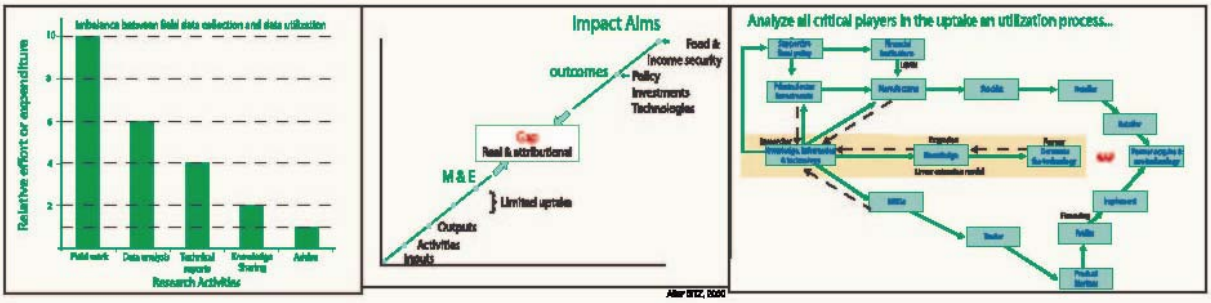
SWMnet Working Paper 2

Institutionalized Scaling-up and Uptake Promotion of Outputs from Soil and Water Management Research in East and Central Africa (SWMnet R8381)

Kenya Country Report on Constraints & Barriers



April, 2005

Dr. Jane W. Wamuongo
Mr. Wellington Mulinge
Mrs. Catherine Kibunja
Mr. Shem Kanyanjua

ICRISAT

SWMnet

Turning Knowledge into Action

ASARECA

SWMnet Working Paper 2

Institutionalized Scaling-up and Uptake Promotion of Outputs from Soil and Water Management Research in East and Central Africa

Kenya Country Report on Constraints & Barriers

Contact us through:
The Regional Coordinator of SWMnet,
ICRISAT Regional Office for East and Southern Africa
Room No. F121, ILB Building, ICRAF Complex, United Nations Avenue, Gigiri,
P. O. Box 39063-00623, Nairobi, Kenya
Tel: +254 20 722 4550 or +254 20 722 4565; Fax: +254 20 722 4001
Email: n.hatibu@cgiar.org or swmnet@asareca.org; Website: www.asareca.org/swmnet

About SWMnet & SWMnet Working Papers

The Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) is a non-political organization of the national agricultural research systems (NARS) of ten countries: Burundi, the Democratic Republic of Congo (DRC), Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda. SWMnet aims at supporting the generation of wealth by coordinating the efforts of ASARECA to support effective utilization of land and water resources in profitable crop, livestock and other natural resources-based enterprises.

The SWMnet Working Papers are designed to encourage members of SWMnet to share initial findings from research and other investigations facilitated by SWMnet in order to encourage wide scale peer review during the research process. These are raw documents which have not been reviewed and edited and are released to encourage discussion of work in progress. Readers are therefore welcome to send comments to: jwwamuongo@kari.org

Institutions Participating in the Project

Kenya Agricultural Research Institute (KARI)

The International Crops Research Institute for the Semi-Arid Tropics - as scientific partner to SWMnet

Acknowledgement:

SWMnet is a regional network of individuals and organizations, under the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). SWMnet is currently running programmes supported by several organizations including, EU, DFID-NRSP, IFAD and governments of participating countries.

This particular document is an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID as the content is solely the responsibility of the authors

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

AAS	-	Agricultural Advisory Services
ARSP	-	Agricultural Research/Livestock Support Programme
ASAL	-	Arid and Semi Arid Lands
ASARECA	-	Association for Strengthening Agricultural Research in East and Central Africa
ATIRI	-	Agricultural Technology and Information Response Initiatives
AWPCE	-	Annual Workplan and Project Cost Estimates
CBO	-	Community Based Organization
CD	-	Compact Disk
CKSS	-	Communication Knowledge Sharing Strategy
CP	-	Communication Plan
CS	-	Communication Stakeholder
FPR	-	Farmer Participatory Reserach
FRC	-	Farmer Research Committee
SRG	-	Farmer Research Group
FSR	-	Farming Systems Research
FTC	-	Farmers Training Centres
GO	-	Governmental Organization
GoK	-	Government of Kenya
HVT	-	High Value Tree
ICRAF	-	International Centre for Research in Agroforestry
INM	-	Integrated Nutrient Management
JKUAT	-	Jomo Kenyatta University of Agriculture and Technology
KAP	-	Knowledge Attitude and Practices
KAPP	-	Kenya Agricultural Productivity Project
KARI	-	Kenya Agricultural Research Institute
KEFRI	-	Kenya Forestry Research Institute
KTN	-	Kenya Television Network
L&WM	-	Land and Water Management
M&E	-	Monitoring and Evaluation
MoA	-	Ministry of Agriculture
MSc	-	Master of Science
MTP	-	Medium Term Plan
NAEP	-	National Agricultural Extension Policy
NAFRP	-	National Agroforestry Research Project
NALEP	-	National Agricultural and Livestock Extension Programme
NARL	-	National Agricultural Research Laboratories
NARS	-	National Agricultural Research Systems
NDP	-	National Development Plan
NEF	-	National Extension Fund
NGOs	-	Non Governmental Organizations
NPEP	-	National Poverty Eradication Plan
NPP	-	National Policy Papers
NRM	-	Natural Resource Management
NUTMON	-	Nutrient Monitoring Methodology
NUTSAL	-	Nutrient Monitoring in Arid and Semi Arid Lands
PESS	-	Public Extension Service Systems
PG	-	Post Graduate
PLAR	-	Participatory Learning and Action Research

