of Food and Agriculture (MoFA) and NGOs
  - Through experimentations
  - Through observation
  - Through discussions
  - Through accidental discoveries
  - Through big commercial farms

Bar Graph showing extent to which farmers innovate



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Effects of the MiDA Program

Positive Effects

- Better marketing i.e. through better bargaining, comparing inputs prices from different outlets before purchase, having a common price for fruits, having contractual agreements with exporters
- Diversification of farming business
- Use of farm tractor for harrowing and ploughing
- Use of plastic mulch and the MD2

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Effects of the MiDA Program – cont-

Negative Effects

- Higher expectation as a result of program hype by government.
- Few FBOs receiving credit from the MiDA program
- Deepening already existing negative farmer attitude about government programs.
- Group Formation.

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Challenge to Innovation

- The main challenge to innovation for both group of farmers is access to farm credit
- Adequate supply of needed agricultural input to facilitate innovation
- Inappropriate time for the disbursement of credit by financial institutions and program interventions.

Conclusion

- The main ways through which farmers innovate are through trainings received from MoFA and NGOs, experimentation, observation, discussions, through accidental discoveries, from big commercial farms
- The positive effects of the MiDA program were made manifest through better marketing, diversification of farming business, use of tractor for harrowing and ploughing, the use of MD2 variety as well as the plastic mulch
- The negative effects – Higher expectation on the part of major stakeholders, group composition, etc

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Thank You

PROVIDING USER PREFERRED INFORMATION RESOURCES FOR A NEW FACULTY OF AGRICULTURE

By

Chinwe V. Anunobi

&

Andrew U. Ogbonna

Paper presented at the 14th Annual IAALD World Congress , Ithaca New York USA

FOOD FOR THOUGHT
Information Professionals cannot rest until Right Information is Provided to the Right User

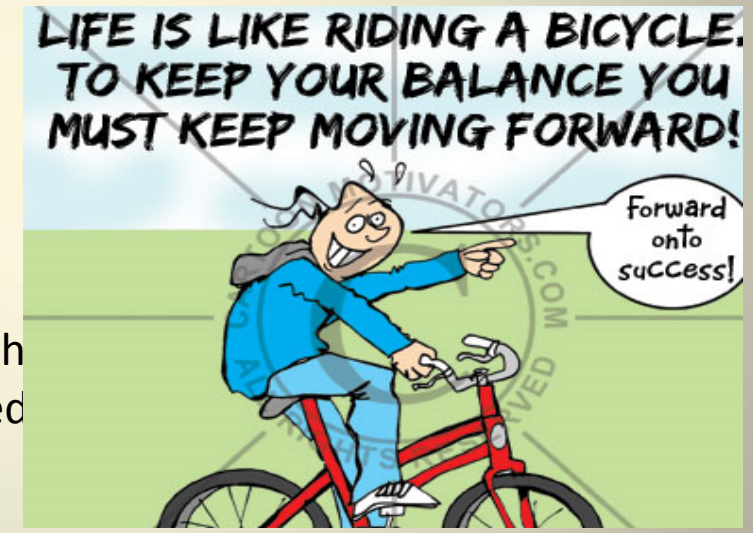
- It is not easy
- Why

» It is Inevitable

Persistently You Achieve

Outline

- **Who we are**
  - Nnamdi Azikiwe University Awka , Nigeria
  - Faculty of Education
- **What our university library does**
  - Traditional Operations & Services
  - Digital Access
  - Digital Asset: Repository
  - Social Media Service
- **The research**
  - Why the research
  - Who are the subjects of research
  - How was the research conducted
- **Results**
- **Conclusion**



Who we Are

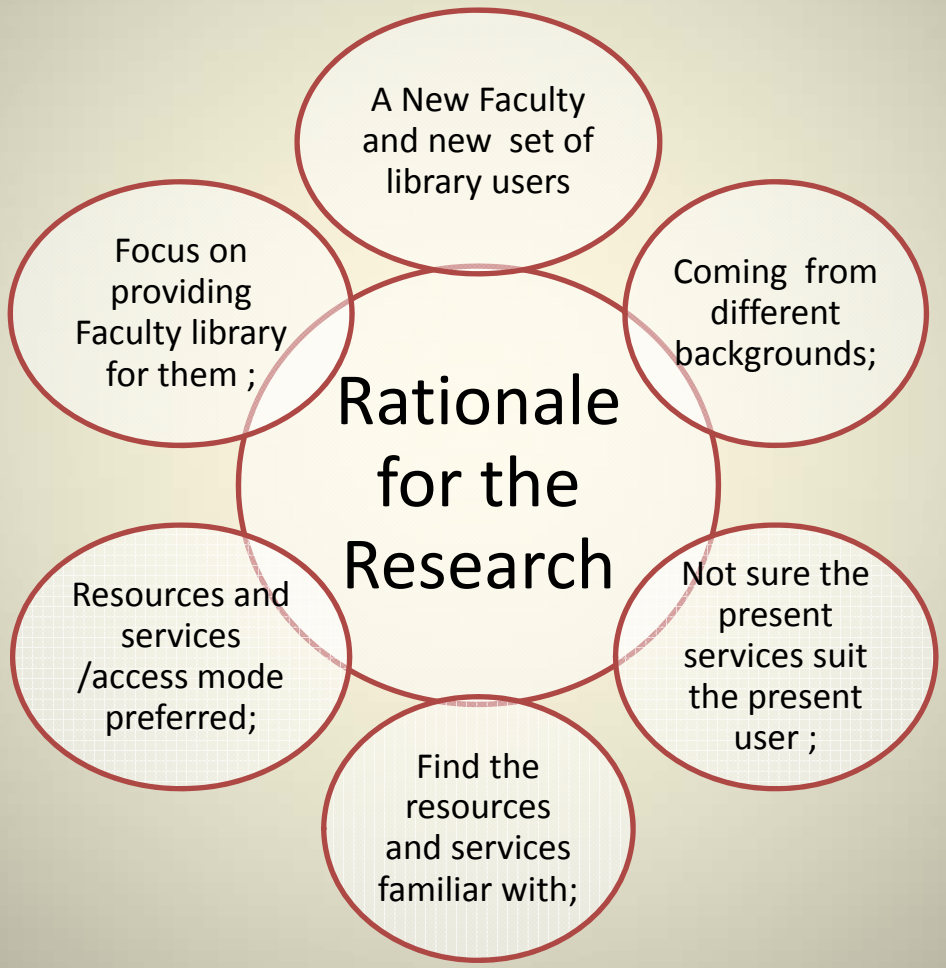
NNAMDI AZIKIWE UNIVERSITY AWKA NIGERIA

Who we are

FACULTY OF AGRICULTURE: Established: 2010

What Our University Library Does

The Research



The Research

- Who the Subjects are
  - Lecturers & Students of the Faculty

Table 1: Population & Sample

Department	Lecturers		Students	
	Population	Sample	Population	Sample
Agriculture Economics Extension	9	4	14	8
Animal Science & Technology	3	3	48	44
Crop Science & Technology	4	4	31	11
Fisheries& Aquaculture	2	2	36	30
Food Science & Technology	5	5	55	32
Wild Life & Forestry	2	2	9	5
Soil Science & Land Resources Management.	Yet to Start Academic Activities			
Total	**25**	**20**	**193**	**130**

The Research

- Dean Advised:
  - Use of quantitative research method
    - Questionnaire
      - Staff (1)
      - Students(2)
    - Focus
      - Resources Used
      - Services Used
      - Services Preferred
      - Mode of Access

Results
Library Used Before

- Majority of the students have used library before;
- Academic most used , Research/Special least used.
- Familiar with only the traditional print services through the library help desk
- Used Online TEEAL

Table 2: Library Used & Reason for Use.

Respondents	Category of Response	Items	Frequency	%
STUDENTS		Academic	90	69
n= 129		Public	20	15
	Library Used	Research /Special	5	3
		Traditional Services through Library Desk	14	70
STAFF				
n=20	Services Used	OPAC Services	0	0
		Internet Services	5	25
		Offline Databases (TEEAL)	10	50*** (Good signal)

Results:
Resources Previously used

Table 3: Resource Used By the Students and their Reasons for Use

Category	Items	Frequency n=129	%
Resources Used	Books	122	94
	Journals	88	68
	Magazines	74	57
	Newspapers	77	59
	Dictionaries/Encyclopedia	97	**75**
	Maps	55	42
	Photographs	35	27
	Slides	19	15
	CD-Rom	26	20
	Directories	33	25
	Calendars/Almanac	32	24
	E-books	47	36
	E-Journals	70	**54 ***(Good sign)**
Reason for Use	Carry out assignment	90	**69**
	Exam Revision	73	**56**
	Borrow Resources	56	43
	Read Magazines and Newspapers	45	35
	Leisure Reading	75	**58**

The **resources previously** used by students:

Traditional library resources: **journals, books** and other **reference** materials and **newspapers** .

Have used e-journals

Their major **reasons** for use:

Assignment;

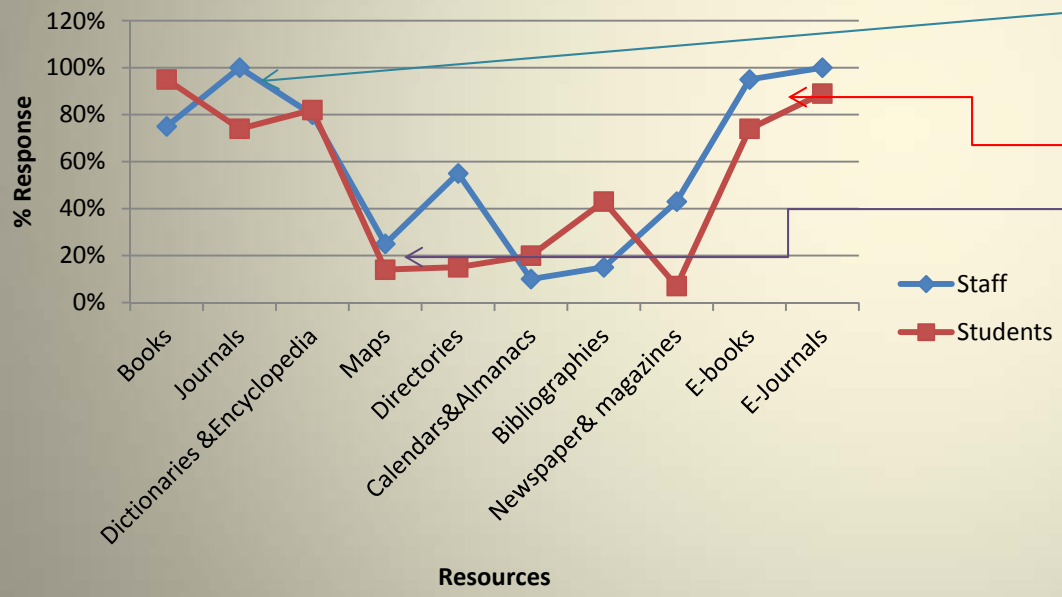
Examination ;

Leisure.

RESULTS
Resources Needed Presently

- **Preferred Resources**

Figure 1: Preferred Resources for Staff and Students' Academic Work



•The resources needed by both staff and students :

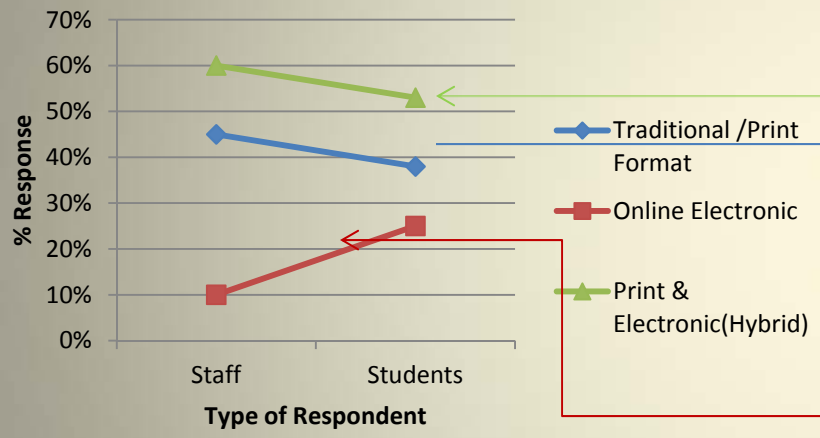
– Traditional library resources journals, books and other reference materials

–There is high interest in E-books & E-journals

–Maps &Directories not highly needed especially by students : Nigerians poor in geography

RESULT
Preferred Format

Figure 2: Resource Format Preference of Staff and Students



They preferred **hybrid format** (Print Electronic).

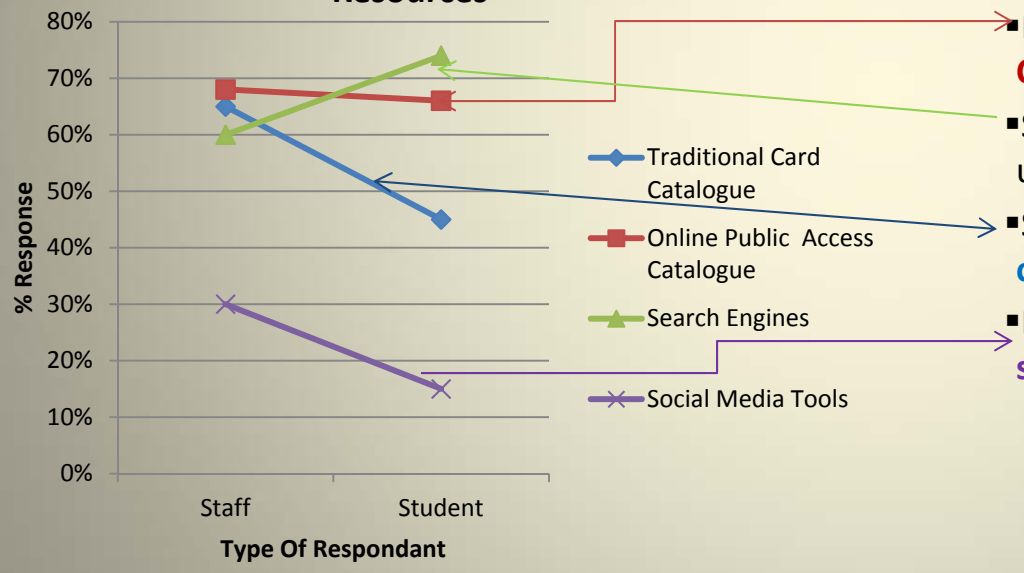
Then **Traditional print** ;

Online mostly by **students** ,their preference for print reducing.

Result
Preferred Access and Mode of Service

- Preferred Access and Mode of Service

Figure 3: Preferred Access Mode for Library Resources

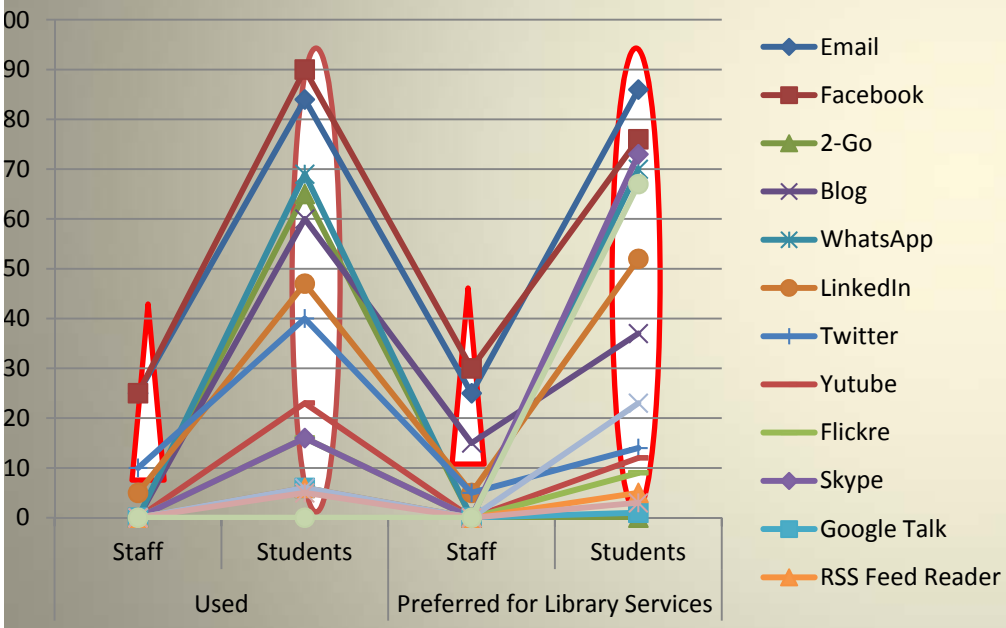


- Both groups prefer **Online Public Access Catalogue** for Information Services Delivery ;
- Students highly Prefer to access resources using **Search Engines** than staff;
- Staff are open to access through **traditional catalogue** than students ;and
- Both not very positive to **Social media tools service** access ..

Results
Preferred Social Media Tools Services

Despite low response for social media service s when compared to other mode of services

Figure4 : Social Media Tools used and Preferred for Library Services by Staff and Students of the Faculty



- **Majority of Staff & Students aware of** Social Media tools;
- **Few staff have put social media tools (**e-mail, facebook, linkedIn and twitter) **to use ;**
- **Reason for Non-use :** lack of knowledge and skill on how to ;
- **Majority of students use** e-mail, facebook, linkedIn, blog, what Apps and 2 – Go and prefer them for services ;
- **Not many of the staff could** indicate their preference since they have limited use of the social media;
- **Majority of staff and students who know** and use social media **prefer** it for library services because they are easily accessible and highly interactive

Conclusion & Implication

Library services will be effective and efficient when user needs are identified and services provided in the way and manner require

Members of the faculty can conveniently:	Members of Faculty Not very knowledgeable in use of electronic resources and Social Media Tools	Librarian Intending to provide them with effective Services should ensure that :
• use print library • will prefer hybrid services , • Need traditional library resources & , electronic resources . • Open to innovative social media services	• Lack of knowledge and skill will hinder acceptance of electronic and social media service	• Traditional resources must be provided for the faculty ; • Services /operation must be automated to provide remote access; • Social media tools driven services must be provided for ease of accessibility and interactivity • Training should be provided to members of the faculty on the use of the services(Information literacy).

THANK YOU FOR YOUR TIME

Chinwe & Andy

»Nigeria

An Analysis of Access to e-Agriculture in Papua New Guinea

Paper Presented at the XIVth World Congress
Emerging Priorities for Scientific & Agricultural Information
22-24 July 2013,
Cornell University, Ithaca, NY USA

Seniorl Anzu – PNG NARI

Outline

1. General – PNG and Agriculture
2. Definition of e-Agriculture
3. Theoretical Framework
4. Participating organizations
5. Use of ICTs
6. Accessibility to e-Agriculture
7. Challenges & Constraints
8. Recommendations for Improvement
9. Opportunities for future development

South Pacific Ocean
INDONESIA
Admiralty Is.
Lorengau
New Hanover
Kavieng
Vanimo
Aitape
Bismarck Sea
New Ireland
Solomon Is.
Wewak
Angoram
Bismarck Arch.
Rabaul
Namatanai
Sepik
Kokopo
Ramu
Madang
Buka I.
BISMARCK RANGE
Wabag
Kimbe
Mount Hagen
Mt. Wilhelm
New Britain
Kundiawa
Arawa
New Guinea
Mendi
Goroka
Lae
Vitiaz Strait
Bougainville I.
Purari
Huon Gulf
Strickland
Bulolo
Solomon Sea
Kerema
Morobe
Fly
Gulf of Papua
Trobriand Is.
Buna
Popondetta
Daru
Muyua I.
PORT MORESBY
OWEN STANLEY RANGE
D'Entrecasteaux Is.
Torres Strait
Alotau
Milne Bay
Louisiade Arch.
PAPUA NEW GUINEA
Coral Sea
AUSTRALIA

PNG General

- PNG is eastern half of the island of New Guinea
- Some 600 islands and atolls
- Land area: approx 460,000 km² (27% inhabited)
- Population: 7 million
- Language: English, PNG Pidgin, >800 languages
- Climate: tropical monsoonal (hot and humid) with wet and dry seasons
- Natural resources: timber, marine, oil, copper and gold

Agriculture in PNG

- Agriculture-based country with over 80% population depending on agriculture for their daily livelihoods
- Economy highly dependent of manufactured imports
- Important food crops are sweet potato, banana, sago, taro, Chinese taro, yams and cassava
- Cash crops coffee, cocoa, copra, palm oil, fresh vegetables and betel nut
- Agriculture contributes 26% to the national GDP

What is e-Agriculture ?

“e-Agriculture” is an emerging field in the intersection of agricultural informatics, agricultural development and entrepreneurship, referring to agricultural services, technology dissemination, and information delivered or enhanced through the Internet and related technologies.

More specifically, it involves the conceptualization, design, development, evaluation and application of new (innovative) ways to use existing or emerging information and communication technologies (ICTs).

Theoretical Framework

Objectives:

1.To assess the accessibility to e-agriculture resources by PNG agricultural practioners and institutions,
2.To evaluate the extent of use of web-based and electronic information resources, databases and information systems in PNG agricultural research and development,
3.To identify constraints, challenges and opportunities in accessing e-agriculture resources in PNG, and
4.To establish baseline information on ICT and agriculture in PNG and provide recommendation for new innovations.

Participating Organisations

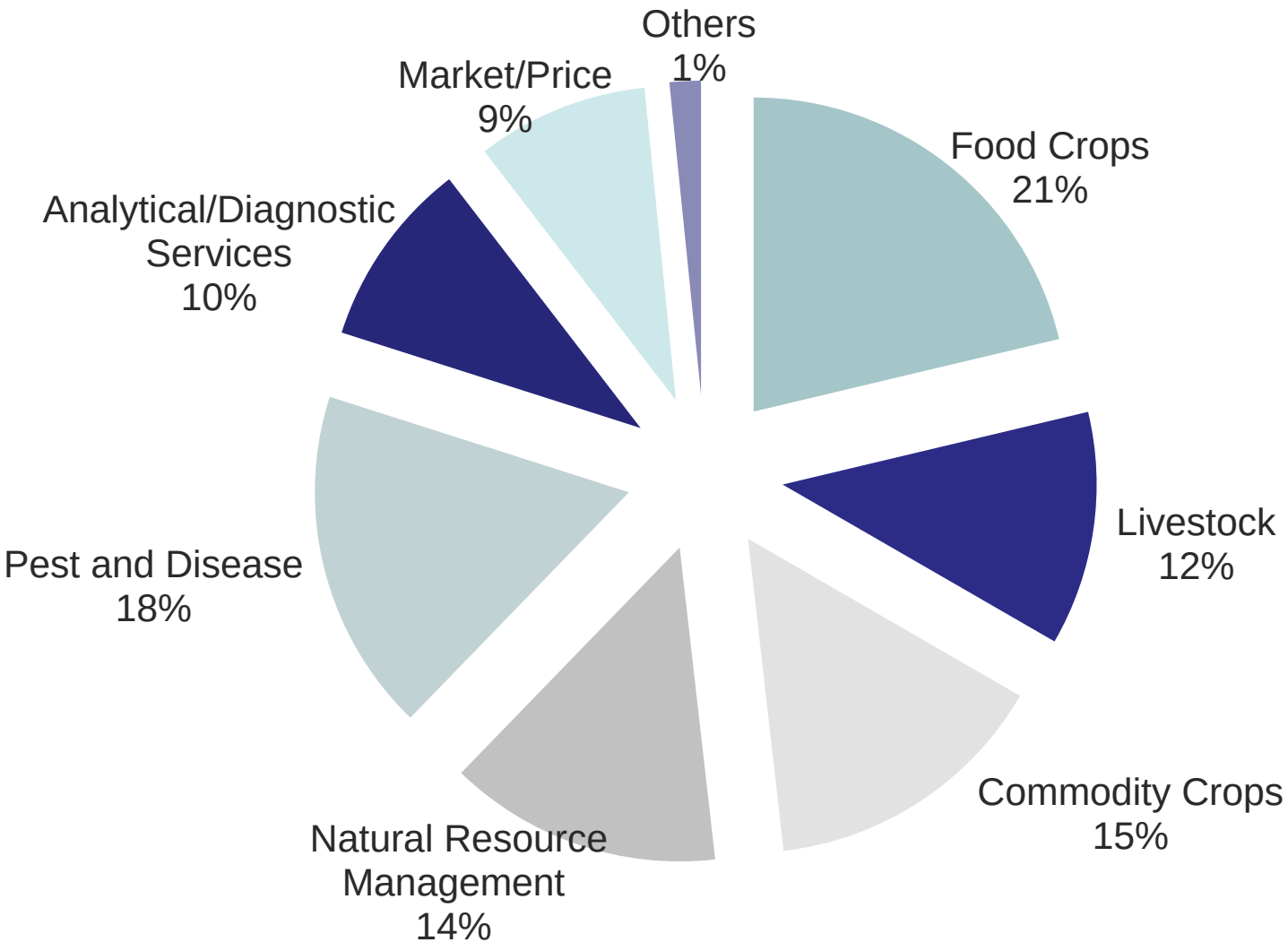
- Department of Agriculture and Livestock
- National Agricultural Research Institute
- Coffee Industry Corporation
- Cocoa Coconut Institute
- Fresh Produce Development Agency
- Oil Palm Research Association
- New Britain Palm Oil Limited
- Ramu Agri-Industries
- PNG University of Technology
- University of Natural Resources and Environment
- Cocoa Board
- Oil Palm Industry Corporation

Use of ICTs

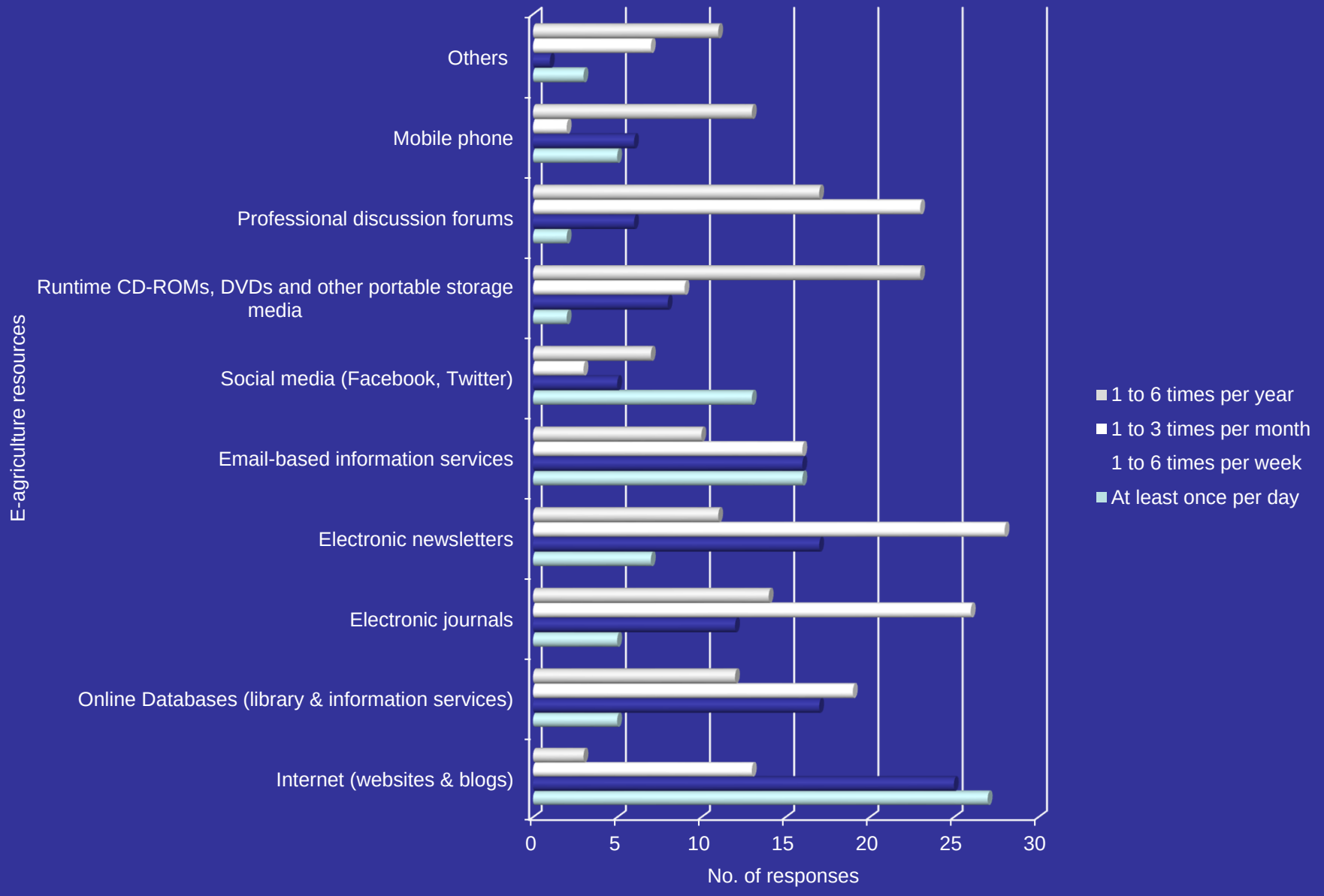
E-agriculture resources used in accessing information preferences

Information preferences	Email subscriptions /contacts	Internet (eg. websites, blogs)	Online databases (eg. library & information systems)	Portable storages (eg. CD-ROMs, DVDs)	Professional discussion forums	Social media (eg. Facebook, Twitter)	Mobile Phone	Other (please specify)
Food Crops	40	55	39	28	23	6	6	1
Livestock	23	36	28	18	13	3	1	1
Commodity Crops	28	40	25	15	12	2	5	
Natural Resource Management	28	51	31	21	14	4	2	
Pest and Disease	29	52	26	20	19	2	4	1
Analytical/Diagnostic Services	19	36	16	10	12	2	2	1
Market/price	15	24	11	3	6	1	7	0
Others	9	13	7	4	3	0	1	0
Total Responses	191	307	183	119	102	20	28	4

Accessibility to Information Preferences



Frequency of Access to e-Agri



Length of e-Agriculture Use

E-agriculture resources	Just started in the last month	For the last 6 months	For the last 12 months	For the last 5 years	For more than 5 years
Internet	2	3	14	31	21
Online Databases		5	13	18	18
Electronic journals		6	13	26	13
Electronic newsletters	2	3	12	29	12
Email services	2	5	11	24	17
Social media	4	4	12	7	3
Portable devices (CD/DVD)	2	1	8	13	18
Discussion forums		4	16	14	11
Mobile phones	6	2	8	6	4
Others	1	1	5	6	4

Level of Confidence

Confidence level		**%**
Very well		26.5
Well		33.8
Reasonable		33.8
Poor		4.4
Very Poor		1.5
		100

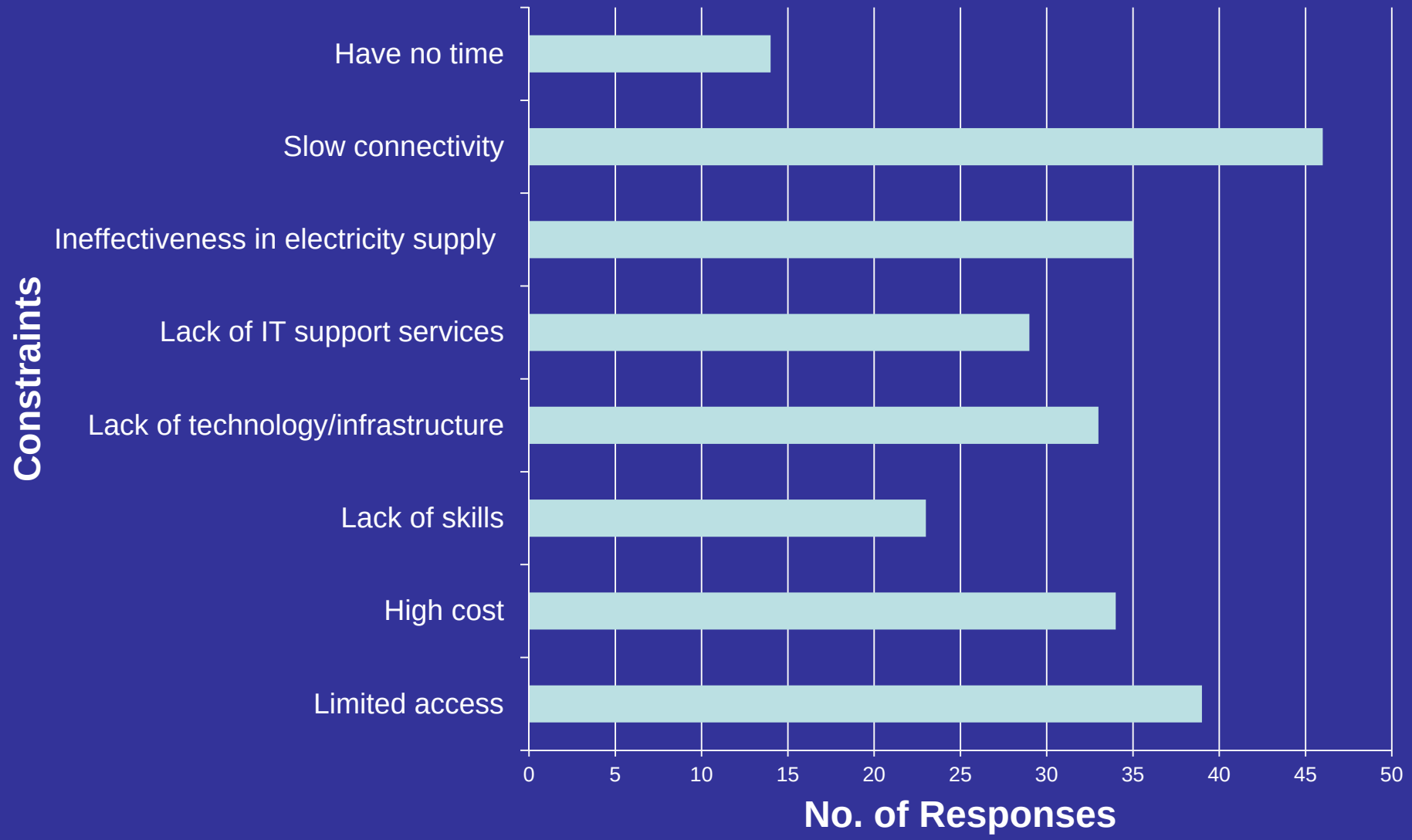
Areas in which data and information acquired through e-agriculture were USED

Area of e-agriculture use	%
Policy	8.8
Planning	18
Teaching	8.3
Research	28.1
Advisory	14.5
Extension & communication	21.5
Others	0.9
	100

Major e-Agriculture resources Accessed

- **Digital library collection**
  - AGORA, TEEAL, MAIS
- **Online Publishers/Journals**
  - Springer, RESOURCE, Landwards, GRAINS
- **Other Communications**
  - PNGRIS, Various Websites, E-mails, Newsletters, Public Ledger, Online Forums, CD-ROMs/DVDs

Major Constraints in Accessing e-Agr



Suggestions for Improvement to e-Agriculture Access in PNG

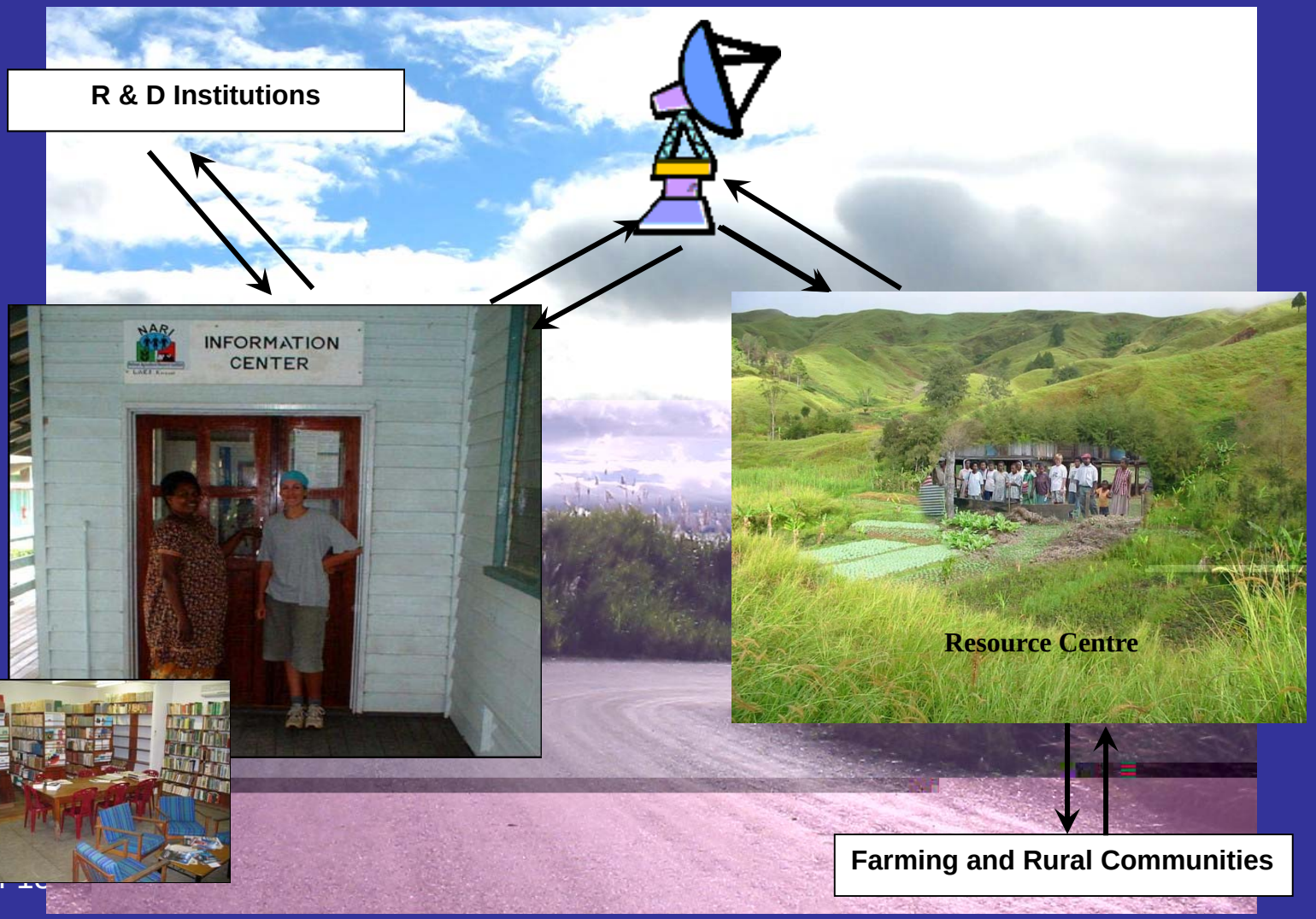
- Subscription to online resources
- Infrastructure, technology and connectivity
- Flexibility in Access to e-Agriculture
- Training, awareness and communication
- Investment
- Cost reduction
- Electricity supply
- Collaboration and partnership

Opportunities for Greater Access and Development

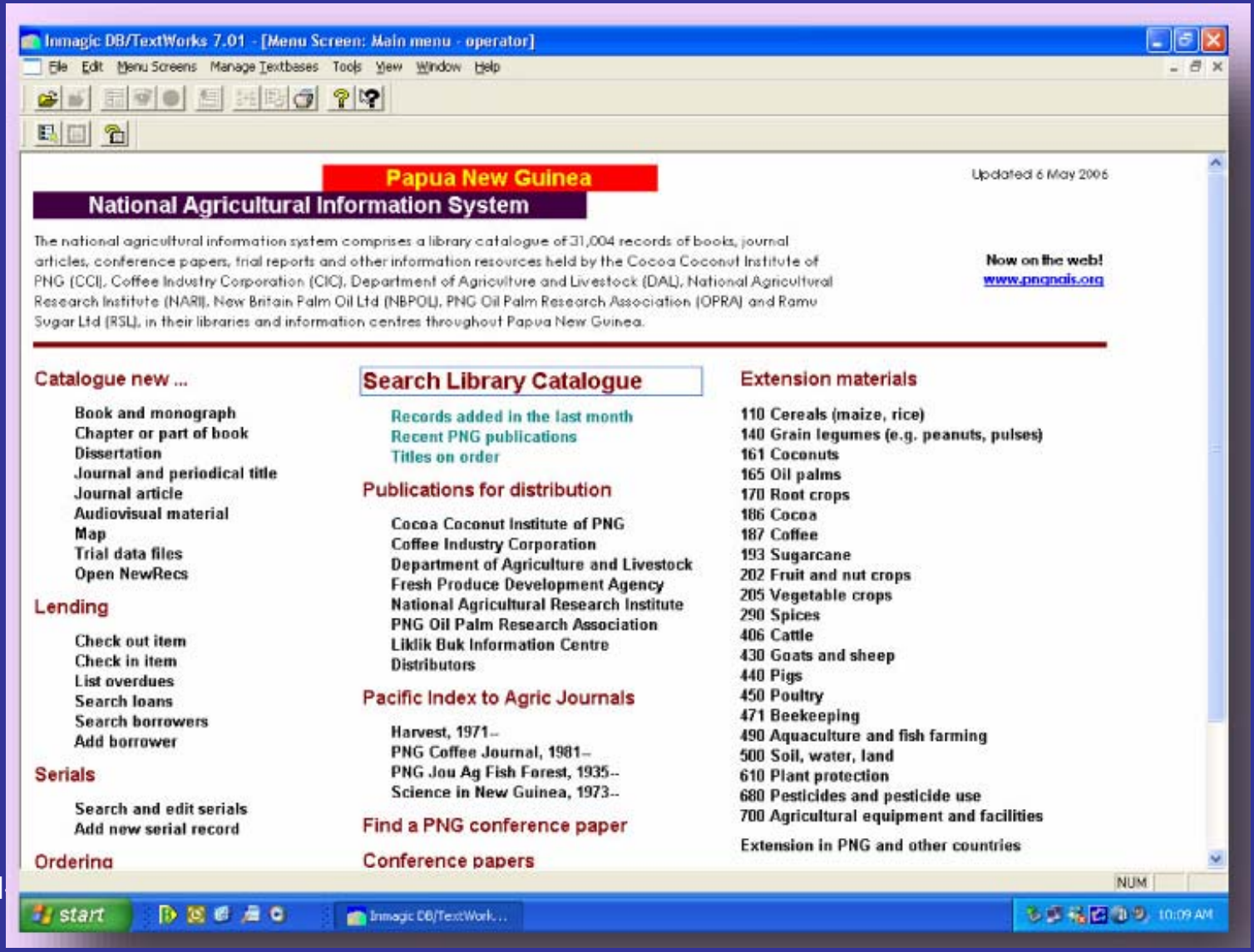
- **Telecommunication Industry Act 2002**
- **2009 National ICT Policy**
- **Private Sector-led Open market competition**
- **Social Networking and Collaboration**
- **NADP - National Agricultural Development Plan**
- **Strategy and Results Framework**
- **Communication Strategies**
- **Global Initiatives**
- **Opportunities in Shared Community Knowledge Systems**

Shared Knowledge System

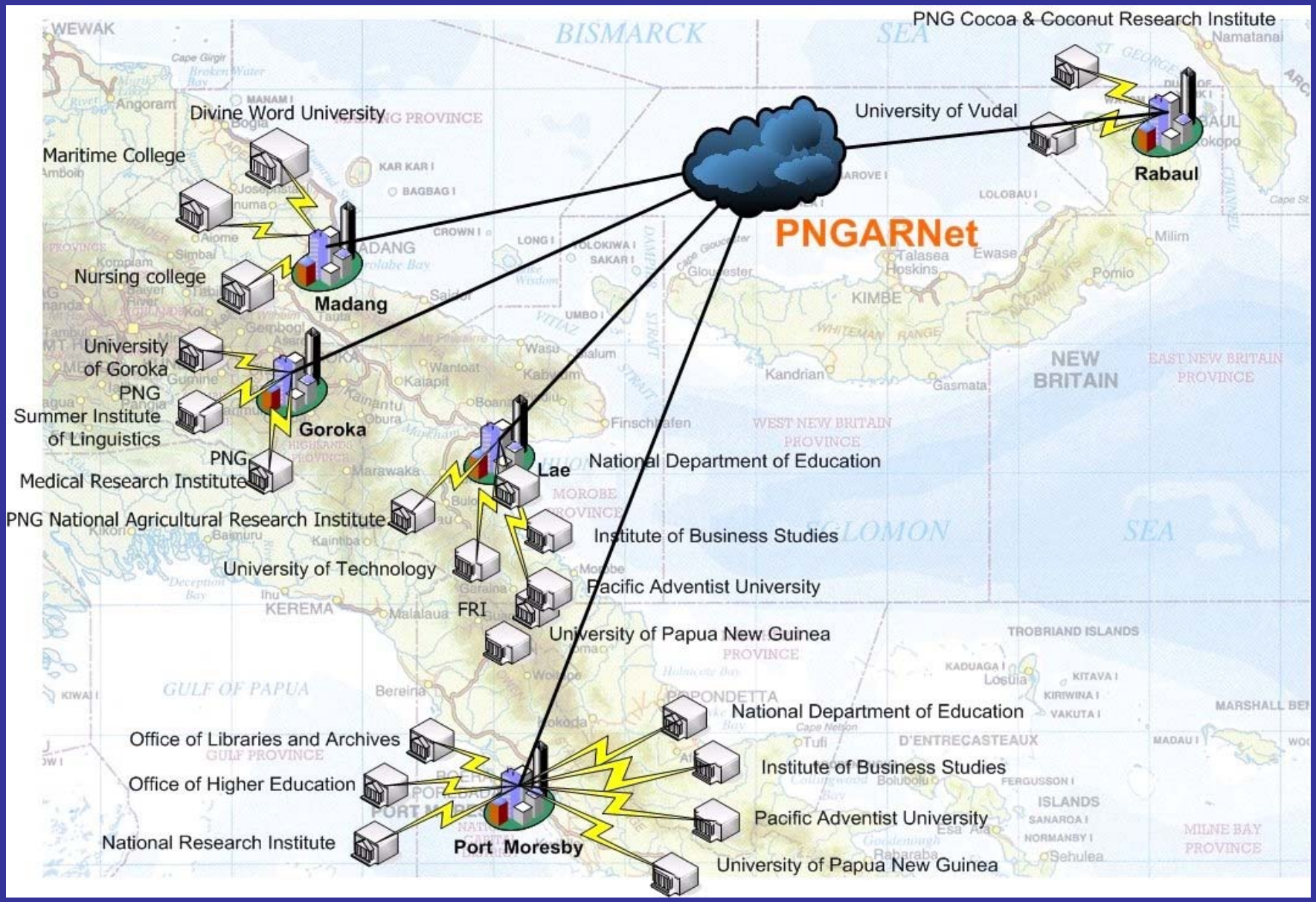
Linking Existing Information Centres to Resource Centres in Remote Areas



From NAIS to MAIS



PNGARNet


PNG Cocoa & Coconut Research Institute
University of Vudal
Rabaul
PNGARNet
Divine Word University
Maritime College
Nursing college
Madang
University of Goroka
PNG Summer Institute of Linguistics
Goroka
PNG Medical Research Institute
PNG National Agricultural Research Institute
Lae
National Department of Education
Institute of Business Studies
University of Technology
Pacific Adventist University
FRI
University of Papua New Guinea
National Department of Education
Office of Libraries and Archives
Institute of Business Studies
Office of Higher Education
Pacific Adventist University
National Research Institute
Port Moresby
University of Papua New Guinea
BISMARCK SEA
NEW BRITAIN
SOLOMON SEA
GULF OF PAPUA
WEWAK
KIMBE
KEREMA
TROBRIAND ISLANDS
D'ENTRECASTEAUX ISLANDS

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IAALD/2013

International Association of Agricultural Information Specialists

World Congress

Diffusion of Scientific Knowledge in Agriculture: The Case for Africa

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Cornell University

Who we are?

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Agenda

- Introduction
- Related Work
- Methods
- Results & Discussion
- Conclusion

Introduction

- In 2012, Sub-Saharan Africa is the region with the second fastest-growing economy in the world
- There are improvements in food security thanks to a number of initiatives by governments and NGOs
- The role of scientific knowledge and innovation capacity cannot be overstated

Introduction…

- However:
  - Almost 50% of the World's population depend on agriculture (FAO, 2013a)
  - Agriculture is the mainstay of the economies of most African countries (Adekunle et al., 2012; FAO, 2012; Webersik & Wilson, 2009)
  - Climate change is affecting agricultural production and the continent's economy (Sayeh, 2013)

Introduction…

- To sustain the economic growth in Africa:
  - There should be continued investment in innovations and research or knowledge creation
  - Communication and translation/diffusion of the innovations and knowledge to practice is also crucial
  - For this, partnerships among researchers, extension agents, farmers, traders, policy makers, non-governmental organizations (NGOs), and those in industry and manufacturing are necessary

Introduction…

- Currently:
  - existing scholarly communication is largely among researchers and scientists
  - the research-to-application or knowledge-to-decision pathway tends to be linear
  - findings and ideas flow from the research community to the agricultural community via intermediaries such as extension agents
  - when implemented properly, extension programs produce positive impacts in diffusion of agricultural knowledge

Introduction…

- The communication and interaction between agricultural research communities, extension services, and farmers in Africa need re-conceptualizing to facilitate effective diffusion of knowledge and innovation
- Knowledge diffusion frameworks need to factor-in the existing local or indigenous knowledge
- There is need for embedding indigenous knowledge with scientific knowledge to achieve better results
- Knowledge diffusion, as opposed to knowledge transfer, is multidirectional

Introduction…

- In this paper, we focus on the diffusion of scientific knowledge from the research and scientific community to the farmer as the end-user
- Specifically, we focus on exploring translational research (TR) as a model/strategy to effectively communicate research findings from the scientific and research community to the farming community
- Translational research has gained wider recognition in medicine and clinical settings as a strategy to benefit patients

Introduction…

- First, we review the nature of existing agricultural extension services throughout sub Saharan Africa (SSA)
- We then propose a working knowledge diffusion model that has translational research practice at its core
- In the proposed framework:
  1. an extension service system engages farmers to understand their needs, concerns, and priorities
  2. in addition to well utilized channels, will include recent advances in social communication tools and mobile technologies
  3. we conceptualize the role of the extension agent as a knowledge broker; and, most importantly
  4. an extension service system that bridges the knowledge-to-action gap

Introduction…

- More specifically, we aim to find answers to the following three questions:
  - What best practices exist to build partnerships between researchers, their institutions, and practice constituencies in the agricultural sector in Africa?
  - To what extent can translational research augment existing agricultural knowledge diffusion and extension service in sub Saharan Africa?
  - What is the potential of ICT in extension services, learning, and knowledge diffusion efforts in sub Saharan Africa's agricultural practices?

Related Work

Knowledge Diffusion & Innovation Adoption models

- In SSA context, it is traditional government led extension service programs (see, for example, Davis, 2008).
- More recently focus has shifted to - national innovation systems approach – as a new paradigm based on multi-stakeholder, bidirectional, participatory, and collaborative approaches (Ayele, Duncan, Larbi, & Khanh, 2012; Edquist, 1997; Nelson, 1993).

Related Work…

- More models
  - scientific and technological capacity building (Ayele & Wield, 2005; Hall, 2005);
  - knowledge networks and social learning (Ingram, 2010);
  - peer-to-peer learning among equals (Topping, 2005);
  - change agent approach (van den Ban & Hawkins, 1996), and
  - learning networks (Riddell, 2001)

Related Work…

- Channels employed are equally diverse, e.g.
  - one-on-one meetings,
  - demonstrations,
  - community radio,
  - farmer field schools,
  - training, and visits

  - (Davis, 2008; Manning, 2013).