PM&E	-	Participatory Monitoring and Evaluation
PRSP	-	Poverty Eradication Strategy Paper
R&D	-	Research and Development
RF	-	Rockefeller Foundation
SMP	-	Soil Management Project
SRA	-	Strategy for Revitilizationof Agriculture
S & WM	-	Soil and Water Management
SWMnet	-	Soil and Water Management Research Network
TSBF	-	Tropical Soil Biology and Fertility
TV	-	Television
UoN	-	University of Nairobi

EXECUTIVE SUMMARY

Given the continuing stagnation of agriculture, high incidences of poverty, and environmental degradation in Sub-Saharan Africa, the agricultural research systems are under a lot of pressure to show impact of their work. Therefore, researchers are increasingly realizing that they cannot ensure impact if they exclude other players. Research approach has therefore progressively shifted from one scientist's discipline experimentation to multi-disciplinary and inter-institutional level and finally to participatory experimentation in trying to ensure results and outputs are taken up. However, there is concern that the extent to which the researchers are investing in ensuring uptake and utilization of their research results is still limited.

The rapid appraisal reported herein was designed to analyse why results and outputs from soil and water management research are not communicated and scaled-up as would be desirable and suggest ways to overcome the identified barriers. Various hypotheses were tested and the results indicated that there are many hindrances to effective communication, promotion and scaling-up of results and outputs for research in soil and water management. The government through its policy and strategy documents demands impact from research investments, but articulate strategies and programmes for achieving this are still missing. Research managers have a fixated linear model of dissemination of research inputs which has gone to compartmentalized roles and anyone venturing beyond their perceived domain of operation is met with hostility. Curricula offered to graduates do not prepare researchers for the complex role of dealing with many stakeholders in technology production and dissemination, they all lack courses in communication skills and promotion of uptake. Furthermore, guidelines for proposal writing do not specifically demand a communication plan to dessiminate research results.

In the last five or so years however, KARI has put in mechanisms to ensure results and outputs of research are taken up and up-scaled and devised innovative ways of empowering the ultimate beneficiaries to demand information and technologies through the Agricultural Technology and Information Response Initiative (ATIRI). Recent moves to ensure uptake and promotion of results from agricultural research in general is KARI's proactive role in ensuring that extension agents are empowered to do their duties as is currently being done under the Kenya Agricultural Productivity Project (KAPP).

This project concludes that there is still need to sensitize everyone concerned of the need to thoroughly analyse and involve all stakeholders from the beginning. If scaling up and uptake promotion of research outputs is institutionalized, research budgets should reflect the importance of this aspect, and, monitoring and evaluation should take it into consideration. University curricula should also be geared towards empowering scientists for the roles of uptake promotion and scaling-up of their research findings.

1 INTRODUCTION

Low agricultural production is a major contributor to the high poverty levels in countries of Eastern and Central Africa. On realizing this, national governments have over the years invested large amounts of financial resources in agricultural research and extension, hoping to uplift the living standards of their people. A lot of research has been conducted and personnel trained but returns to the efforts in terms of improved food production, have remained disappointingly low. Low agricultural production has been attributed to a myriad of problems, which include unfavourable weather conditions, use of poor genetic material, degraded soils, and poor husbandry practices. Poor husbandry practices caused by unavailability of suitable technologies have been blamed for low profitability and return to labour in smallholder farming enterprises.