Related Work…

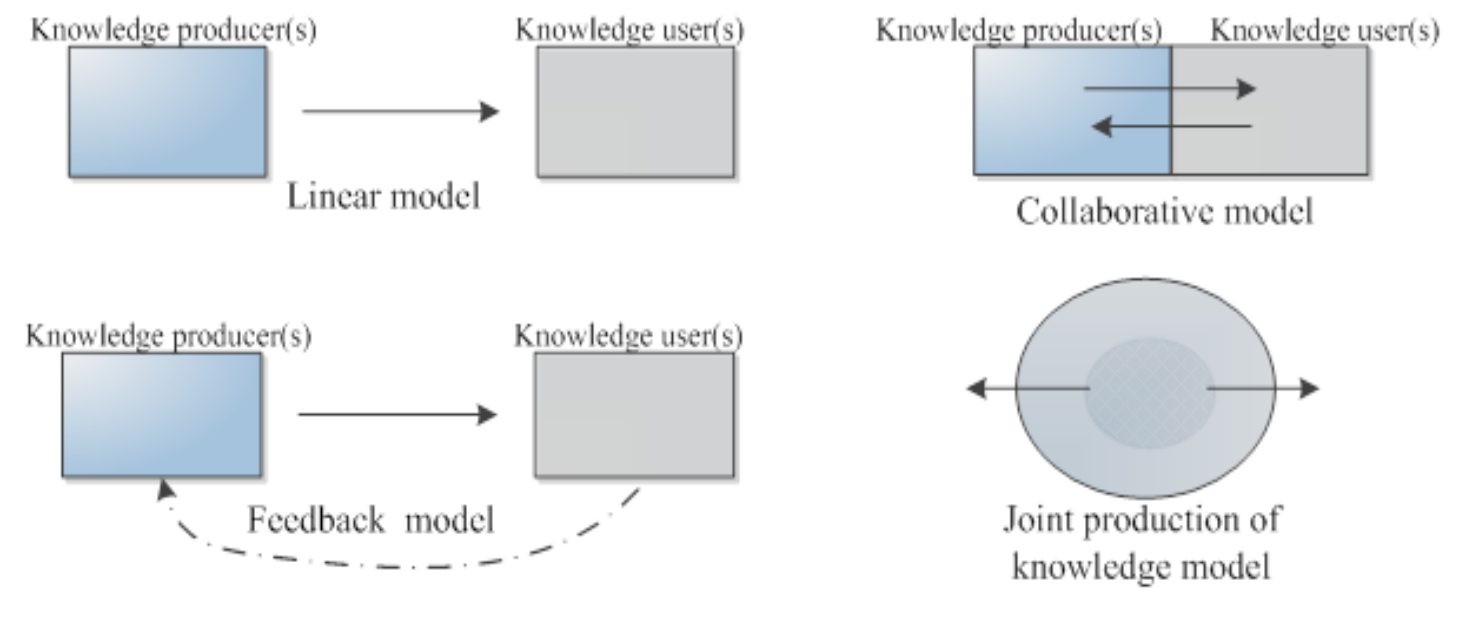
- Face-to-face interactions are found to be significant modes of knowledge exchange (RAND Corporation, 2011).
- Knowledge diffusion in agriculture also includes discussions about Indigenous knowledge (IK).
- Although IK is internal, tacit, unsystematic, and derived from local experiences, it is is the primary resource and social capital that shapes how local farmers engage with the natural environment and develop problem-solving strategies (Lwoga, Ngulube, & Stilwell, 2011)

Related Work…

- Because of the importance of IK, knowledge diffusion activity needs to start with the community's knowledge base (Johnson & Segura-Bonilla, 2001).
- The rate of adoption, the speed with which new ideas and innovation are embraced by individuals and groups, is predicated by five factors - (1) relative advantage, (2) compatibility, (3) level of competency, (4) trialability, and (5) observability - Rogers (1995).

Related Work…

- In general, the following four knowledge transfer/exchange models were identified, adapted from (Rural Economy and Land Use [RELU], 2007)



Related Work…

Extension Service and Knowledge Diffusion

- The current state of knowledge diffusion in Africa (especially in SSA) is dominated by extension service that is largely coordinated by the ministry of agriculture (and their equivalent institutions) in respective countries
- Extension service is often characterized as the conduit between the research community and the farmer (Marsh, Pannell, & Lindner, 2000).
- Extension service plays a significant role in introducing new ideas and innovations to the farmer during initial stages of adoption (Marsh, Pannell, & Lindner, 2000).

Related Work…

- Extension agents as
  - process-facilitating role (Manning, 2013).
  - opinion leaders (Rogers, 1995, p.27)
- A detailed discussion of extension approaches (guiding the structure, leadership, program, resources), models (schematic account of the system), and methods (such as visits, demonstrations) is given in Ponniah, Puskur, Workneh and Hoekstra (2008).

Related Work…

Translation science/research

- RAND Corporation Europe (2011) defines translational research as:
- “the new scientific methods and technologies, interdisciplinary approaches, and collaborative institutional arrangements being developed to narrow the gap between basic science and its application to product and process innovation.”

Related Work…

- As the evidence-based medicine (EBM) practice gained momentum, the knowledge-to-action (KTA) or the engagement paradigm became more significant in healthcare.
- The framework that is often cited to overcome the limitations of existing knowledge communication in healthcare is the integrated knowledge translation approach, one that engages knowledge users as partners in the research process (Bowen & Graham, 2013; Cargo & Mercer, 2008).

Related Work…

- RAND Corporation in Europe (2011) produced a comprehensive report to promote translational research and knowledge exchange in the U.K. agricultural sector, using wheat production as a test case.
- The report lists the following enablers of translational research and knowledge exchange:
  - Targeting end-user
  - Involving key actors
  - Multi-disciplinarity
  - Fora to facilitate knowledge exchange and translational research
  - Policy, legislation, and regulation
  - Availability of funding for translational research

Related Work…

ICT and Agricultural Knowledge Diffusion in SSA

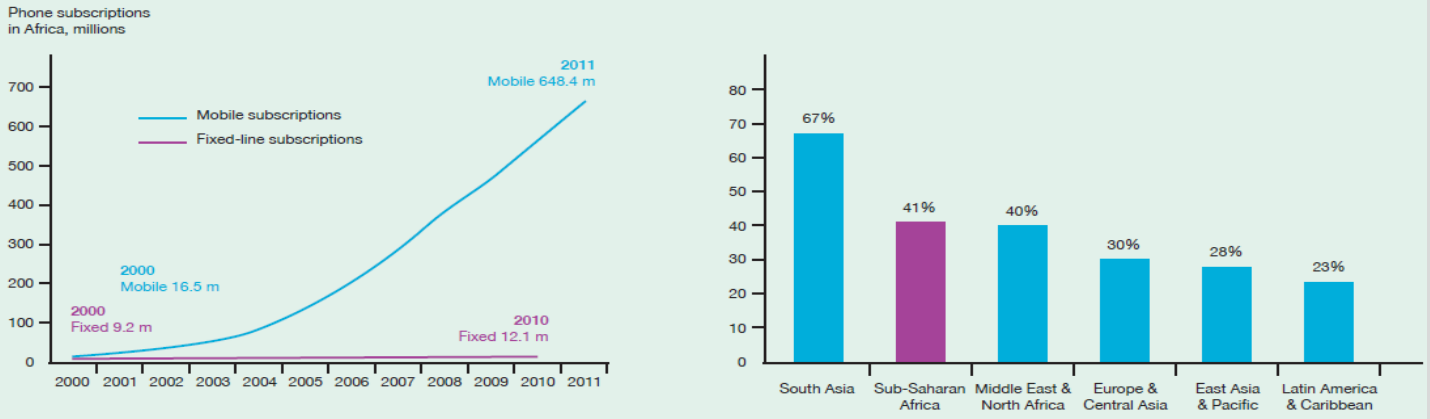
- Under the umbrella name "ICT for development, ICT4D," information and communication technology is increasingly used for development activities, including in agriculture sector in Africa.
- For example:
  - the World Bank is funding a program called "infoDev,"
  - the use of an e-voucher system in Zimbabwe;
  - electronic wallets in Nigeria where farmers receive fertilizer and seed support through their mobile phone; or
  - a similar mobile app called 'iCow' that allows dairy farmers in Kenya to track the gestation periods and progress of their cows
  - (Ventures Africa, 2013).

Related Work…

- Information and communication technology (ICT) has the potential to play a significant role in the agricultural innovation effort in Africa

Figure 1.2 **Africa's mobile revolution**

Mobile phone and fixed line subscriptions in Africa, 2000–2011 (left chart) and average mobile growth rates by region (right chart).



Source: World Bank, Wireless Intelligence and ITU.
Note: Regions in the right chart include developing countries only.

Methods

- Exploratory study
- We reviewed relevant literature from sources such as:
- AGRICOLA, web of science (WOS) and Science Direct databases , and
- And Websites of appropriate regional and international organizations such as:
- Forum for Agricultural Research in Africa (FARA), Consultative Group on International Agricultural Research (CGIAR), Food and Agricultural Organization (FAO), etc.

Results and Discussion

Best Practices for Scientific Knowledge Diffusion– in SSA Agriculture

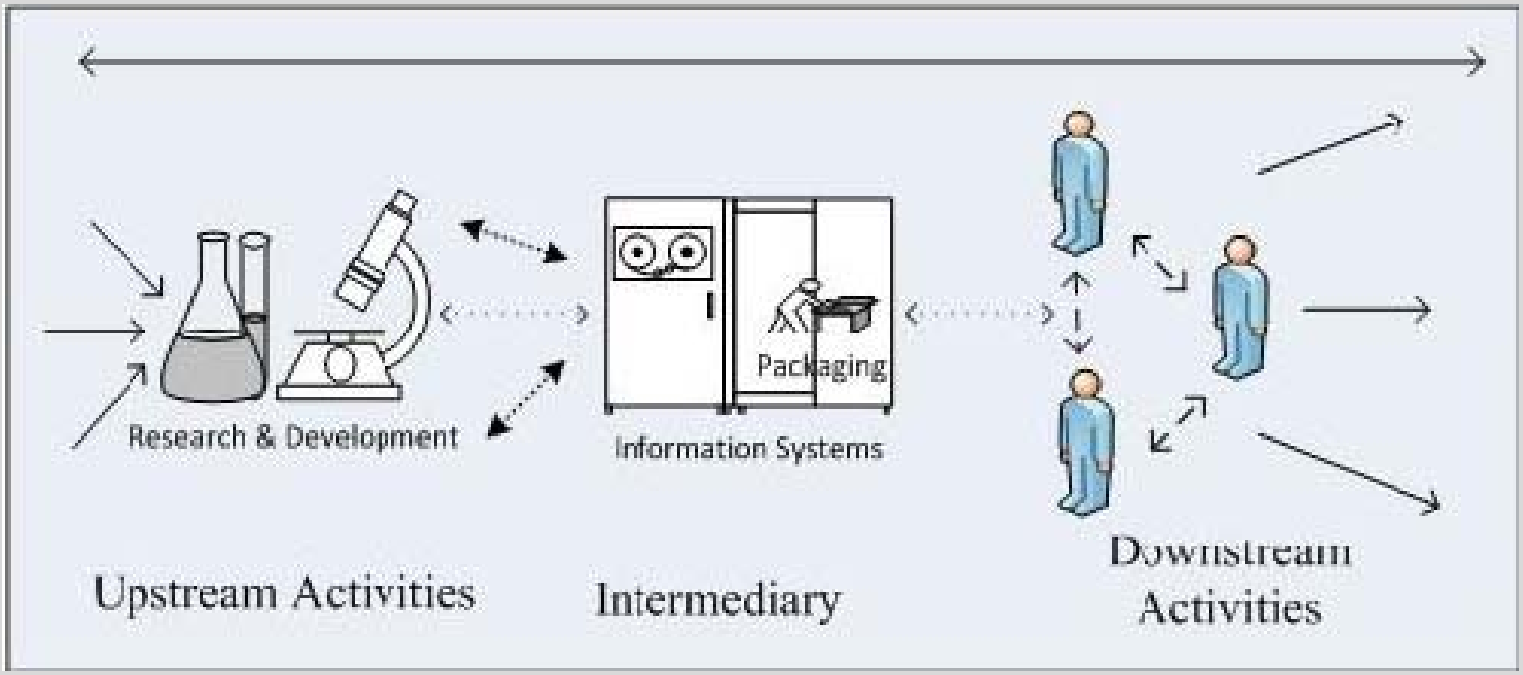
- The current understanding and best practices in scientific knowledge diffusion in agricultural practices demand:
  - a multi-stakeholder, multi-disciplinary, public-private-NGO partnership, and integrated framework (Adekunle et al., 2012; FARA, CGIAR Science Council, 2007).

Results and Discussion…

- Best practices demand:
  - participatory, peer-to-peer, and collaborative communication, knowledge diffusion and/or knowledge exchange.
  - seek feedback NOT about the outcome, but on the process (RELU, 2007).
  - effective utilization of knowledge that involves activities in knowledge synthesis, translation, and integration.

Results and Discussion…

- This is our depiction of the best practices (at a more abstract level):



Results and Discussion…

Extension Service in SSA Agriculture

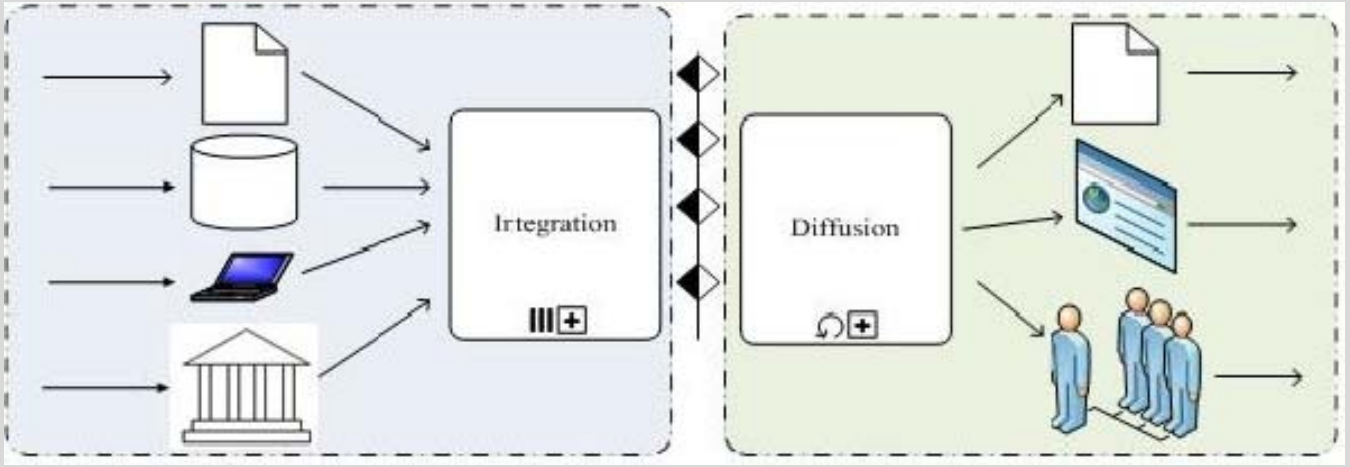
- The extension model in SSA is predominantly linear, hierarchical, centralized, poorly funded, and government led.
- Both the problem and the solution to the existing extension model is widely documented in the extant literature
- The limitation (Bembridge, 1987; Linder & Dolly, 2012; Marsh, Pannell, & Lindner, 2004)
- Suggestions to overcome the bottlenecks were also suggested (DFID, 2013; Linder & Dolly, 2012).

Results and Discussion…

- We observe that there are a multitude of initiatives and practices that are happening in SSA countries
- Example:
  - farm input promotions (Africa);
  - Learning, Innovation, Knowledge (LINK);
  - national innovation councils in the SIX CPA countries;
  - partnership for agricultural innovation and development (Sierra Leone);
  - national agricultural research system (Nigeria);
  - crop intensification program (Rwanda); etc.

Results and Discussion…

- Now, integration of efforts at national and regional levels is critical.
- We argue that integration is a necessary condition for knowledge diffusion – and here is how we conceptualize the process



Results and Discussion…

- In general the major findings in extension service related to best practices and contemporary understanding include the following:
  - Instead of the public and government controlled extension services, the national innovation systems approach is gaining more foothold (Adekunle et al., 2012; Ayele et al., 2012; Hall, 2005; Johnson & Segura-Bonilla, 2001; Ponniah et al., 2008).
  - The significance of public private partnerships, integrated knowledge exchanges that engage multi-stakeholder and multi-disciplinary actors are emphasized across the board (Marsh et al., 2000; Delmer, 2005).
  - Training and visit (T&V), farm field schools (FFS) focused on training, mentoring, and education are preferred methods of contacts to reach farmers (Blanckenburg, 1982; Davis, 2008; Manning, 2013).

Results and Discussion…

- In general…
  - Extension needs to be designed with the farmer but not for the farmer – requiring participation in both research and extension, including the use of technological solutions (Bembridge, 1987; Blanckenburg, 1982).
  - When national and regional level knowledge networks and extension services are built - country, culture and politics-specific situational factors need to be taken into account. (Davis, 2008; DFID, 2012; Linder & Dolly, 2012; Ponniah et al., 2008).
  - Extension agents/professionals are considered knowledge brokers, linking farmers and researchers and when designed properly extension services played a positive role (Marsh et al, 2000; Marsh et al., 2004; RELU, 2007).

Results and Discussion…

- In general …
  - Educational function of the extension service should be given more priority (Blanckenburg , 1982; Navarro, 2006).
  - One-on-one consultation, coaching, group advice, peer-to-peer learning, face-to-face extension, learning networks, and the use of community radio are found to be relevant and appropriate methods of contacts (Lwoga, 2010; RAND Corporation, 2011; Riddell, 2001; Scarborough et al., 1997; Topping, 2005).

Results and Discussion…

Translational Research

- How do we augment existing knowledge diffusion model from lessons in translational research in healthcare.
- The role of translational science for agriculture is already considered by few studies, especially in biotechnology, genomics, and plant biology (Delmer, 2005; RAND Corporation, 2011; Reynolds & Tuberosa, 2008).

Results and Discussion…

- The relevance of incorporating translational research in the overall knowledge diffusion activity in agriculture can be seen from the perspective of ***bridging the gap*** and ***speeding the diffusion***, ***use***, and ***impact*** of scientific knowledge in the entire agricultural value chain.
- Delmer's (2005) testimony from her personal experience in academia and food security at the Rockefeller Foundation is quite telling: " …there exists a high degree of disconnect between those who work at the lab bench and those who work in the field."

Results and Discussion…

- Translational research in healthcare offers significant insights into agricultural practices in various ways:
  (1) offers a methodological approach to translate knowledge and findings from research to application so it can be readily used by the intended audience, the end-users,
  (2) offers an awareness across the agricultural value chain on how to package and re-package knowledge, and
  (3) offers an opportunity for training in translational research methods for agricultural scientists and extension agents.

  - (CIHR, 2004; Davis, Jadad, & Perrier , 2003; RAND Corporation, 2011).

Results and Discussion…

ICT and Knowledge Diffusion in African Agriculture

- The potential of ICT for development activities, including agriculture, indeed exist in SSA
  - Over 650 million mobile phone subscribers
  - some 676,739 km of fibre-optic backbone infrastructure under sea and inland in an effort to connect the entire continent .

Results and Discussion…

- Major findings regarding effective diffusion and utilization of research knowledge include:
  (1) engage knowledge users in prioritization, definition, interpretation, and application of research
  (2) the significance of starting with indigenous knowledge,
  (3) the critical role of packaging and re-packaging new ideas, findings, and innovation to produce readily-usable guidelines and manuals (knowledge synthesis),

Results and Discussion…

- Effective diffusion …

  (4) the need for national and regional integrated knowledge networks, innovation platforms,

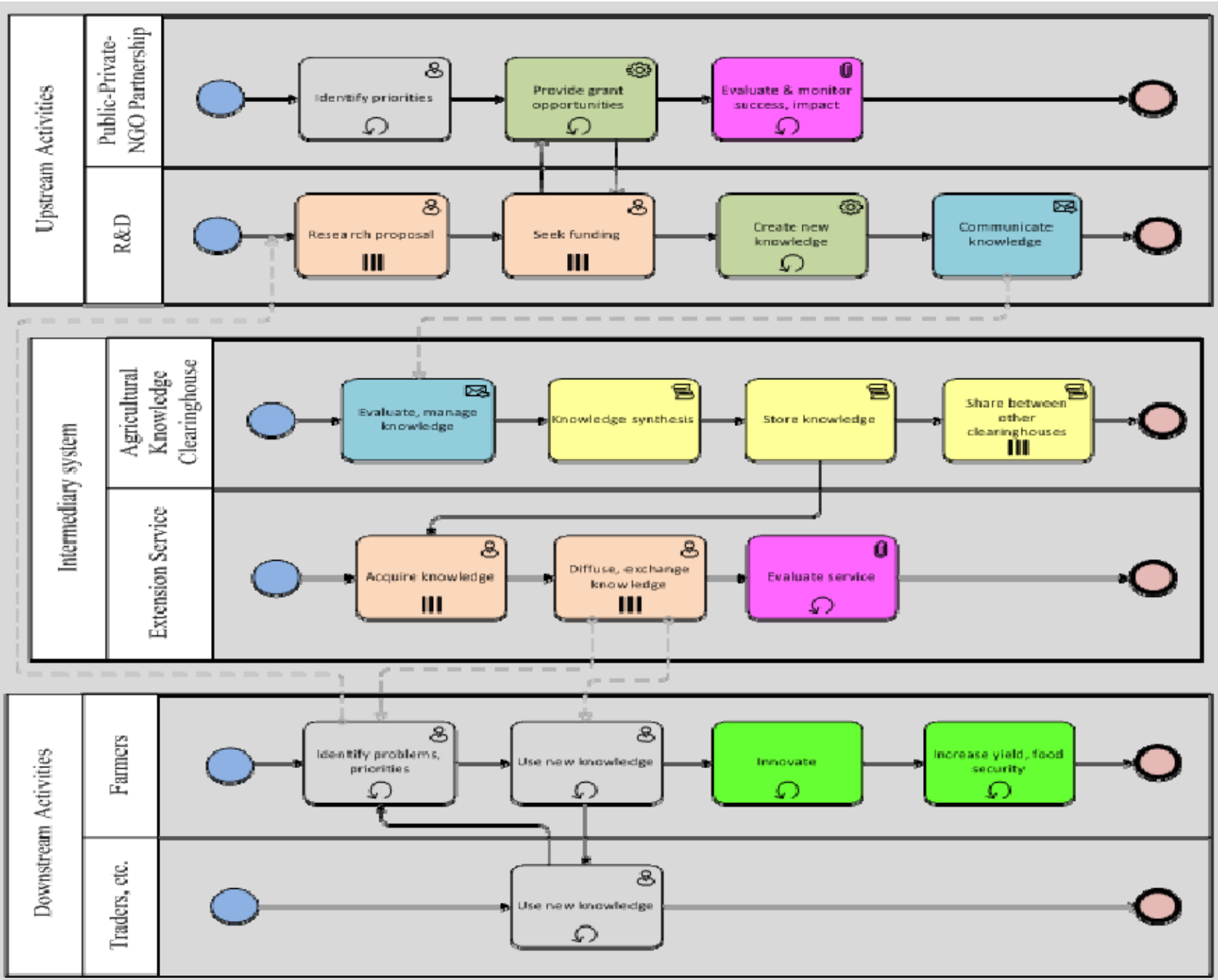
  (5) continuous professional development of the extension agent and re-conceptualizing their role as effective knowledge brokers,

  (6) taking advantage of the existing relevant and appropriate information and communication technologies, including mobile and social communication tools,

  (7) the need to create lean and robust communication infrastructure that serves both vertical and horizontal interactions.

Results and Discussion…

- Finally, we propose the creation of national and regional internetwork of **Agricultural Knowledge Clearinghouses (AKC) –** framework is shown next slide.
- The framework incorporates knowledge integration and translation at its core.



Detailed framework of knowledge diffusion in African agriculture

Results and Discussion…

- Following knowledge products from evidence-based healthcare such as clinical practice guidelines (CPG), systematic reviews, we propose the following knowledge products to come out of the AKC activities:
  - Agricultural practice guidelines – e.g., for specific crop or for specific input.
  - Farming factsheet – e.g., for pesticide or spray application.
  - Expert panel reports – e.g., no-till or tillage.
  - Systematic reviews – e.g., literature review of genetically engineered crops.
  - Extension demonstration/experiment registries together with the results – e.g., reports from field experiments, tests.
  - Systematic documentation of indigenous knowledge – e.g., externalizing or documenting local knowledge.

Conclusion

- Significant advances have been made in the agriculture sector globally – spanning crop, livestock, dairy, fruit, vegetable, and organic farming.
- Such advances result in large amount of knowledge being generated and stored in repositories across the globe.
- We argue that the most important task now is not to re-create new knowledge, but to acquire and effectively use existing knowledge to fuel further knowledge creation and spur more innovation.

Conclusion …

- Because of the above argument, we believe translational research will play a role in strengthening traditional extension service in the effort to disseminate refined, synthesized, and ready to use knowledge in the hands of the farmer.
- The creation of national and regional level “agricultural knowledge clearinghouses,” where knowledge synthesis and knowledge translation of existing stock of knowledge occur, is the core of the activities

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Any Questions?

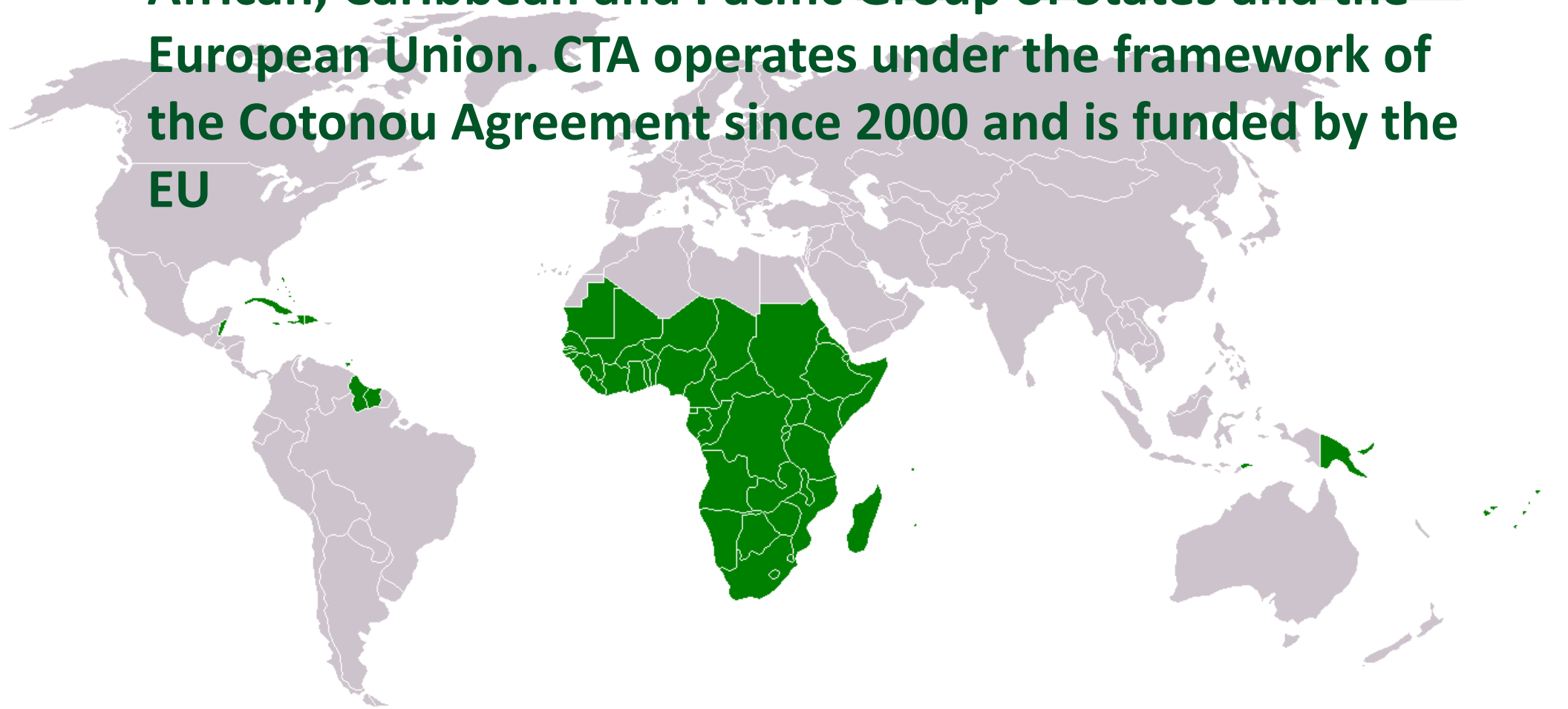
Making sense of the Information, Communication & Knowledge Management Continuum - a proposed framework for integrated action at the CTA

Krishan Bheenick
Snr Programme Coordinator
(Knowledge Management)

XIVth IAALD World Congress
Cornell University, 21-24 July 2013
Emerging priorities for scientific and agricultural information

About the CTA

The Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA) is a joint international institution of the African, Caribbean and Pacific Group of States and the European Union. CTA operates under the framework of the Cotonou Agreement since 2000 and is funded by the EU



Mandate of the CTA

To strengthen policy and institutional capacity development and information and communication management capabilities of ACP agricultural and rural development organisations.

CTA shall assist such organisations in formulating and implementing policies and programmes to reduce poverty, promote sustainable food security, preserve the natural resource base, and thus contribute to building SELF-RELIANCE in ACP rural and agricultural development.
(Cotonou Agreement, 2000; Article 3 of Annex III)

CTA's Strategic Goals 2011-2015

1. **Support well informed, inclusive agricultural policy processes and strategies in ACP regions**
2. **Promote smallholder agricultural value chains**
3. **Strengthen the information, communication and knowledge management capacities of ACP institutions and networks**

(Adopt a regional approach to implementation: work with and through regional organisations and networks)

ICKM needs of ACP organisations

Linked to Organisational Objectives

- **Regional organisations and networks play a role of supporting their own stakeholders through ICKM**
- **ICKM required both internally and for interaction with stakeholders...**

Communication... [with stakeholders]...

***Communications Strategy* – now includes social media**

Stakeholders may also have their own Comms Strategy

ICKM needs of ACP organisations

Linked to Organisational Objectives

Information Management ...generation, curation, packaging, publication, dissemination...

Information Management Strategy

ICT Strategy **Information Management System**

***Monitoring & Evaluation* of information products and services**

Learning resources in ICKM

M&E

Web2.0 & Social Media

Publications

"Knowledge Management?"

ICM Strategy Development

XIVth IAALD World Congress
Cornell University, 21-24 July 2013
Emerging priorities for scientific and agricultural information

CTA

KM needs of ACP organisations

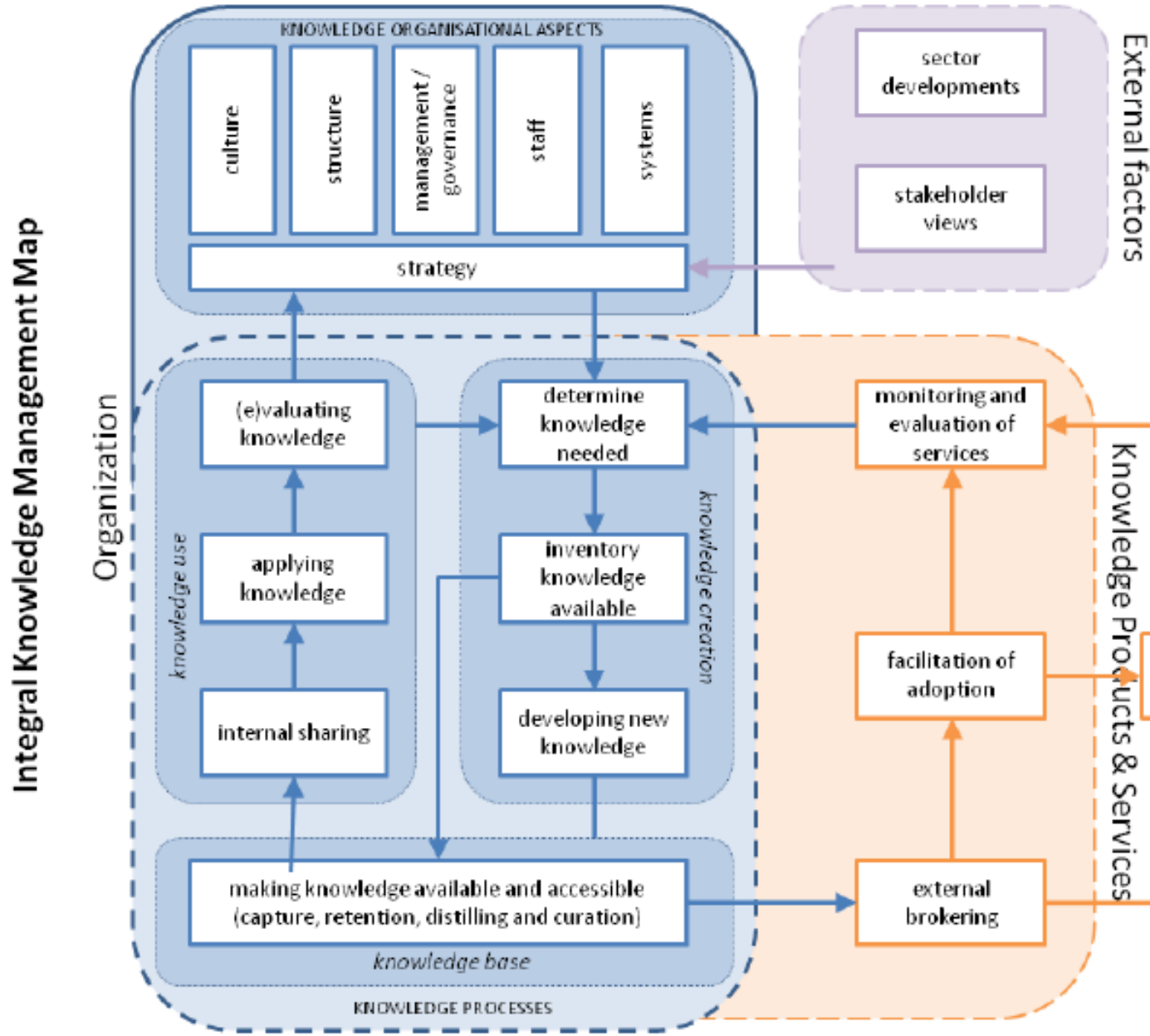
Linked to Organisational Objectives

Knowledge Management ...generation, curation, synthesis, packaging, sharing, use & re-use, learning ...

- **KM builds on sound Information and Communication management and Monitoring & Evaluation to promote Organisational Learning**
- **Knowledge sharing is more effective when the context of the user is understood**
- **A lot of tacit knowledge resides among the staff and community**
- **Organisations already put into practice KM without calling it so...**

Knowledge Management Strategy

Knowledge Management



EXPERT CONSULTATION
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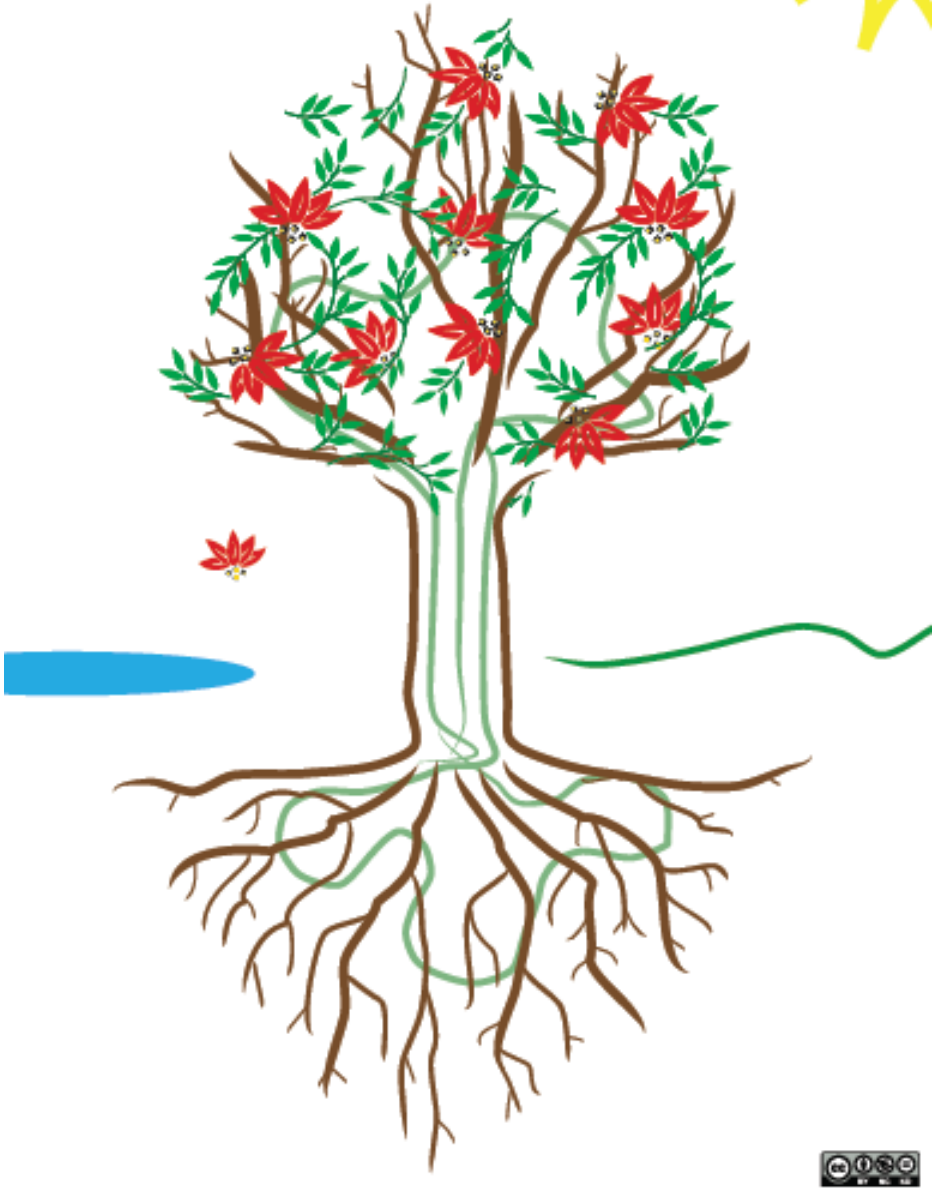
FOR THE AFRICAN, CARIBBEAN AND PACIFIC
(ACP) REGIONS

10-14 SEPTEMBER 2012
CTA HEADQUARTERS, WAGENINGEN
THE NETHERLANDS

- Consultations on KM
- Integral KM Mapping approach
- CTA-KM Advisory Group
- KM Scan
- Advocacy materials

Knowledge Management

The Knowledge Management Tree



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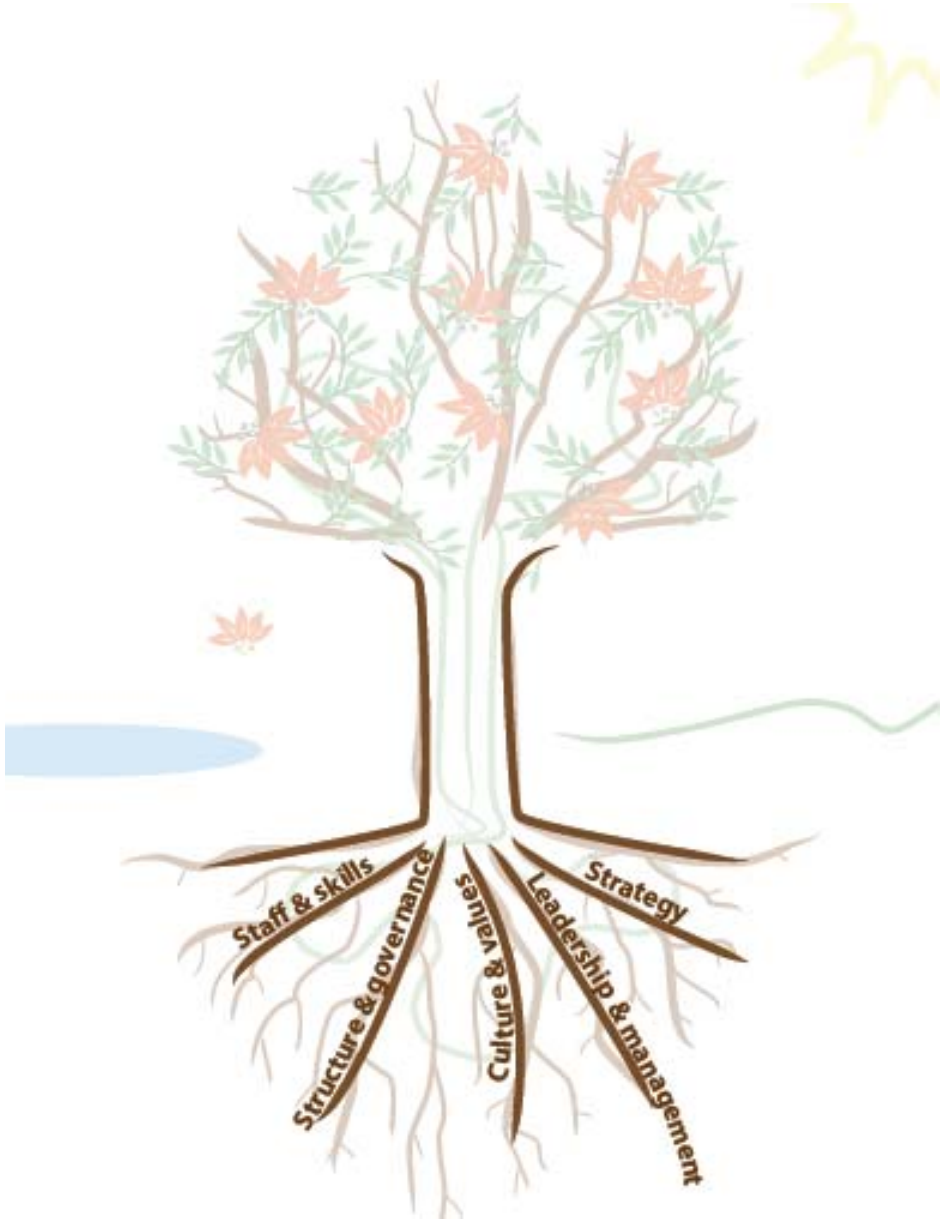

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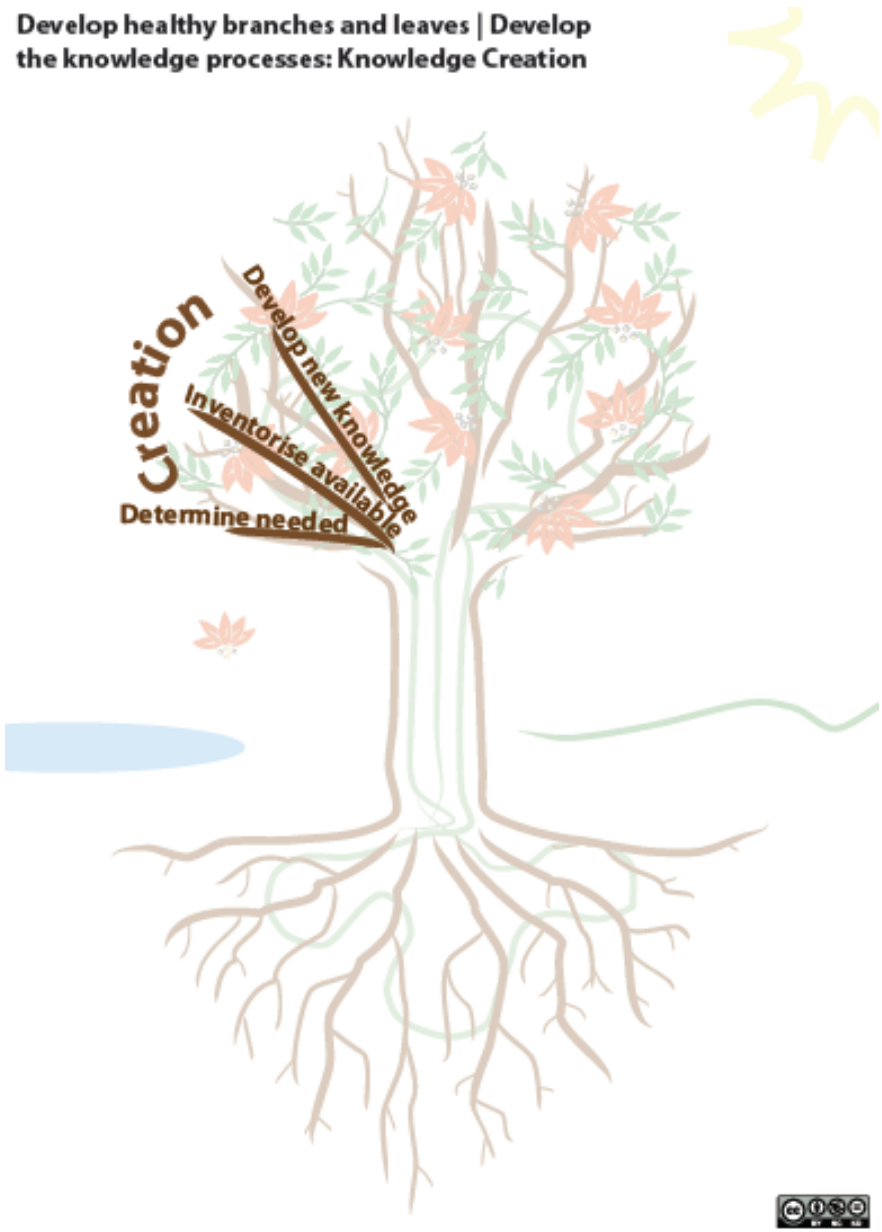

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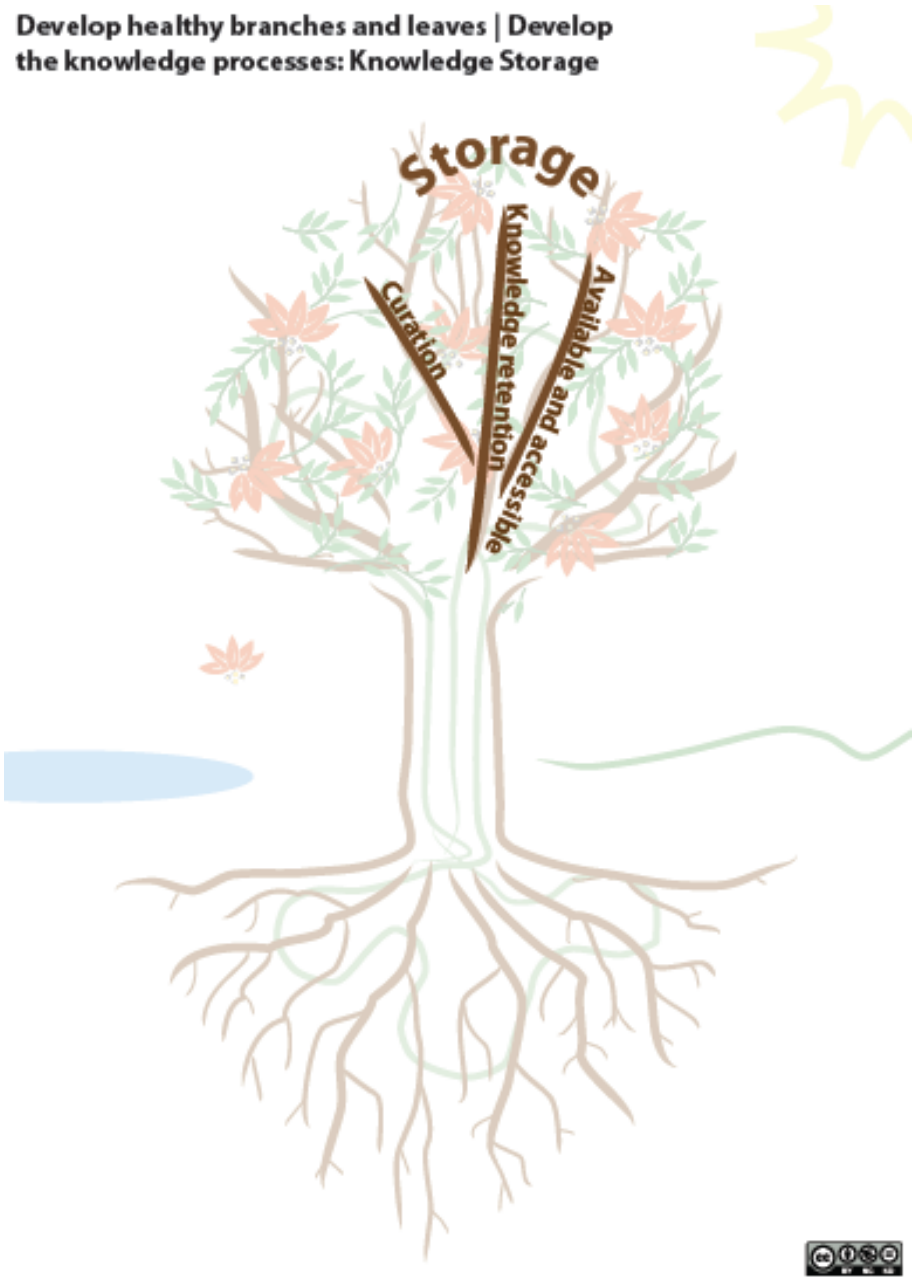

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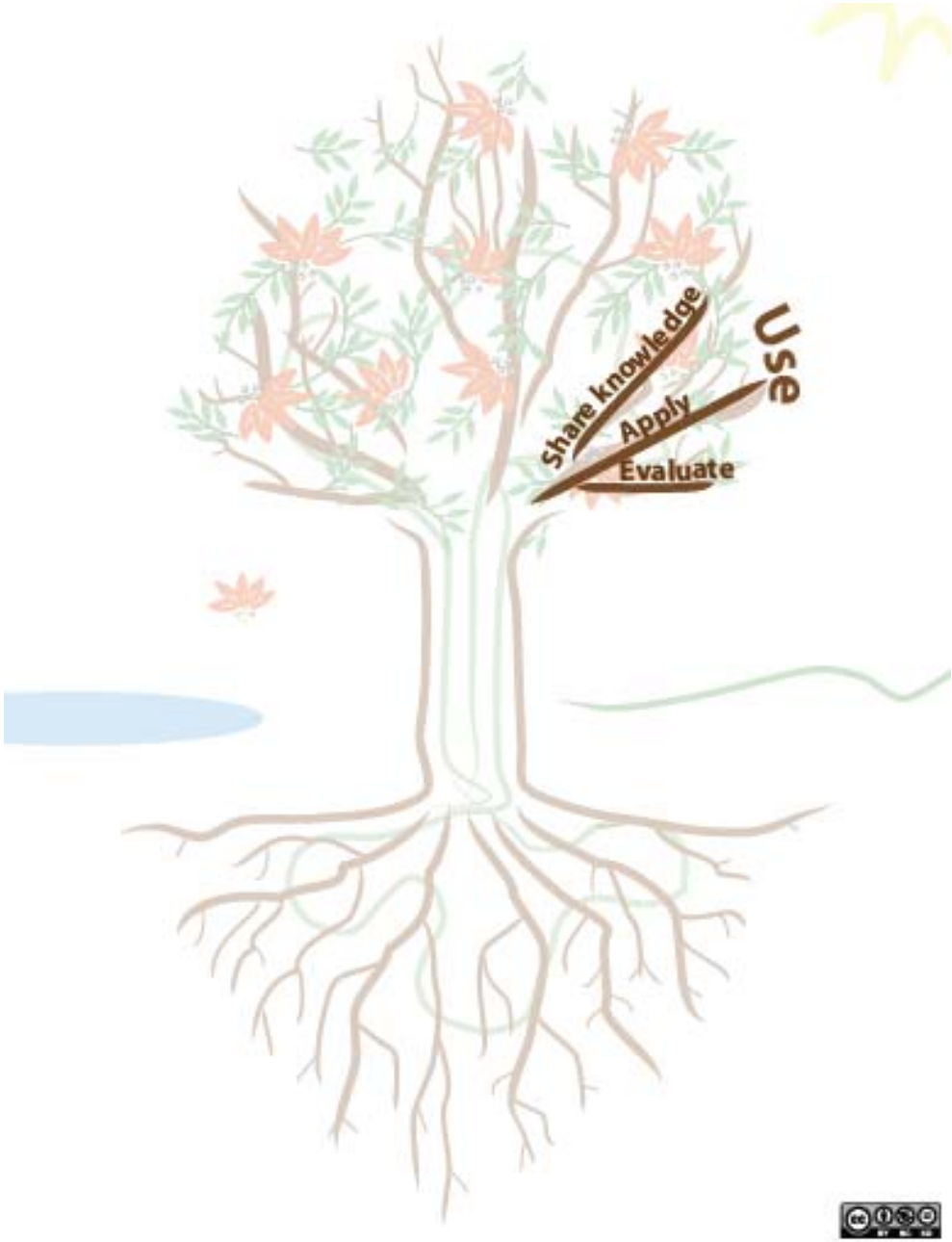

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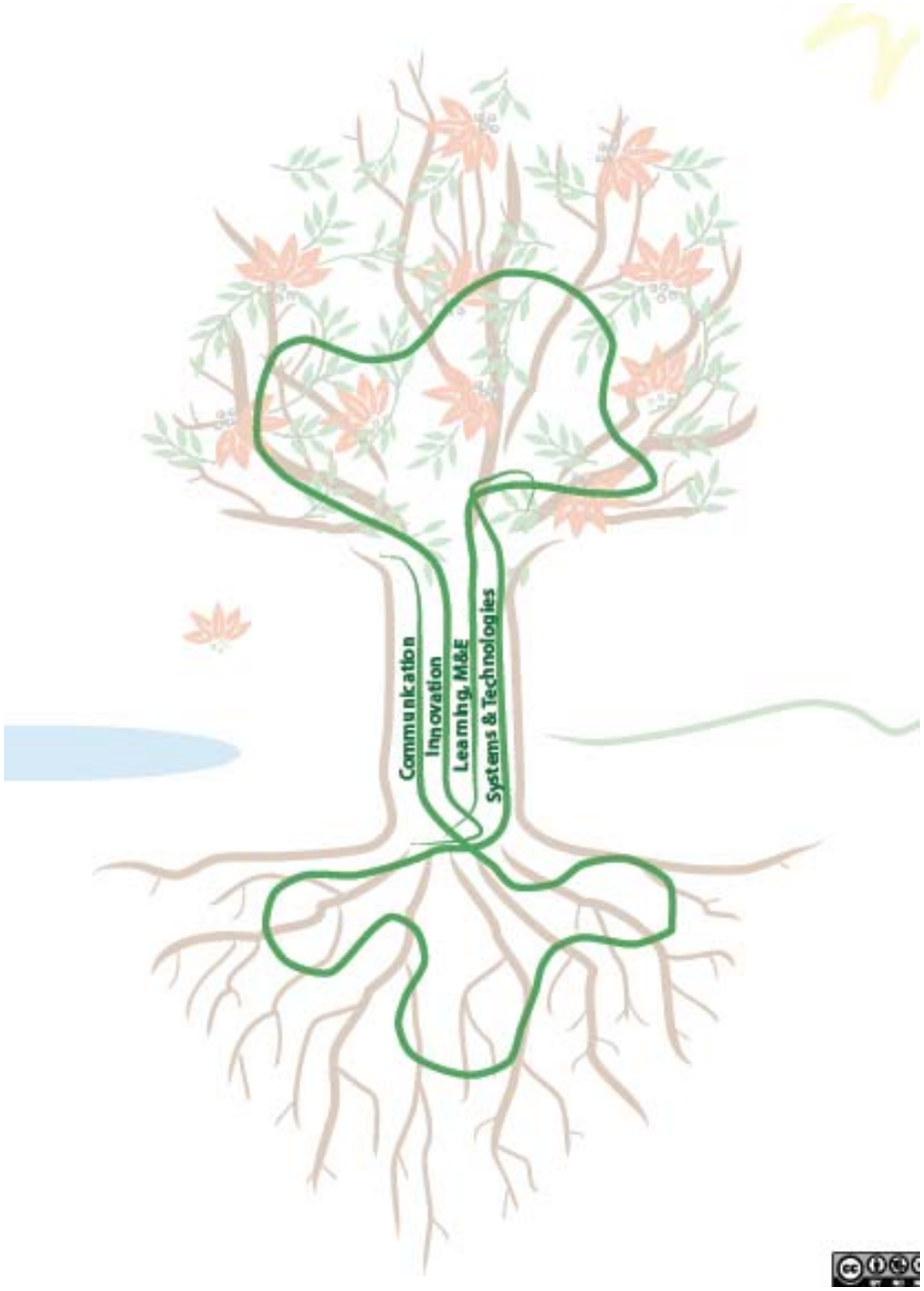

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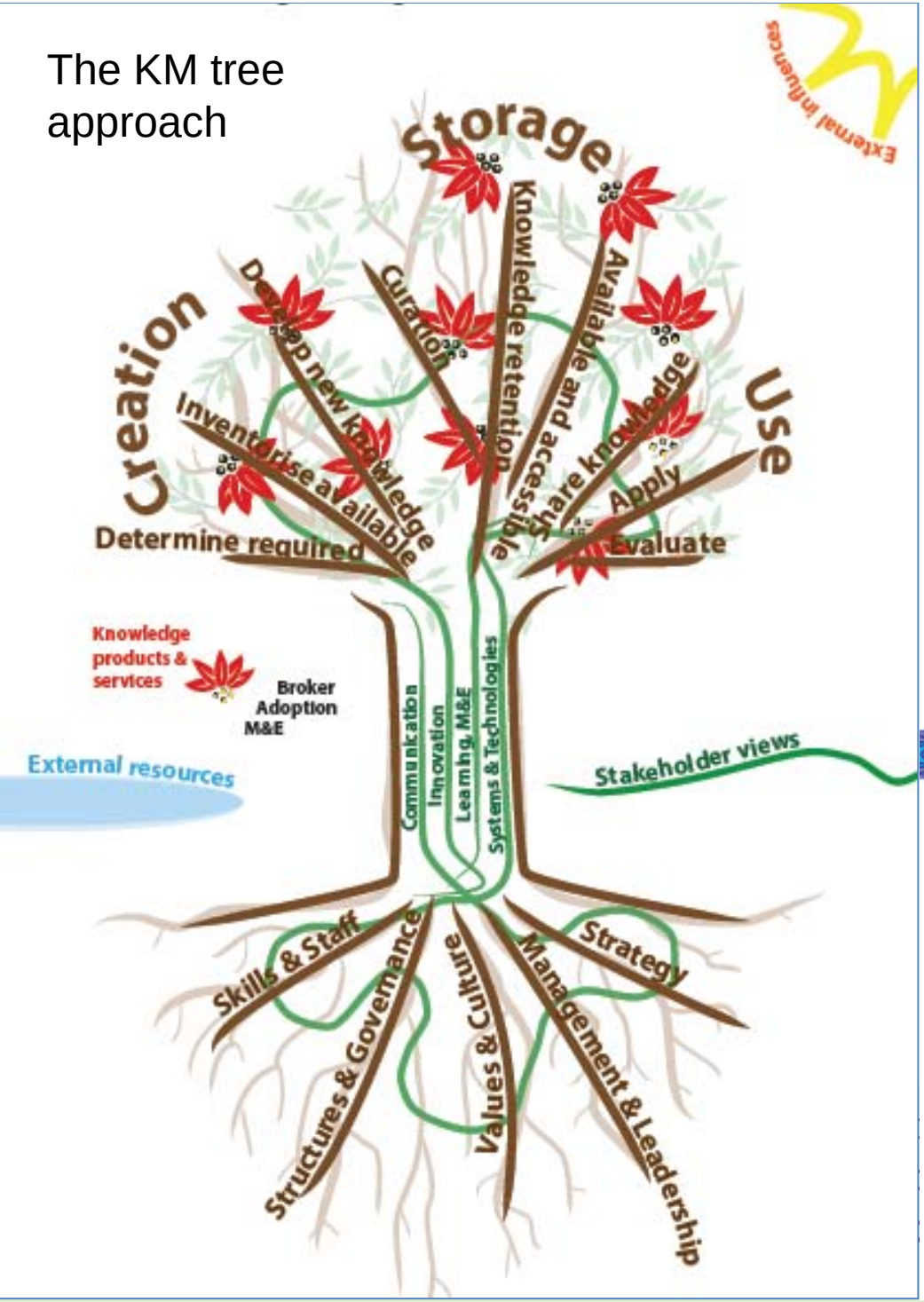
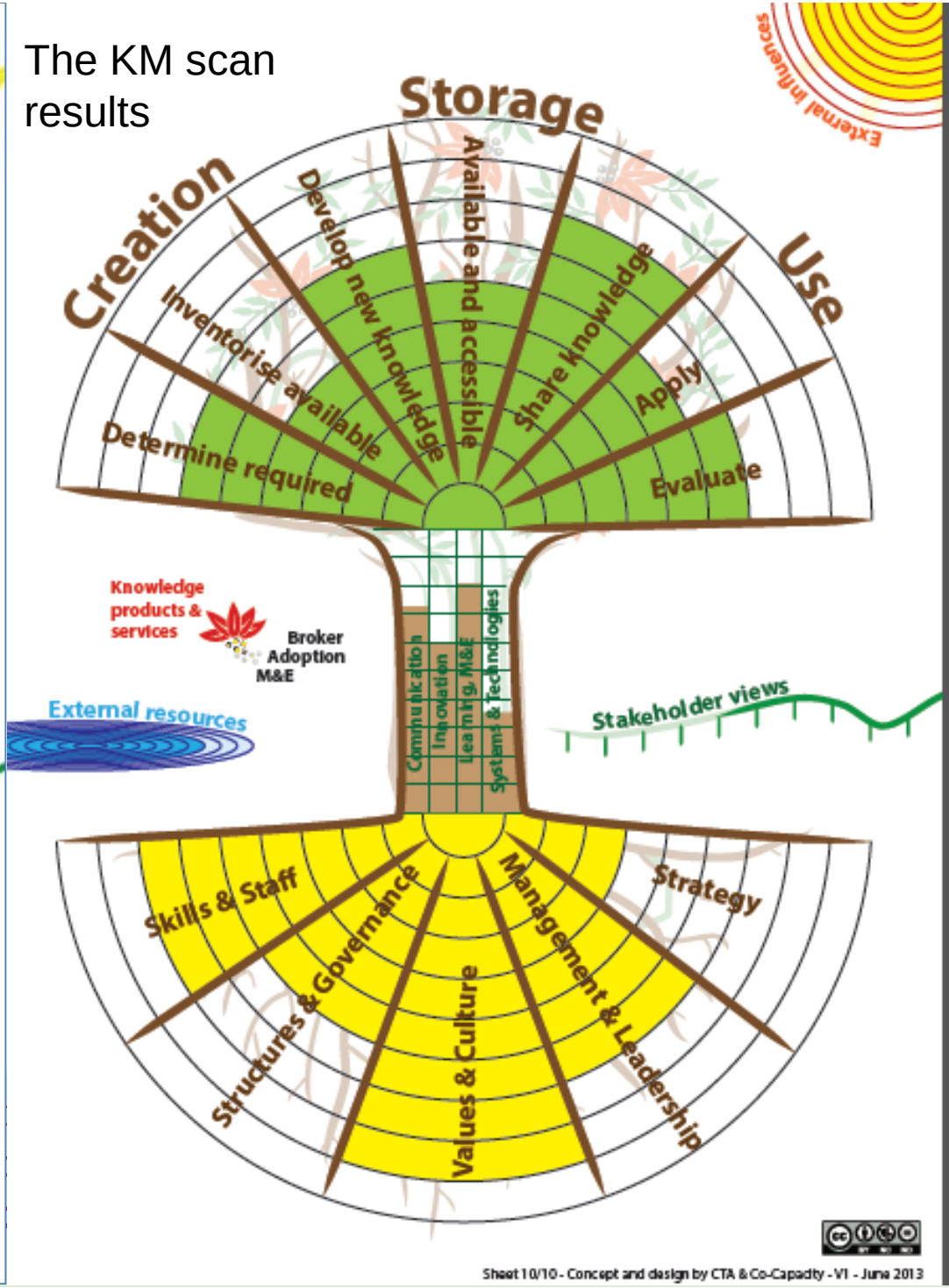
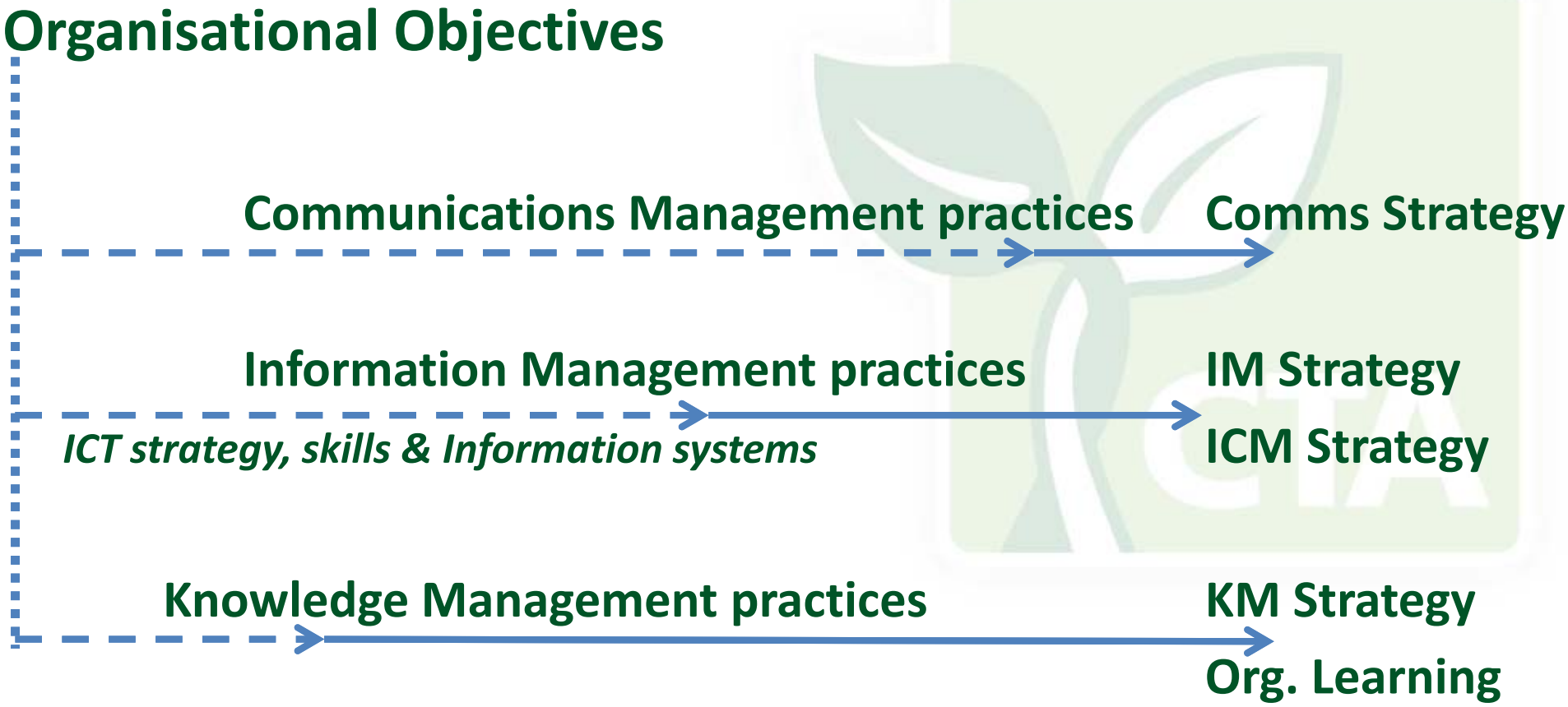
The KM tree approach



The KM scan results



KM framework for intervention



Entry point depends on current situation of the organisation

Proposed KM interventions by CTA

SUPPORT TO:

- **Strategic thinking and learning on KM**
  - **Through interactions with IAALD, CIARD, KM4DEV, TAP, Policy & Value Chains communities**
- **Implementation of portals and systems by partner organisations**
  - **Collaborate on implementation of interoperable portals by stakeholder groups**
- **Engagement of Communities of Practice on KM**
  - **provide platforms for interaction; facilitate sharing on information across CoPs - KM blog**
- **Capacity Development on KM**
  - **Mentoring KM around specific events; Building KM skills through training – short course, KM Curriculum development; ICM, M&E, ICT & Web 2.0 tools; Signposting & Referencing KM**
- **Professional Exchange on KM**
  - **Co-organise events: KM Consultation, CIARD, IAALD & other regional meetings; KM practices, methods and tools; Discussion Forums, publications e.g. ICT Update**

Integrated KM

Regional

Sub-Regional

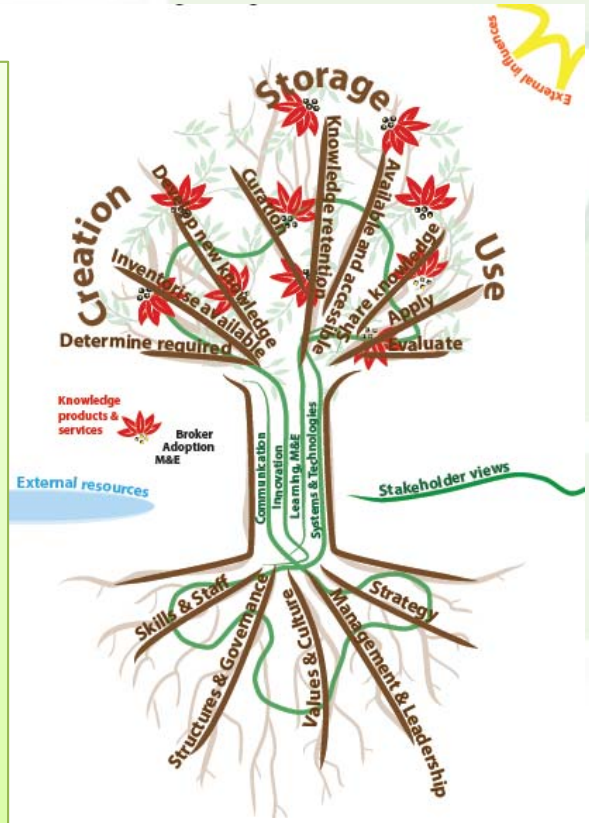
National (NARS)

Commodity-based

Organisational (Institution; Network; value chain)

Innovation Platform

Information and Knowledge Management Platforms (Physical & virtual interactions; Web-mediated; professional exchanges; knowledge capturing, curation, sharing and exchange



The KM tree

ICT4D

KM

M&E

Organisational Learning

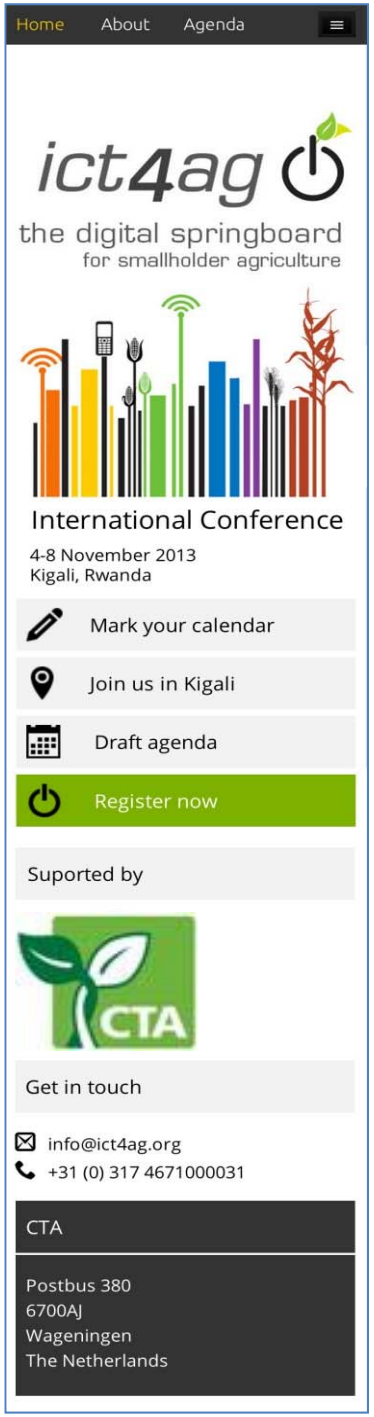
Impact Analysis

CTA 2013 Annual Conference

- **4-8 November 2013, Kigali, Rwanda**
- 400 participants including farmers organisations
- Focus on ICT for Agriculture
- Broad media coverage
- 1 day innovation discovery (Plug and Play Day)
- 3 day conference
- 1 day on the field
- + Exhibition
- + Hackathon

Hosted by

Partner organisations



IAALD 2013 World Congress

Connell University, Ithaca NY, USA
22 – 24 July 2013

The Use of Social Media in Agricultural Research Workflows in Ghana and Kenya

Justin Chisenga
Knowledge & Information Management Officer
FAO Regional Office for Africa, Accra, Ghana

Presentation outline

- Introduction
- The big questions
- Social media
- Research workflow
- The study
- Key findings
- Conclusions

Introduction

In Africa, access to research outputs generated in public research organizations is a challenge

Social media has the potential to enhance the search for, distribution and sharing of research results

Introduction … opportunities

15.1 million smart phones sold in 2010 in Africa

- Mobile phones are fueling social media use in Africa
- By 2016 there will be more than 1 billion mobile phone subscriptions in Africa

Introduction … opportunities

Africa has more than 40 million Facebook users, mainly the young

Top 4 Social media in Africa

facebook

YouTube™

skype

The big questions?

- Are the researchers in public agricultural research organizations using social media?
- Are the researchers using social media in their research workflow?

The big questions?

- What specific social media tools are they using and in which phases of the research workflow?
- What is the perceived impact of social media on agricultural research workflow?

Social media

- Social media is about:
  - creating
  - sharing
  - adapting and
  - re-using content

- While engaging in:
  - digital dialogue, and
  - collaboration

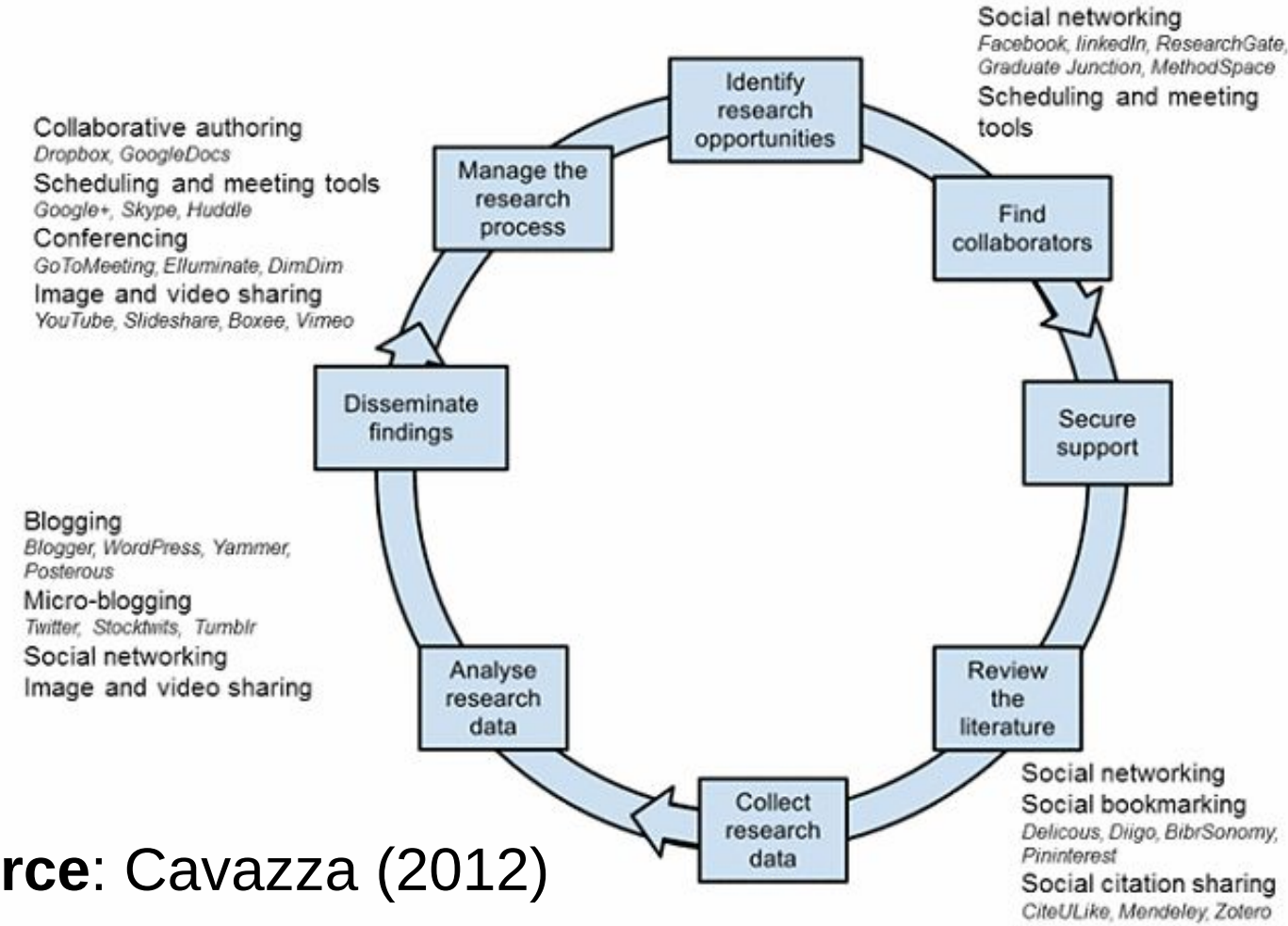
facilitated by web-based and mobile-based technologies

Examples of social media

Research workflow

Source: CIBER, University College London and Emerald Group Publishing Ltd (2010:16)

Social media in research



Source: Cavazza (2012)

The Study

- **Target countries:**
  - ~ Ghana
  - ~ Kenya

- **Institutions**:
  - ~ Council for Scientific and Industrial Research (CSIR)
  - ~ Kenya Agricultural Research Institute (KARI)

The Study….

- **Questionnaire:**
  - ~ Hosted on Survey Monkey
  - ~ Invitations sent through electronic mail

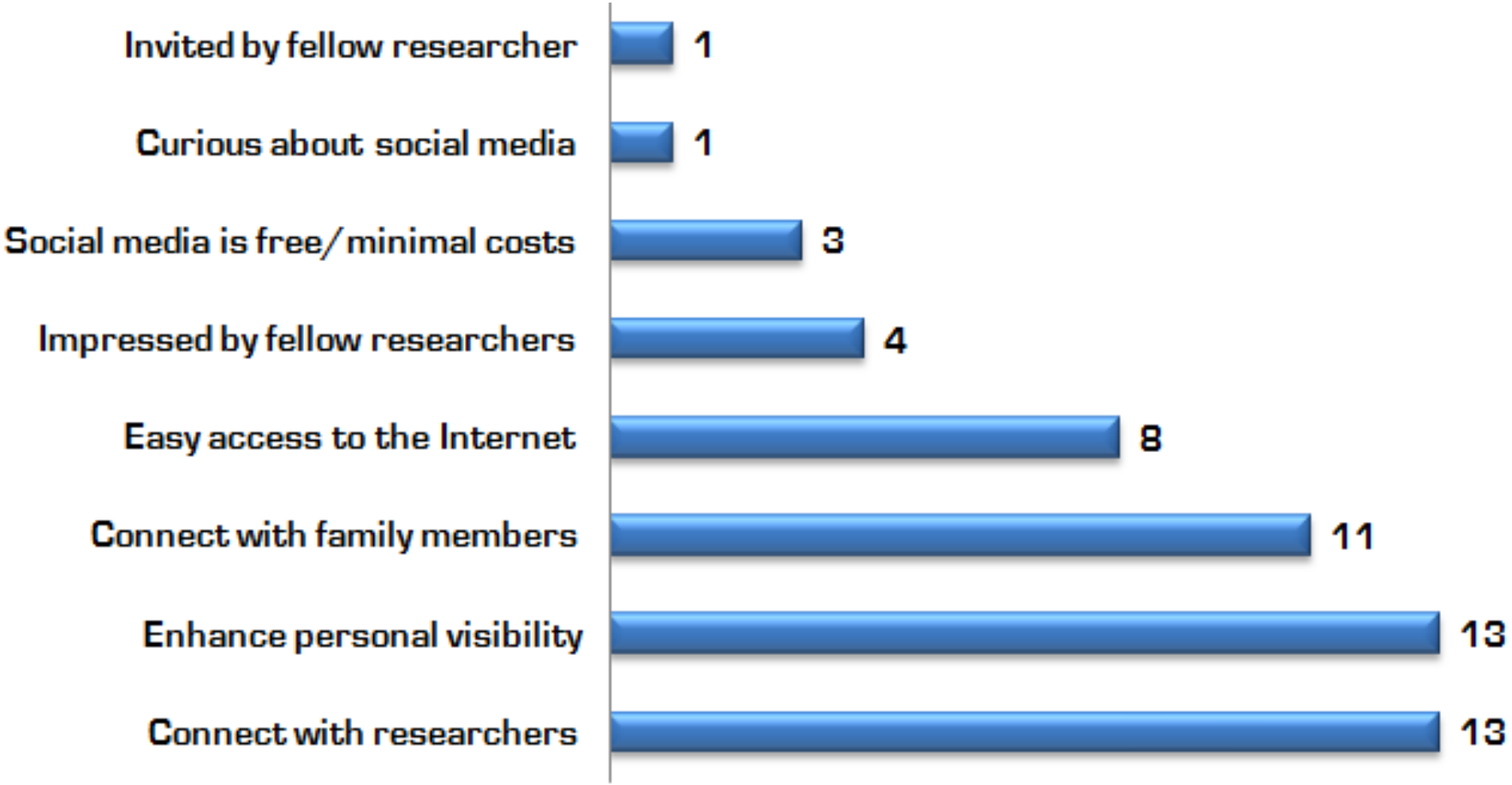
- **Target researchers and responses**:

Research Organization	Number of email invitations sent	Responses	Usable responses
CSIR	109	28	27
KARI	219	43	34
Totals	338 (100%)	71 (21%)	61 (18%)

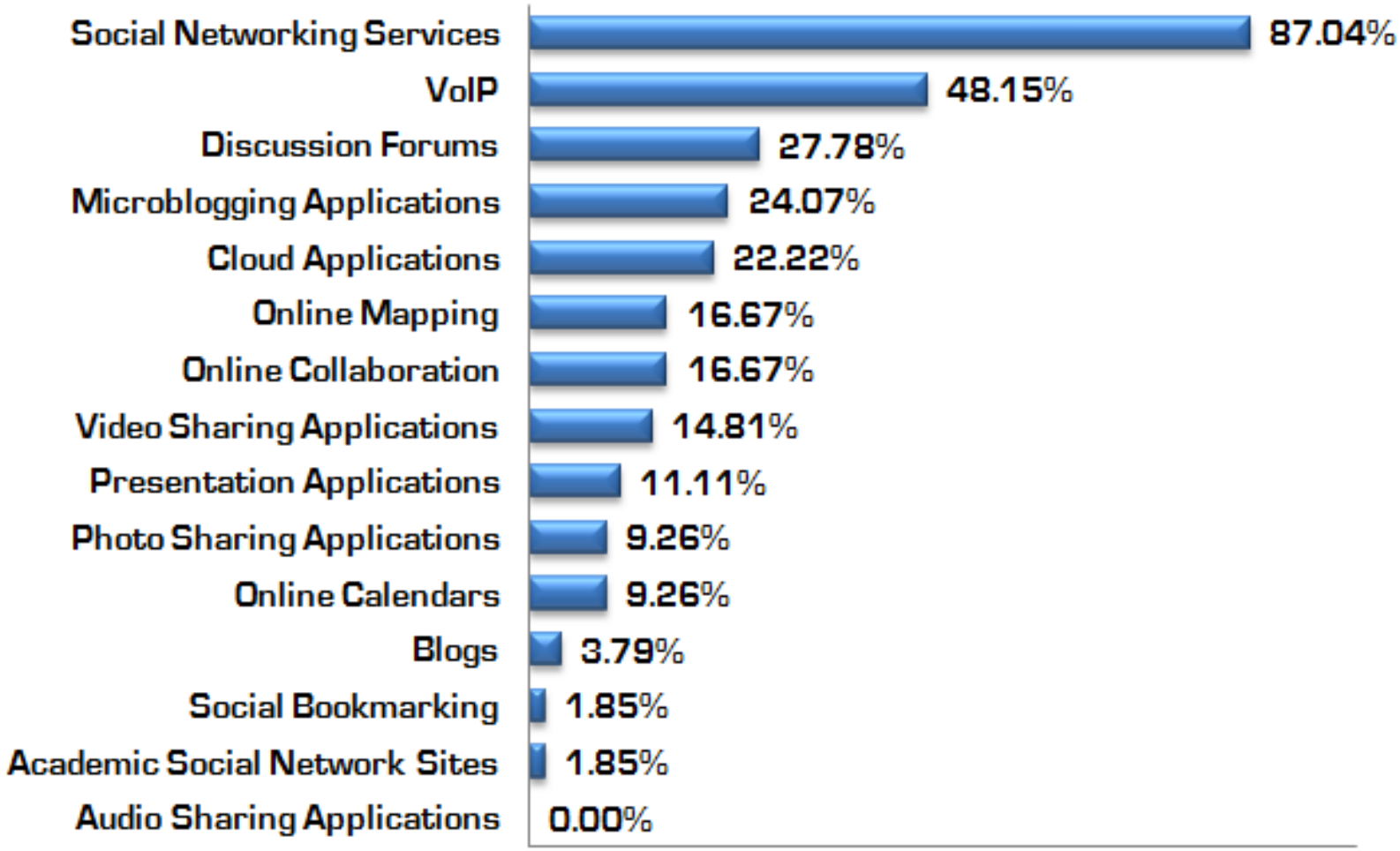
Key findings

- 54 (88.52%) used social media
  - ~ 30 (55.56%) KARI
  - ~ 24 (44.44%) CSIR
- Males – 29 (53.70%)
- Females – 25 (46.30%)
- Early users: 7 (12.96%) in 2000

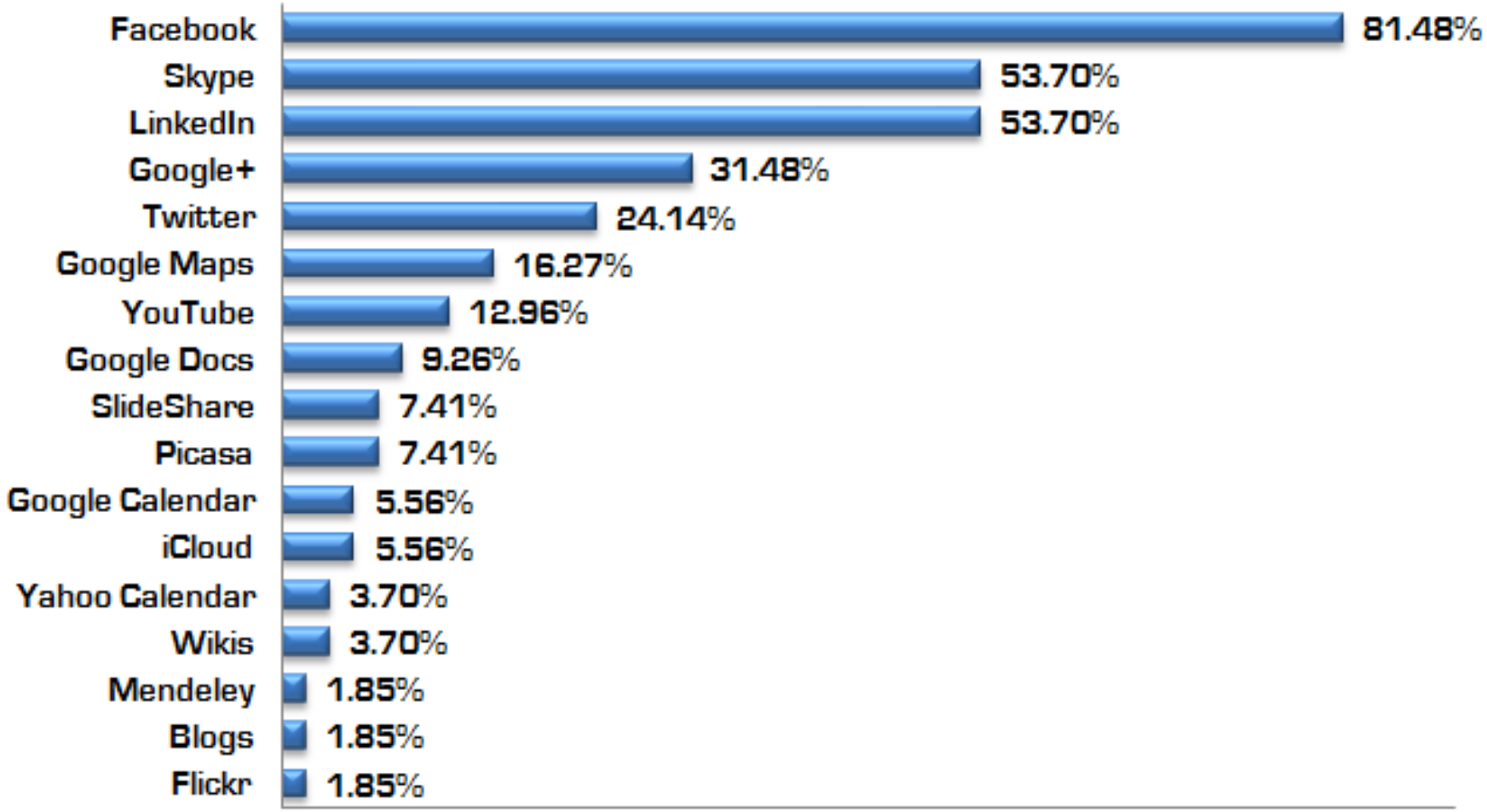
Motivation to use social media



Profiles on categories of social media



Social media actively used



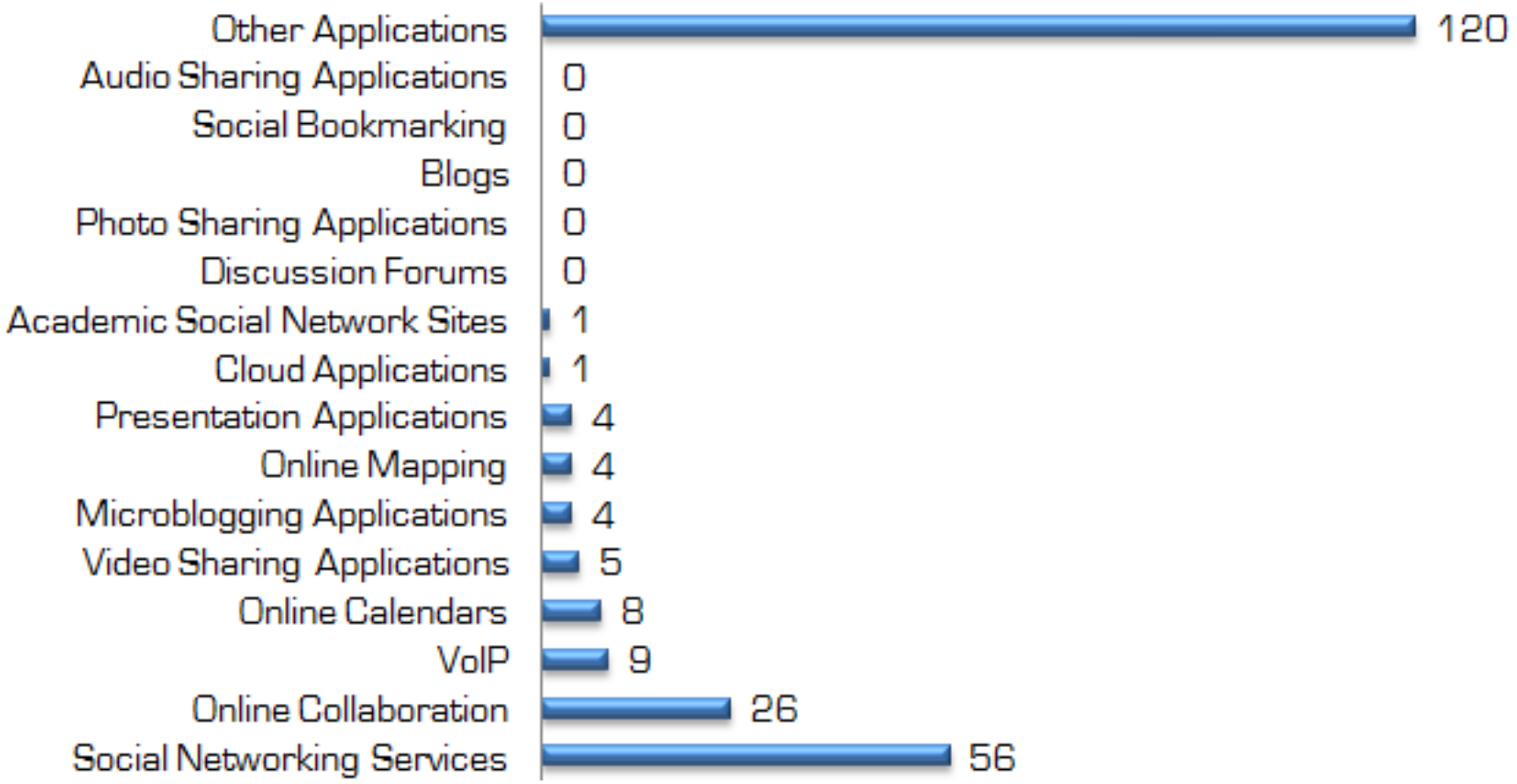
Access to social media

- Mobile broadband – 24 (44.44%)
- At home – 15 (27.78%)
- At work place – 12 (22.22%)
- Work place and home – 3 (5.56%)

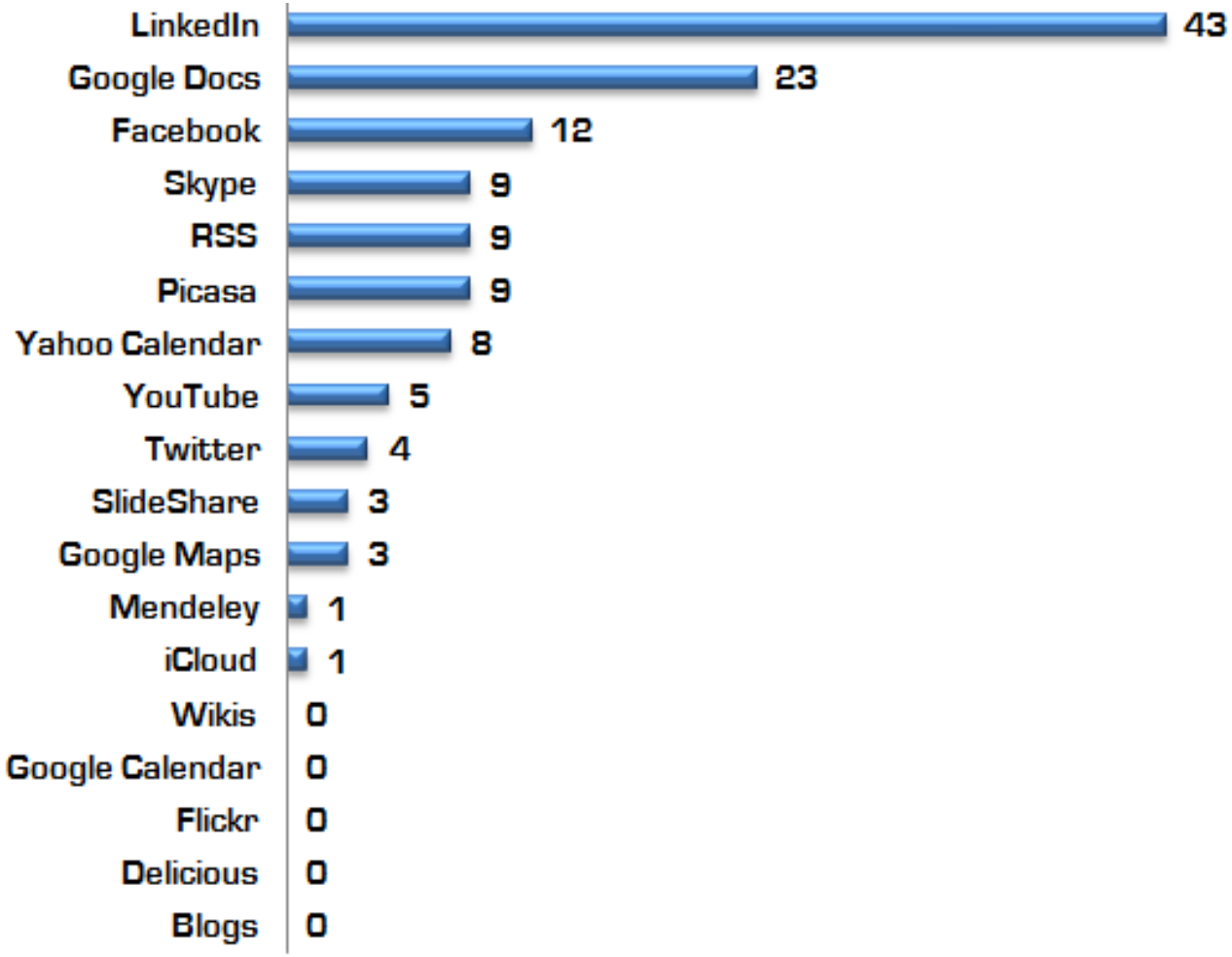
Social media in research

- 46 (85.91%) used social media in research
  - ~ Very frequently 19 (41.30%)
  - ~ Frequently 10 (21.74)
  - ~ Occasionally 6 (13.04%)
  - ~ Rarely 1 (2.17%)
  - ~ Very rarely 10 (21.74%)

Categories of social media in research



Specific social media tools in research



Impact of social media

- Networking

- Collaboration

Key challenges in using social media

- Un-reliable internet connections - 14 (25.93%)
- Lack of skills to make effective use of social media in research - 10 (18.52%)
- High cost of mobile broadband Internet access - 5 (9.26%)

Non-users – main reasons for not using social media

- Lack of skills to make effective use of social media
- Unfamiliarity with the benefits of social media in research
- Un-reliable internet connection

Conclusions

- Researchers at the CSIR and KARI are using social media
- Most of them have profiles/accounts on Facebook, LinkedIn and Skype
- LinkedIn and Google Docs are the most popular social media tools in research work

Conclusion

- Main use in research is identifying research opportunities and finding collaborators for research projects
- Little use in disseminating research results
- There is need for institutional social media policies and strategies

Conclusion

- There is need for capacity development in the use of social media in research work

Co-authors for the full paper

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Towards m-agricultural information services in Zimbabwean Libraries: Challenges and Opportunities for small scale farmers in utilizing ICTS's for sustainable food production

Collence Takaingenhamo Chisita,
Senior Lecturer, Harare Polytechnic, School of Information Sciences
&
Thembani Malapela,
Knowledge & Information Management Officer, FAO

MOSI-ATUNYA(Smoke that thunders)

Presentation Outline

1. Introduction
2. Overview of m-agricultural services in Africa
3. Mobile telephony in Zimbabwe
4. Opportunities for m-agricultural information services in Zimbabwe
5. M-agricultural Information Services : The Question and Answer Service at the University of Zimbabwe
6. Challenges in implementing m-agricultural services
7. Conclusion

1.Introduction

Africa and the developing world most rural communities still do not have electricity. However, the mobile telephony has reached ends where no other has, with far reaching impact on agriculture and food production

Intro' (1) continued…

- "…In 10 short years, what was once an object of luxury and privilege, the mobile phone, has become a basic necessity in Africa.." President Paul Kagame[Republic of Rwanda] quoted by Aker and Mbiti (2010)
- Rolling (1988:33) uses a systems approach to describe agricultural information as "…a system in which agricultural information is generated, transformed, consolidated, received and fed back….to underpin knowledge utilization by agricultural producers".

Intro’ (2) continued…

Various models used in Africa for **mobile systems** leverage on :-

- Simple sms/text message platforms,[some times voice or calling]
- Any generation of handsets can be accommodated
- Phone credit becomes a medium of exchange [same as money-mobile cash]-Ecocash,Skwama –Telecel,OneWallet(Netone)
- Can be dependent or independent of the mobile telephone service provider.

Intro’ (3) continued…

Various models used in Africa for **mobile systems** leverage on :-

- New free text applications such as ***whatsapp*** lower end user cost in accessing services and communication.
- Video and MMS message enhances the services that can be offered.

M-Technologies

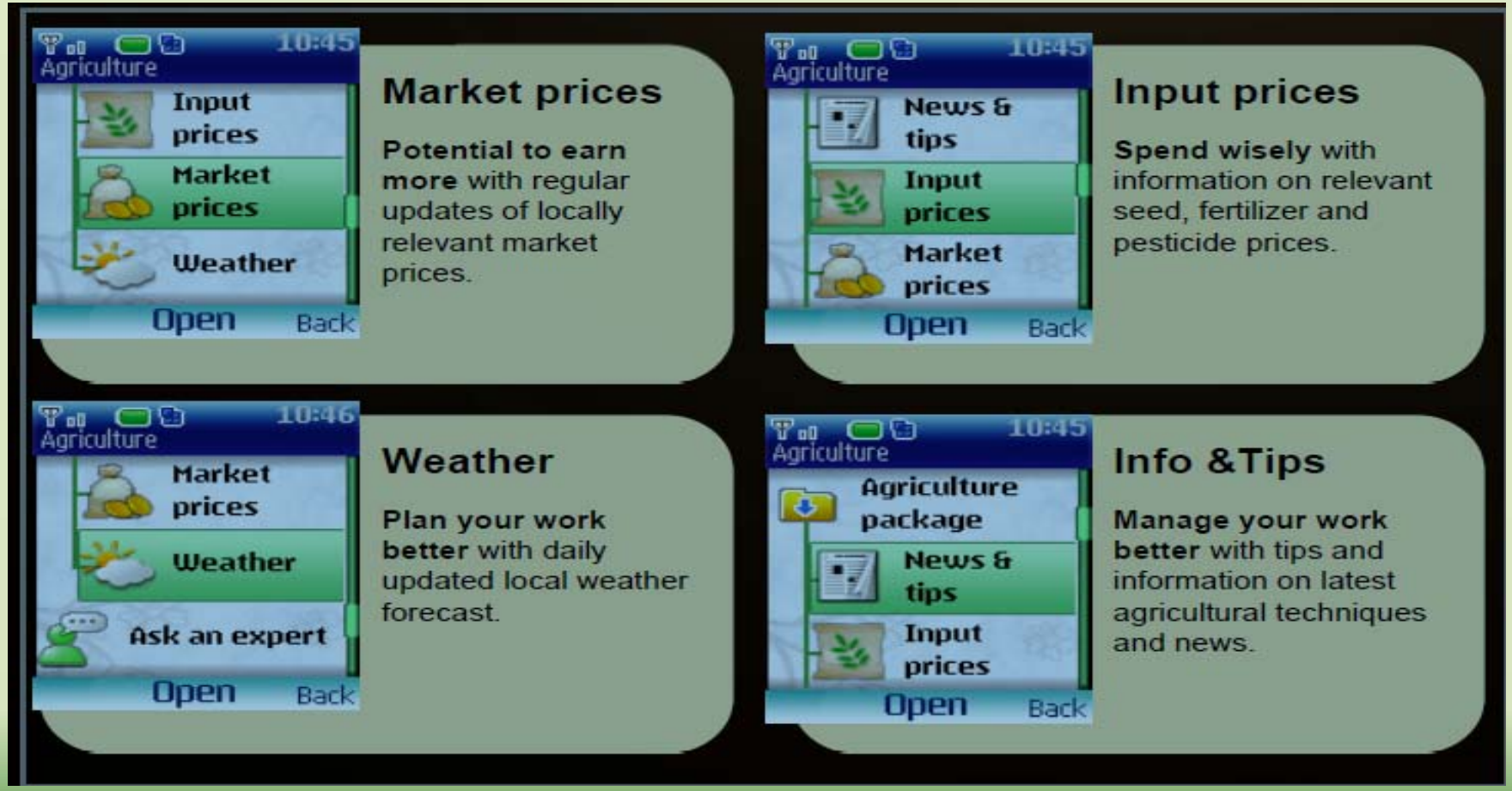
- Mobile phones can transform agriculture in developing countries through providing for mobile marketing and payment systems, micro insurance and lending and trading platforms, systems to manage supplier and distribution networks among others
- M-technologies provide farmers with platforms to share agrometereological information, micro insurance schemes and opportunities to send SMS to find out crop prices in distant places

M-Technologies Cont'd

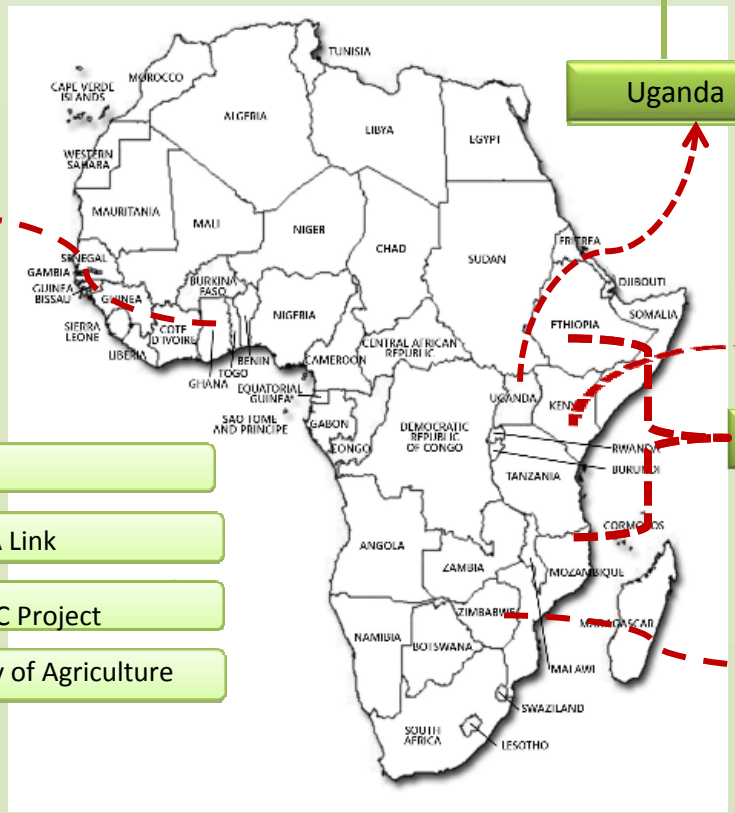
- Incorporation of information literacy and a culture of continuous learning from pre-school to Higher and Tertiary i.e creating a literate generation to avoid relapsing into techno illiteracy .
- Farmers require information at each and every stage of the farming process, e.g weather forecasts, pest attacks, inputs, cultivation practices, disaster preparedness and mitigation, pest and disease management and prices among others.

Intro’ (2) continued…

- Mobile telephony information use cases in agriculture[market information; weather information; inputs prices, etc]



2. Selected m-agricultural information projects in the continent

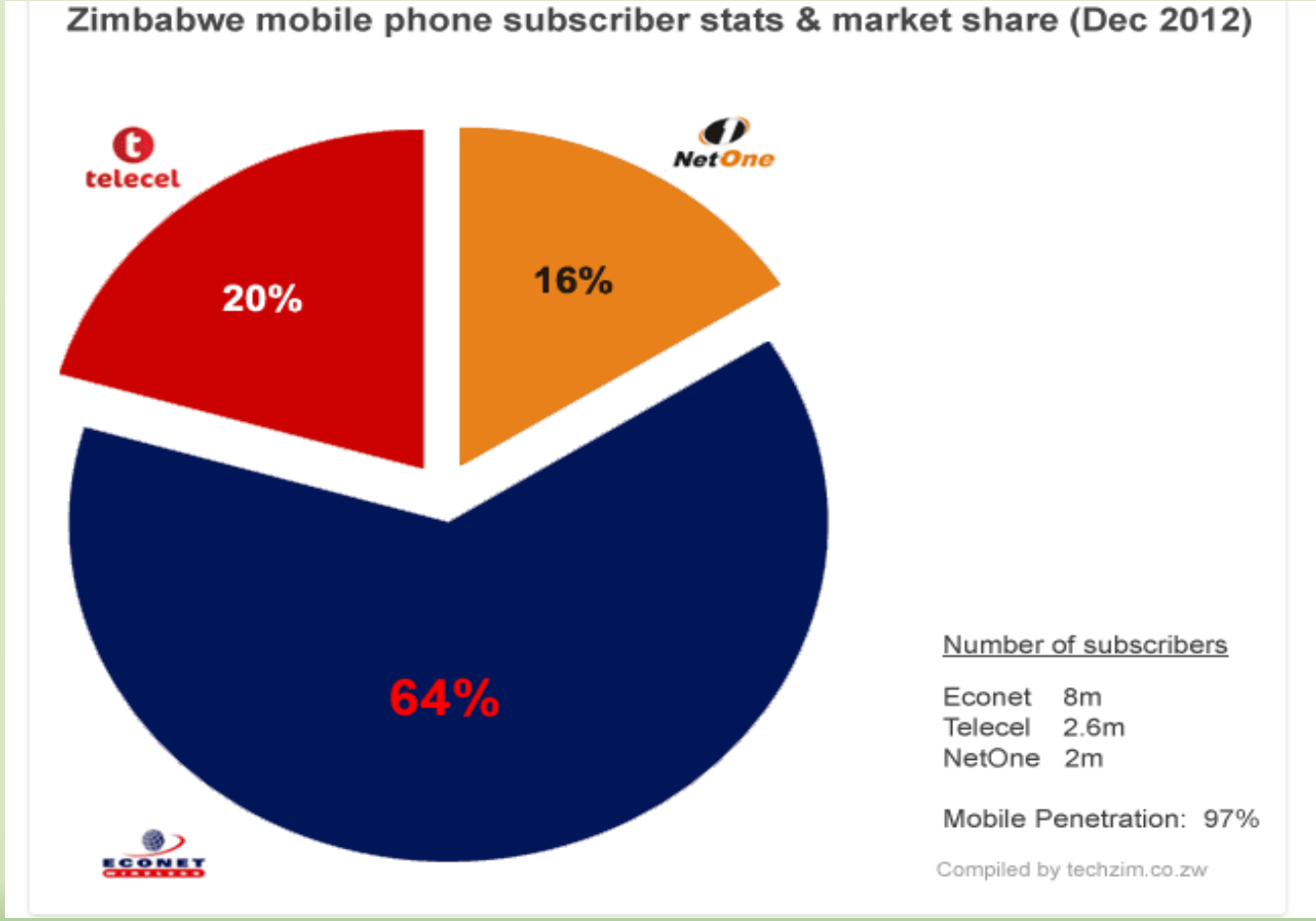


- InforTrade
- Uganda
- Ghana
  - ESOKO
  - COCOA Link
  - ECAMIC Project
  - Ministry of Agriculture
- Kenya
  - iCOW
  - M-farm
  - Kilimo
  - KUZA doctor
  - SALI
- East Africa
  - SANGONet
- Zimbabwe
  - Remote livestock marketing system

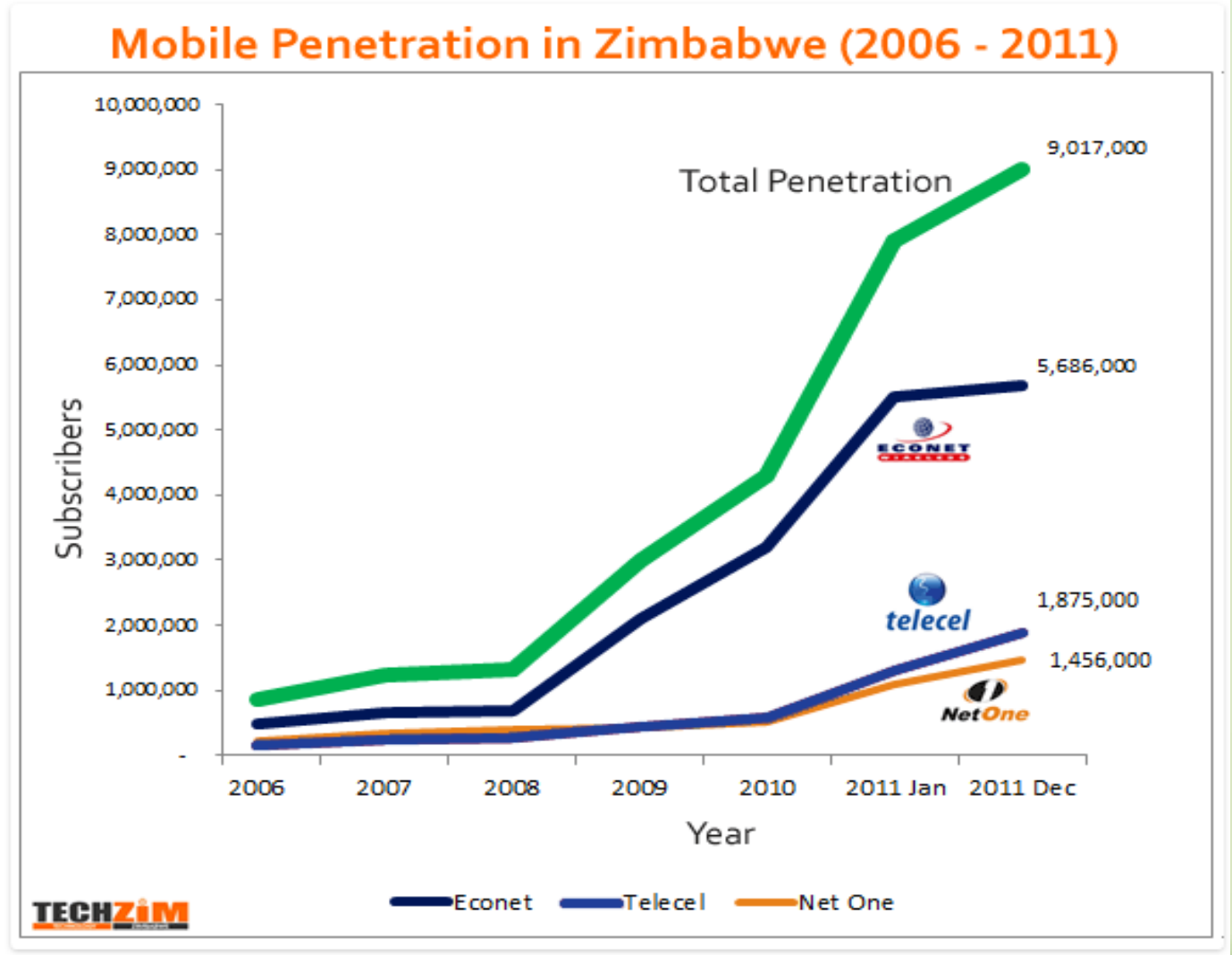
Data from http://www.oafrica.com/mobile/list-of-african-mobile-agriculture-services-and-applications/

3.Mobile telephony in Zimbabwe

- 4,5 million subscribers spread across ,3 mobile network providers;



Mobile penetration



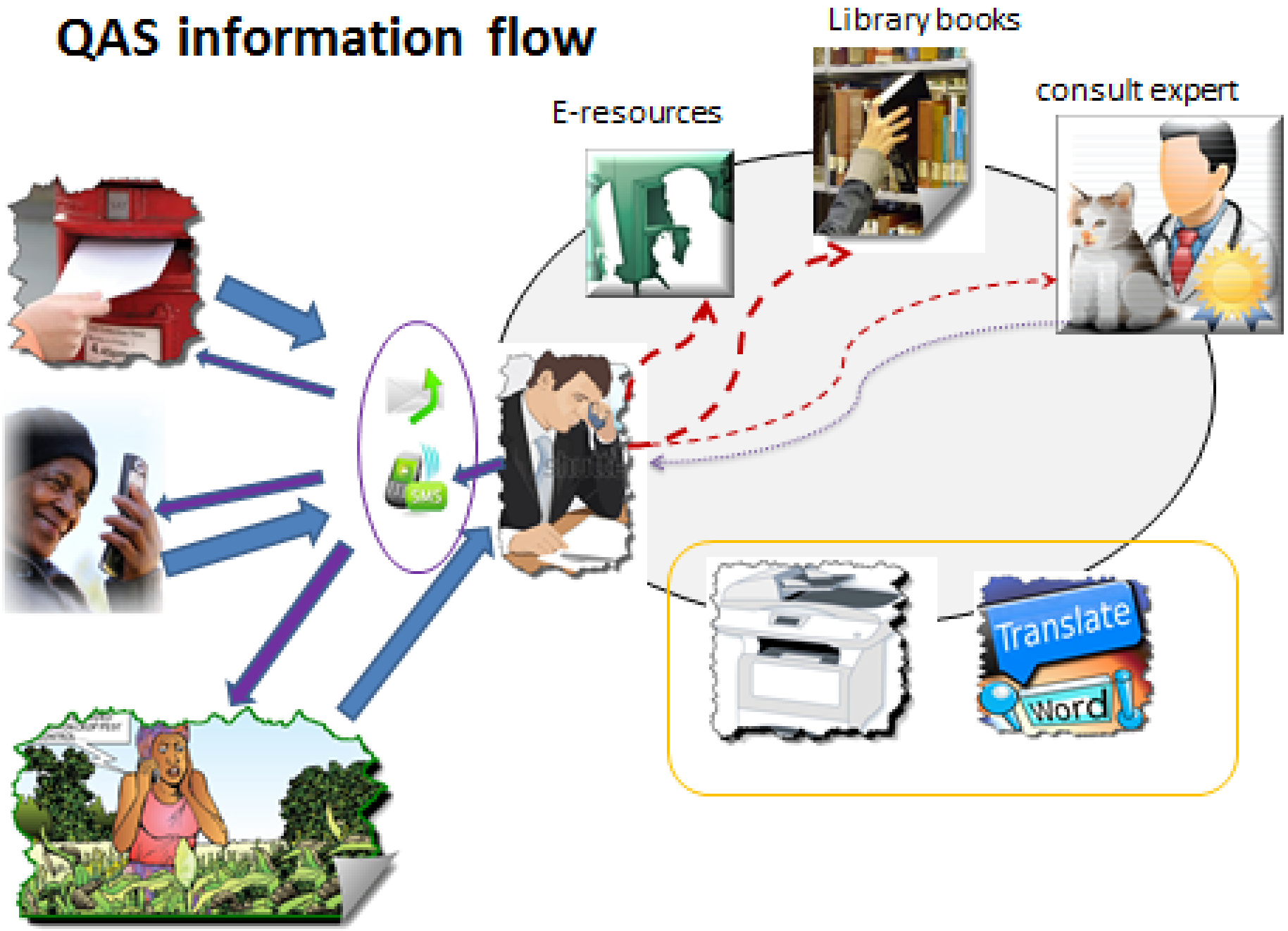
M-agricultural information services in Zimbabwe

- Question and Answer Service , introduced to the UZ Library through CTA has remained a key information services to rural communities. (Mataranyika, 2013)
- Project entails receiving information request from farmers and farming community through:-
  1. Telephone requests
  2. Mail requests
  3. SMS requests
  4. Beeping or call back requests

M-agricultural information services in Zimbabwe Cont'd

- QAS information expert at the UZ Library looks at the requests and searches information to satisfy the request. In some case cases, the expert:-
  1. Liaises with the relevant specialists in the Faculty of Agriculture or Veterinary Science
  2. Arranges for translation of materials into local languages if requested
  3. Photocopies relevant materials
  4. Uses CTA Collection and University resources
  5. Document these requests
  6. Send response by mail or email. Confirms by sms

QAS information flow



FAO Org Emergency Rehab & Coordination Unit

- Transition from large scale free input distribution programmes to market-based intervention through FAO Org ERCU programmes.

- Opportunities to choose the agricultural inputs of their choice,
- **T**est an alternative method of input assistance,
- **D**emonstrate the capacity of communal farmers to contribute financially to the inputs received
- Gradually shift from free input distributions, and promote the reestablishment of wholesalers to agro-dealers linkages.

FAO Org Emergency Rehab & Coordination Unit Cont'd

- Address socio-economic challenges typical of the first decade of the twenty first century
- Provision of cost effective method to record all transactions showing quantity and type of inputs purchased, which can be used for monitoring and evaluation in agricultural business
- Use of m-technology for receiving, creating, sharing and obtaining information e.g access to research and best practices, weather information and market prices via SMS, IVR or call centers

Integrating Technology

- Transform agriculture for the benefit of the nation.
- Knowing the latest market prices allows farmers to avoid unnecessary middlemen and maximise profits.
- Access to regular weather updates can help farmers save crops that would be subjected to the vagaries of nature.
- Development of networks and use of low-cost ICTs enhance timely access to accurate and reliable information
- Culture, tradition and technology

Integrating Technology Cont'd

- e-Agriculture transcend beyond technology i.e integration of knowledge and culture, meant to improve communication and learning processes among relevant actors in agriculture locally, regionally and globally.
- Monitoring rainfall using cellular telecommunication networks can provide opportunities to minimize mortalities and economic loss, e.g. improving flood early warning systems as a disaster preparedness and mitigation strategy

Information and Development

- Development as the sum total of all actioning that drive society towards an organized system of individual and collective living conditions relating to desirable values.
- Pragmatic nature of “actioning” is anchored on provision and equitable access to information with reference to agricultural information systems accessible by all
- Effective development is anchored on *“inseparable trinity”* comprising of Information/knowledge, communication and development

Information and Development Cont'd

- Knowledge as a source of socio -economic development i.e. economies that perform well are those that make the best use of knowledge and its applications in all aspects of life (Aubert and Reiffers, 2003)
- Positive transformation, advancement anchored on access to information/knowledge, hence the need to enhance knowledge production , generation , coordination and promotion
- Technology should be used to provide access to accurate information to enable decision making

Message of Hope

Just when the caterpillar thought the world was coming to an end it became a butterfly - Proverb

Role of Libraries

- Creating synergies with libraries, e.g. community resource centres , public libraries,
- Capacitating public libraries with ICT infrastructure to create online channels and web portals for exchange and sharing of agricultural information.
- Investing in m- technologies to connect with users, for example, mobile Web site that allows patrons to access information pertaining to library operations and services , mobile resources and databases, e. g. the (eIFL-PLIP)
- Balancing Isomorphic and allomorphic pressures

Role of Libraries cont'd

- (eIFL-PLIP) has helped to transform public libraries into key components of the agricultural information system and significant drivers of agricultural development.
- Creating sustainable partnerships
- application of ICTs to enable community processes and the attainment of community objectives, for example, turning digital divide into digital dividend.

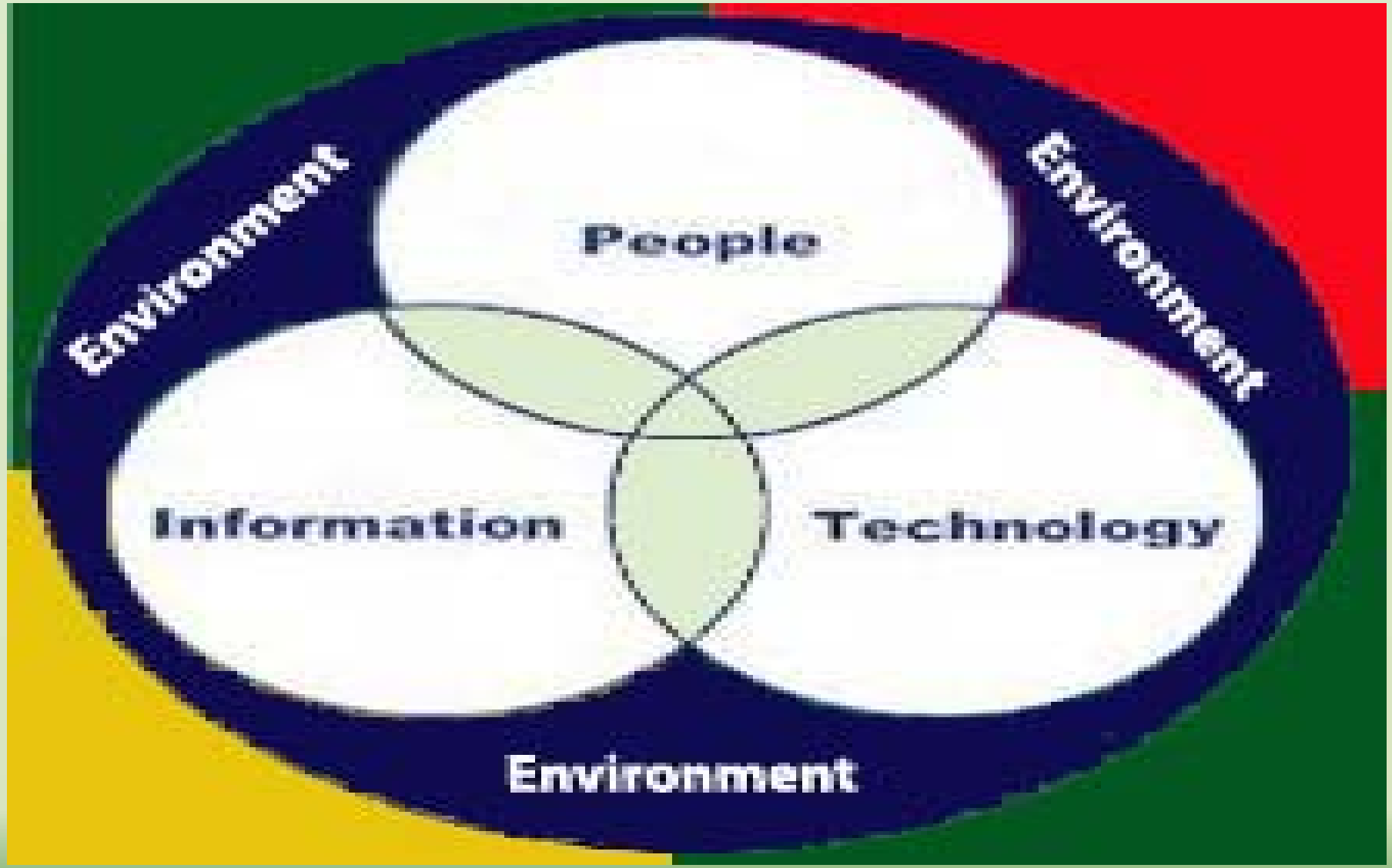
Challenges

- Digital divide
- Inadequate ICT infrastructure
- Power cuts & Poor connectivity density
- High cost of mobile gadgets and infrastructure
- Poor download & upload speed i.e. Zimbabwe is inland the greater distance from the sea leads to higher the costs
- Design robust affordable and sustainable m-agricultural information platforms for all types of handsets-interoperability

Opportunities

- Information/knowledge/wisdom economy
- Enhancing the role of the library and librarian
- More value added service on m- infrastructure i.e. weather information systems, market information systems, mobile trading, and mobile extension services
- Increased participation of agricultural information services to farming communities.
- Promoting growth & Enlarging peoples choices
- Increased trade

Nexus for M-Agriculture integration



Conclusions

- Libraries and Librarians should adapt mobile technology to enhance agricultural production information.
- Adapting m-technologies into library services will empower the profession to own the future.
- Reaching out to the geographically dispersed and previously marginalised communities.
- Bridging the digital divide and turning it into a digital dividend "the library in the pocket" the gift that keeps giving"

Conclusions cont'd

- Building models that integrate libraries, agricultural extension services and communities through ICT's
- Incorporating technology and education through projects , collaborations and social media
- M-libraries as an escalator that enables farmers to progress out of second to first class economies

The End!!!!!!!!

THANK YOU

SIYABONGA

MAITA

ASANTE SANA

GRAZIE

collencechisita@yahoo.com

thembani.malapela@fao.org

"Nothing is more pleasant to the eye than green grass kept finely shorn."

- Francis Bacon, Essays (1625), "Of Gardens"

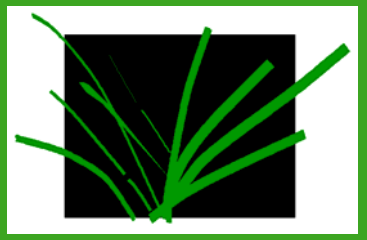
Turfgrass Information Center

Bibliographic Control of a Niche Literature:

Obsolete Concept or Service Opportunity?

The Example of Turfgrass Science

Pete Cookingham
Michigan State University Libraries
IAALD 2013 -- Ithaca – July 2013



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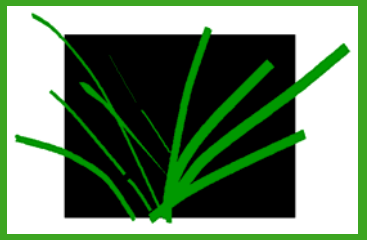
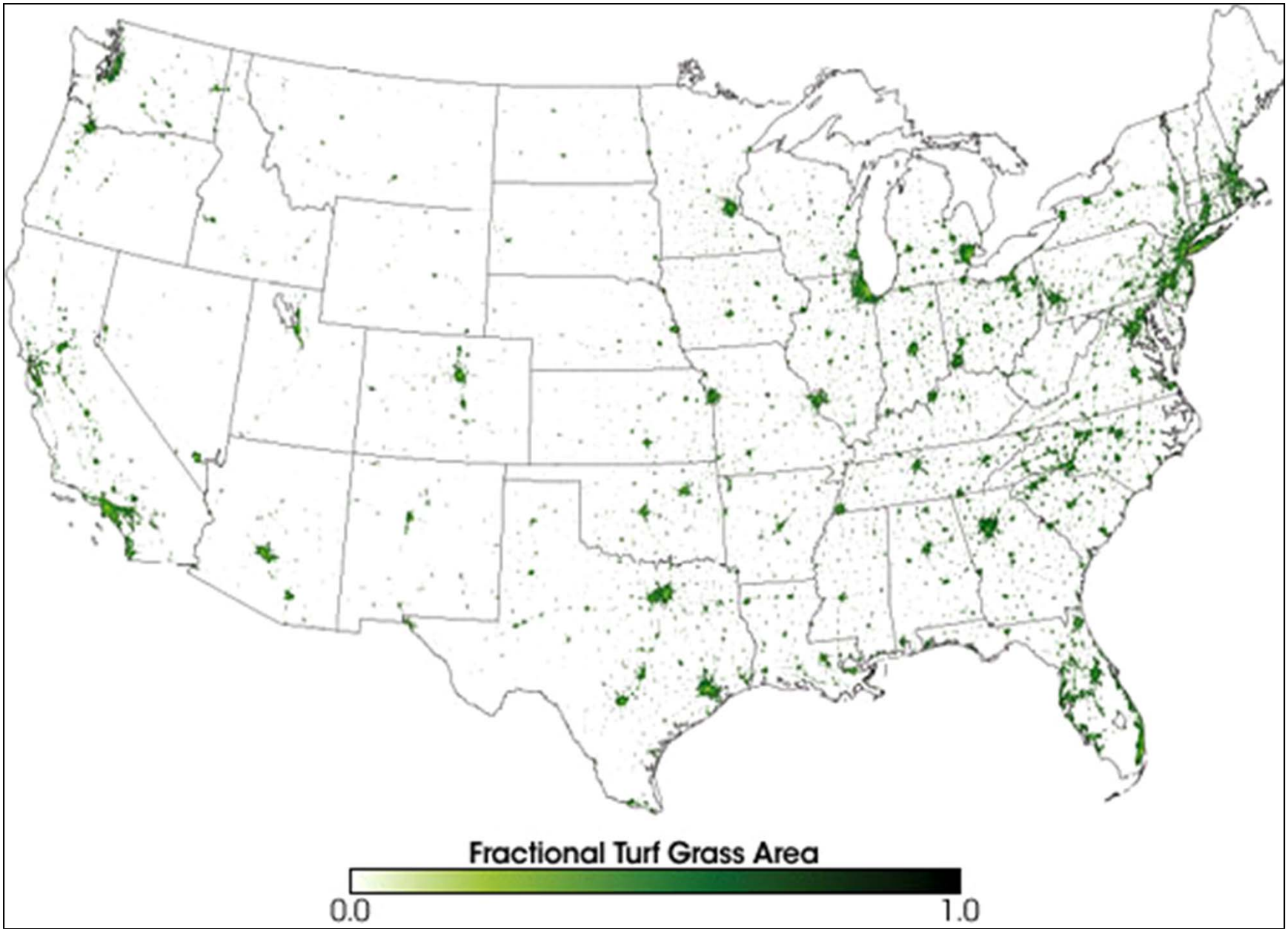
So What?

- Land coverage -- sheer amount of turf



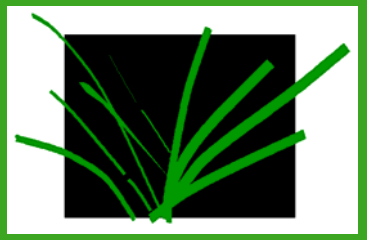
Extent of Turfgrass Cover USA (Milesi, 2005)

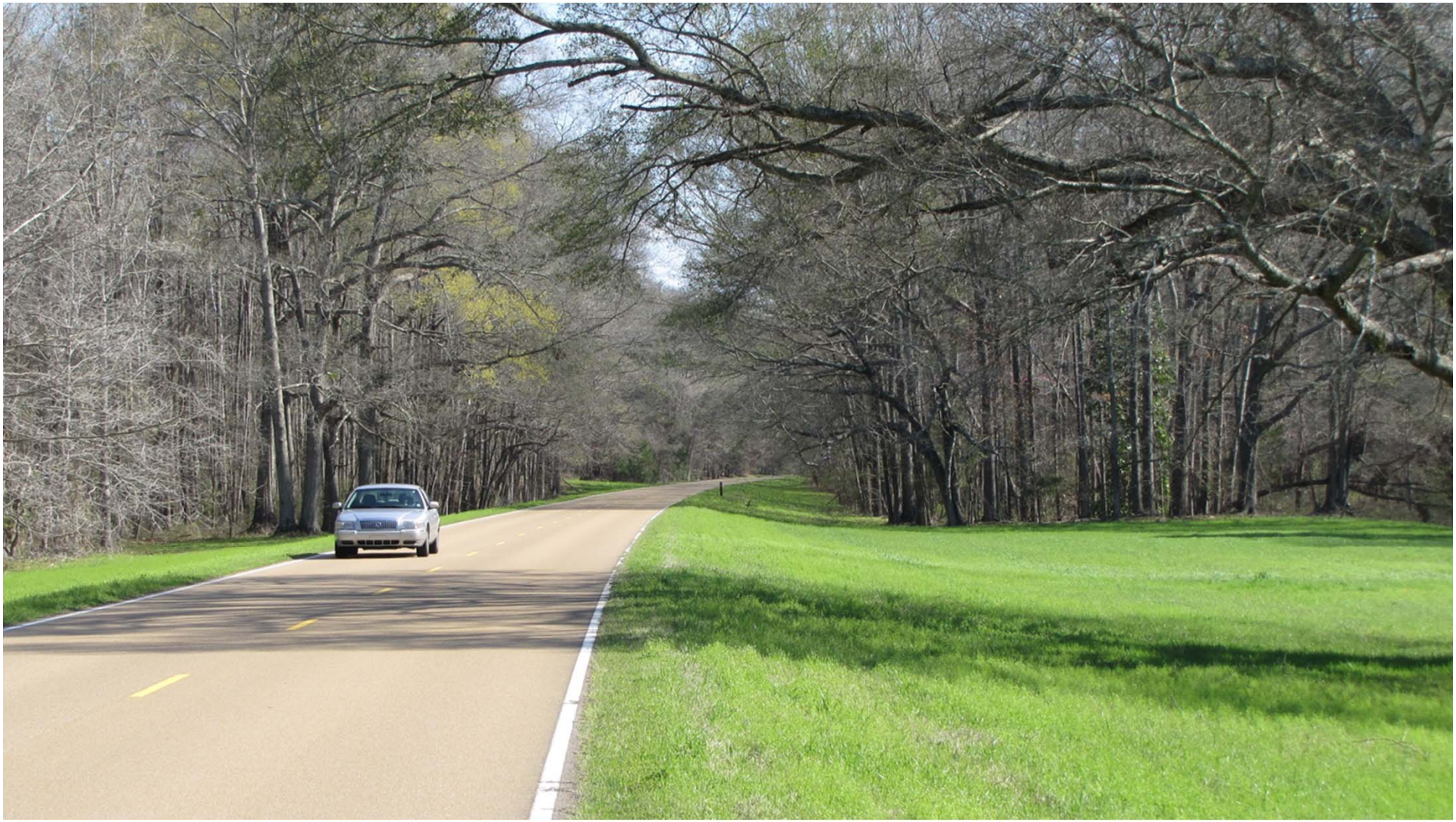


Turfgrass Information Center

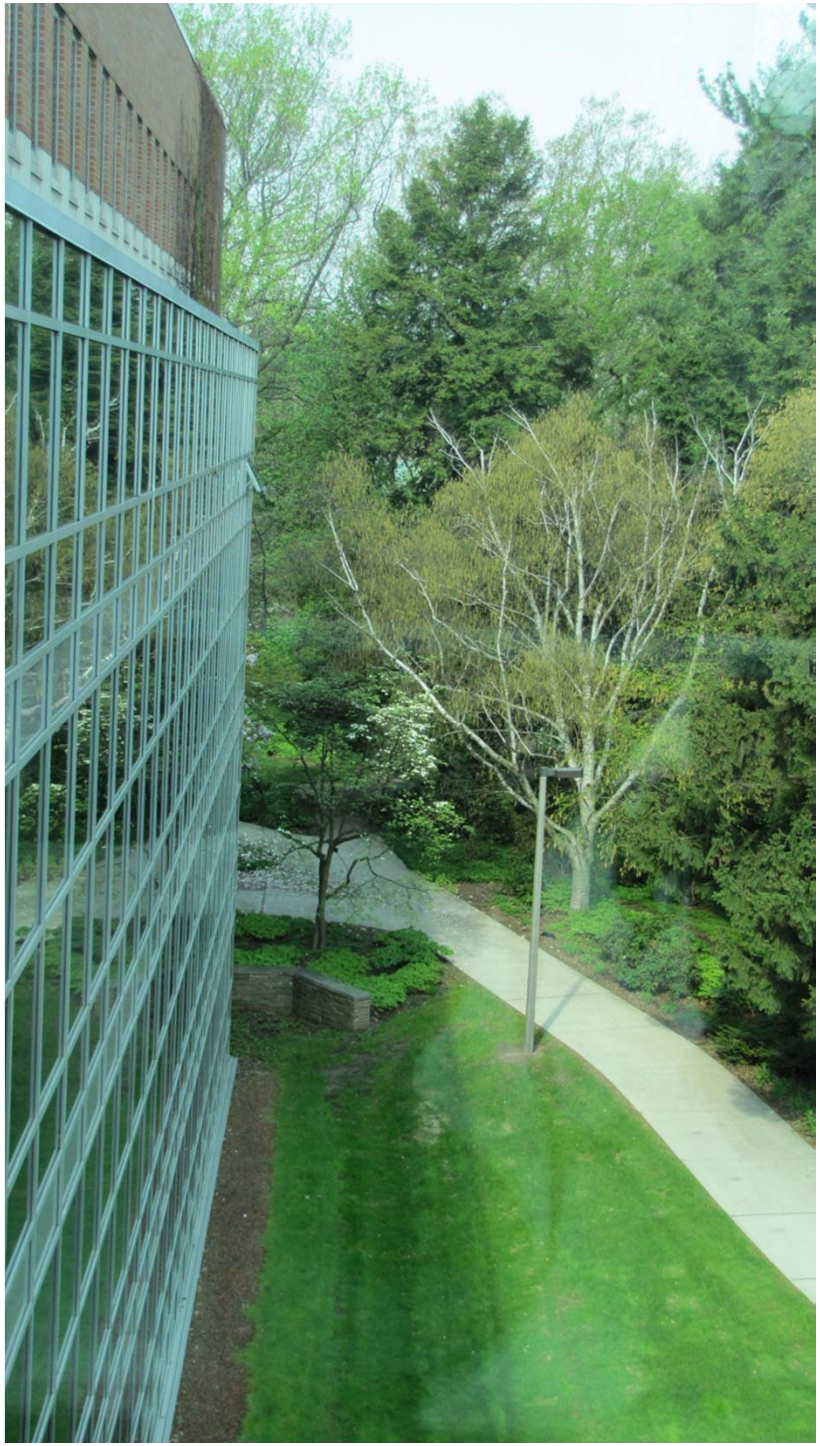
Industry Sectors & Increasing Maintenance Intensity

- Utility turf/Rights-of-way/levees/dams
- Roadsides/Airfields/Flood plains/brownfields/landfills/orchards
- Cemeteries
- Landscapes/home lawns/parks & grounds/schools/institutions
- Golf course fairways & greens/Sports turf/Sod production/Seed production





MICHIGAN DEPARTMENT
OF TRANSPORTATION
GALESBURG
REST AREA
HONORING
JOHN S. POLASEK
REST
AREA



CUB SCOUTS MON
GRANGE TUE
PRAYER GRP WEDS
SERVICE 9:30
889-4019
PLEASANT PLAINS
PRESBYTERIAN
CHURCH
ESTABLISHED 1837
WORSHIP 9:30AM
BIBLE STUDY • YOUTH GROUPS
CHURCH SCHOOL
ALL ARE WELCOME
889-4019
Rev. Thom Flet
PASTOR

MORAGA AVE
MAIN
POST

UBS
UBS

arrow
Labatt
Blue
Labatt
BLUE
LIGHT
IMPORTED
CANADIAN PILSENER

CORDS

LAWN CLOSED
FOR THE SEASON
City of New York
Parks & Recreation
CENTRAL PARK

VACANCIES

Turfgrass Information Center

So What?

- Land coverage -- sheer amount of turf
- Participation -- sheer number of ‘users’

The Plus makes all the Difference
The Plus makes all the Difference
The Plus makes all the Difference
DETROIT

Level Grip

Excellent for turf courses. High outside rim for equal traction and balance.

Queens Plate

For tracks that do not allow inserts or toe grabs that protrude above the plate.

THESE FIELDS FOR
CRICKET USE
ONLY

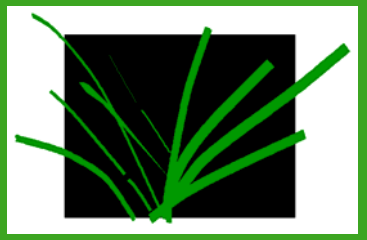
MCFC - The Mancunian Way
Manchester City Football Club
Manchester City Football Club

WELCOME TO MUNICIPAL PARK

Turfgrass Information Center

So What?

- Land coverage -- sheer amount of turf
- Participation -- sheer number of ‘users’
- Water use -- turf in Las Vegas or Phoenix or Dubai?



Turfgrass Information Center

So What?

- Land coverage -- sheer amount of turf
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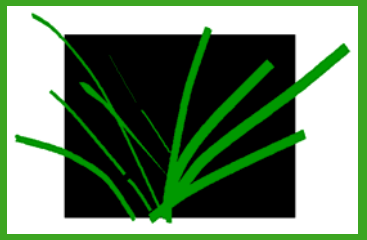
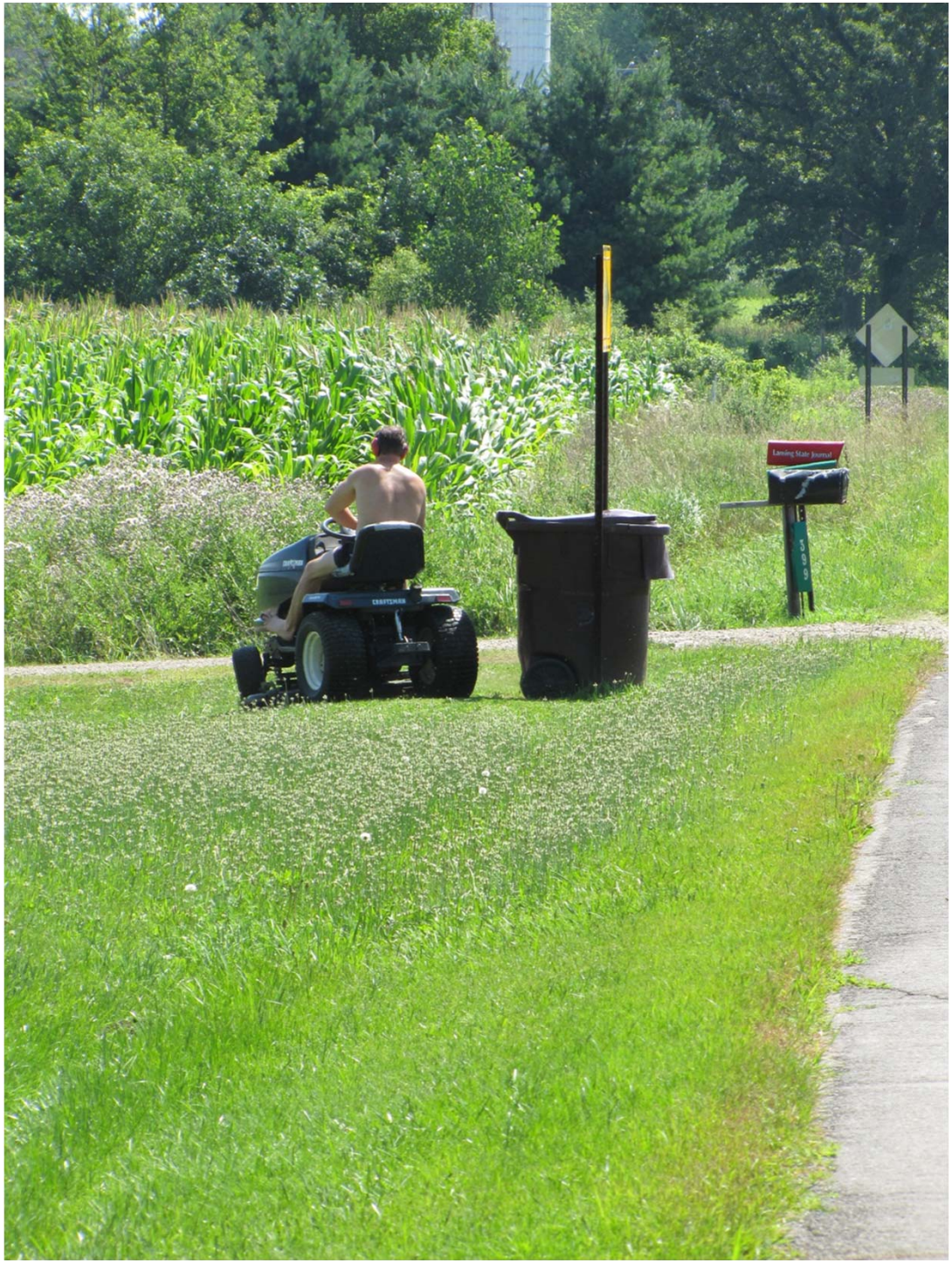
- Water use -- turf in Las Vegas or Phoenix or Dubai?
- CO emissions -- mowers, etc.



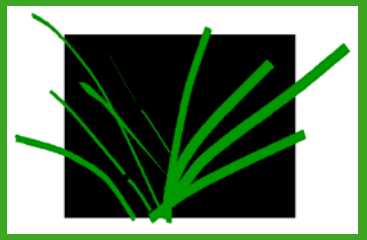

Lansing State Journal
3989

HD 50
High Density
Patented Earth Shattering Motion
TURFCO

Turfgrass Information Center

So What?

- Land coverage -- sheer amount of turf
- Participation -- sheer number of ‘users’
- Water use -- turf in Las Vegas or Phoenix or Dubai?
- CO emissions -- mowers, etc.
- Pesticide use – what/where/when/who



CAUTION
PESTICIDE APPLICATION
KEEP OFF
UNTIL DRY
CUSTOMER: PLEASE REMOVE AFTER 24 HOURS
5-30-12
11:00

Turfgrass Information Center

So What?

- Land coverage -- sheer amount of turf
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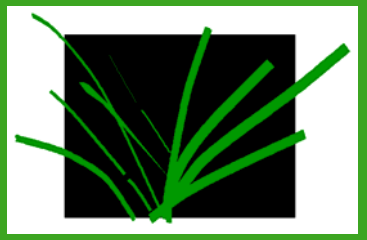
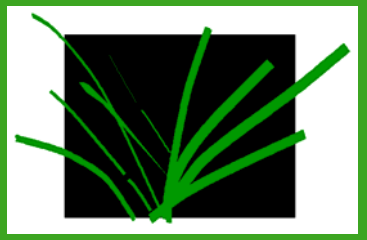
- Pesticide use – what/where/when/who
- Fertilizer use – what/where/when/who



Turfgrass Information Center

So What?

- Land coverage -- sheer amount of turf
- Participation -- sheer number of ‘users’
- Water use -- turf in Las Vegas or Phoenix or Dubai?
- CO emissions -- mowers, etc.
- Pesticide use – what/where/when/who
- Fertilizer use – what/where/when/who
- Public policy -- who decides?



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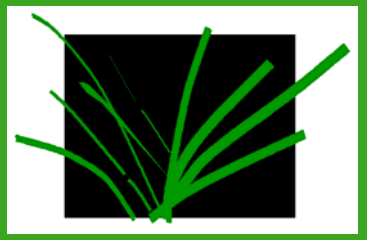
Turf Benefits (further to Beard and Green, 1994)

- Erosion control, dust stabilization, & soil building capacity, including remediation and C sequestration
- Groundwater recharge & runoff buffering
- Heat dissipation, noise abatement, glare reduction, fire-resistance, road and airfield safety
- Habitat & green space
- Recreational use: Soccer, golf, cricket, softball, bocci, football, baseball, hurling, etc.
- Aesthetic: Visual comfort and the 'savanna effect'



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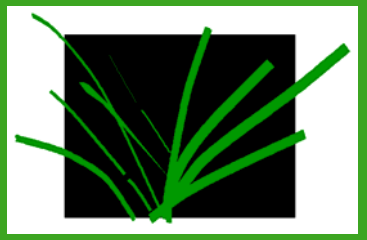
Thus, hopefully of interest…….

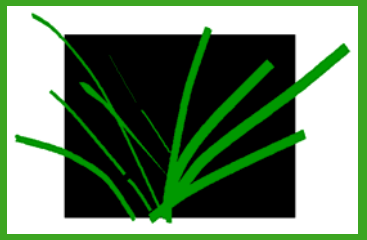
- Cooperative/consortium project: sector & geographic independence – academics, professionals, industry, & NGOs.
- Technology-based delivery to end-users since day one.
- A very grey literature, and poorly collected.
- Emphasis now on digitization and digital archiving, present and past, with effective metadata.



Turfgrass Information Center

Exhaustive bibliographic control – an archaic concept?

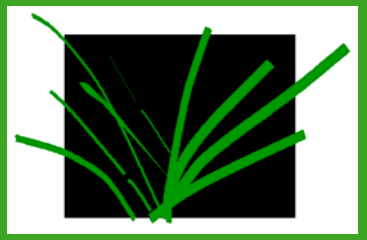
- Can we collect and index ‘everything’, regardless of language, format, or age?
- Always limited by availability – much is proprietary.
- Facing the same-old challenges of format limitations with digital archiving.



Turfgrass Information Center

Mission of the Turfgrass Information Center (TIC)

- Collect, digitize, & preserve turfgrass materials, both print & online.
- Provide precise access to turf information resources, including the above.
- Assist users of the materials & promote content access.
- Provide physical and online infrastructure supporting turfgrass scholarship.
- Build a stable long-term structure to continue this work – the TIC Endowment – to ultimately make public all the resources we legally can.



JAMES B. BEARD
Turfgrass
Information Center

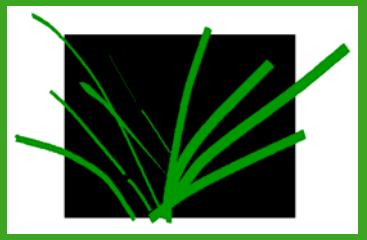
JAMES B BEARD
TURFGRASS LIBRARY COLLECTION

TURFGRASS

Turfgrass Information Center

TIC Online Presence

- Public website & public resources
  - Digitized serial runs
  - Digitized monographs
  - Digitized graphic & visual content
- Turfgrass Information File (TGIF) database
  - All formats, all languages-of-origin, all turf, *Turfgrass Thesaurus* indexing: moving towards a being a disciplinary discovery device.
- Limited access resources
  - Digitized serial runs
  - Beard's *Turfgrass Encyclopedia* – full text



The Turfgrass Information Center

What's New
TIC Blog
Current *Sward* Issue
TIC Annual Report 2012

Increase Full-Text!
Monographs
Theses/Dissertations
ITS Authors

Current TGIF Features:
Breeding for Drought
Drought

In Memoriam - The TGIF Legacy:
John H. Dunn
1937-2012

C. Reed Funk
1928-2012

Stanley J. Zontek
1949-2012

Make a Stanley J. Zontek Memorial Gift Now

The Turfgrass Information Center (TIC), a specialized unit at the Michigan State University Libraries (MSU), contains the most comprehensive publicly available collection of turfgrass educational materials in the world. TIC has over 200,000 records in its primary database, the Turfgrass Information File (TGIF), with over 50% linked to the full-text of the item.
Please read our disclaimer.

Turfgrass Information File

Worldwide Access to Turfgrass Science Information

Search TGIF Now

(Getting Started with TGIF)

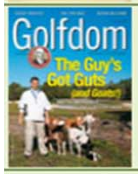
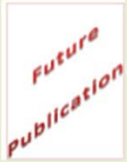
Browse Full-Text Resources

TGIF is a cooperative project of:

USGA

MSU LIBRARIES

MSU is an affirmative action/equal opportunity employer.

	Publication Title	Publisher	Coverage
	ASGCA Architect's Gallery		
	CUTT	Cornell Cooperative Extension	1990-Present
	The Golf Course	Peterson, Sinclaire & Miller Inc. in conjuction with Carter's Tested Seeds, Inc.	1916-1923 Incomplete
	Golfdom	North Coast Media, LLC Includes *Turfgrass Trends* 2002-2012	1927- Present Less 6 Months
	Golf Course Industry	GIE Media Horticulture Group	1989-2009 Under Construction
	Greenkeeper International	The British and International Golf Greenkeepers Association Includes *British Golf Greenkeeper; Golf Greenkeeping and Course Maintenance; Greenkeeper; Greenkeeper & The International Greenkeeper; Golf Greenkeeping; The Golf Course;* and *Greenkeeping Management*	19xx-Present(?) Under Construction
	Hole Notes	Minnesota Golf Course Superintendents Association	1975-Present
	Landscape Management	North Coast Media, LLC	1962-Present

	Publication Title	Publisher	Coverage
	Bulletin for Sports Surface Management	Sports Turf Research Institute Includes *Sports Turf Bulletin; International Turfgrass Bulletin*	1951-Present Less 1 Year
	Golf Course Management	Golf Course Superintendents Association of America Includes *Greenkeepers' Bulletin; Greenkeepers' Reporter; Golf Course Reporter; Golf Superintendent*	1933-Present Less 1 Month
	The Grass Roots	Wisconsin Golf Course Superintendents Association	1975-Present Less 1 Month
	GreenKeepers	Asociación Española de Greenkeepers Includes *Césped Deportivo*	1999-Present
	GreenMaster	Canadian Golf Superintendents Association	1965-Present Less 3 Months
	International Turfgrass Society Research Journal and Proceedings	International Turfgrass Society	1969-Present Less 2 Years, with Author Permission for materials pre-2009 Continuous Construction
	Journal of Turfgrass and Sports Surface Science	Sports Turf Research Institute Includes *Journal of the Board of Greenkeeping Research; The Journal of the Sports Turf Research Institute; Journal of Turfgrass Science*	1929-2007

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The Upshot?

- **Turfgrass Science is a subject of applied international interest without widespread library collections of note.**
- **TIC at the MSU Libraries intends to exhausively collect and index this literature.**
- **You can utilize an increasing range of bibliographic and full-text content via our public resources, regardless of your association with us - many are public resources!**

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thank you!

email if you have any questions about TIC or TGIF, or leads on local turfgrass resources which we should know about!

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cooking1@msu.edu

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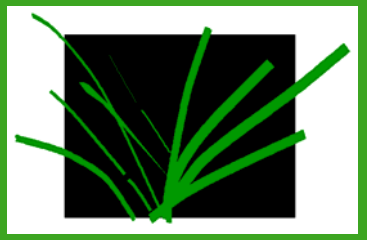

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