Research institutions in Kenya have developed numerous technologies but uptake and promotion of the recommendations emanating from research has remained very low. Reasons for low uptake are many and varied, and include enactment of poor policies, inappropriateness of technologies, and lack of involvement of all stakeholders. The Soil and Water Management Research Network (SWMNet) implemented a project to evaluate this problem across the ECA sub-region (Box 1). This report presents results of a rapid appraisal conducted in Kenya to produce information for project output 1. The appraisal was also conducted in three other member countries of ASARECA (Ethiopia, Sudan and Tanzania) – and their reports are presented in SWMnet Working papers 1, 3, and 4, respectively. The purpose of the rapid appraisal in Kenya was to identify the reasons for low uptake of soil and water management results and technologies, and come up with recommendations on how best to institutionalize a culture of scaling-up and uptake promotion of outputs from soil and water management research. This study was particularly concerned with the problem of identifying whether there is sufficient recognition of the need for uptake promotion and scaling-up of research results from soil and water management in Kenya.

Box 1: Project Objectives

Goal: Livelihoods of the poor farmers in East and Central Africa **improved** through effective and integrated management of land and water resources for agricultural enterprises.

Purpose: A culture of promoting uptake, scaling-up and effective use of results from soil and water management research in East and Central Africa **institutionalized**.

Outputs:

i) Constraints and barriers limiting uptake promotion by research institutions and partners **elaborated** and **understood**.
ii) Understanding by key research managers, of the importance of communication and uptake promotion strategies for impact of R4D in S&WM **increased** and **enhanced**
iii) Capacity for providing training and skills

The general hypothesis was that there is little recognition of the need to promote uptake and scaling up of research results. Eight specific hypotheses were developed and tested in the current study. The hypotheses that were tested are:

Hypothesis 1: The role of research systems, institutions and researchers in uptake promotion is rarely recognized or promoted in policies and strategies that guide research in soil and water management.

Hypothesis 2: The mind-set of most research planners, managers and researchers in soil and water management are still fixated in the linear dissemination approach of reaching the ultimate beneficiaries through the extension service.
Hypothesis 3: Research programmes and projects rarely include communication and uptake promotion plans.
Hypothesis 4: Research programmes and projects are rarely evaluated for communication, knowledge sharing, uptake and utilization of knowledge and technologies produced.
Hypothesis 5: A very small proportion of programmes and project budgets and activities are committed or used in the communication and uptake promotion of research results.
Hypothesis 6: Research outputs rarely include specific advice to farmers, input suppliers (e.g. fertilizer suppliers), extension service, policy makers and other clients.
Hypothesis 7: Researchers are not adequately trained for communication and uptake promotion.
Hypothesis 8: The reward and incentive systems like salaries, promotion, and prizes to researchers do not demand evidence of utilization and impact of research.

The objectives of the study were to: (i) determine whether research systems, research institutions and researchers, are recognized and supported as major players in uptake promotion, and scaling up of research results from soil and water management, (ii) assess the attitude of research planners, managers and researchers in soil and water management, towards the role of research institutions and researchers in promotion, and scaling up of research results from soil and water management, (iii) investigate the extent to which projects and programs in KARI have factored in the aspects related to scaling up and uptake promotion of research results, and whether projects and programmes are often evaluated on the basis of scaling up and uptake promotion, (iv) investigate the proportion of project and program budgets and activities are committed and used in scaling up and uptake promotion of research results, and how well the research results are packaged to suit client/stake-holder demands, and (v) investigate how well the researchers are trained in scaling up and uptake promotion of research results, and whether the reward and incentive system of researchers demand evidence of research results by clients and impact.

The report is divided into for main parts. The methodology followed in the rapid appraisal is briefly presented in section 2 and the results are presented and discussed in section 3. In section 4 the findings, discussion and conclusions are presented. The main body is supported with two Apenndicies.

2 METHODOLOGY

A methodology designed to collect the necessary data for testing of the eight hypotheses was developed by the regional project team. A checklist developed centrally was later used to design the specific country questionnaires.

More information was obtained from the university curriculum, and guidelines for proposal writing in KARI. In all cases, what is written in the papers, curriculum and guidelines for proposal writing was assumed to be a reflection of the vision and mind-set for the respective authors who are the managers and planners of research. The mind-set of researchers was investigated by administering a semi-structured questionnaire to researchers in soil and water management.

Policy and strategy documents from the Ministry of Agriculture, Kenya Agricultural Research Institute (KARI) and curricula offered at two state universities [i.e, Jomo Kenyatta University of Agriculture and Technology (JKUAT) and College of Agricultural Science, University of Nairobi, which teach soil and water management courses], were reviewed to test the first hypothesis. Documented criteria for promotion at KARI and the two universities were used as a proxy to test hypothesis eight.

A semi-structured questionnaire (Appendix I) was administered to researchers in soil and water management research so as to gather insights on the barriers to uptake promotion by providing data for all hypotheses except No.3 and 8. The questionnaire was distributed to a total of 50 researchers in S&WM. Out of these, only 23 responded by filling and returning the questionnaires while 15 completed the questionnaire during inteview sessions conducted by numerators. Therefore in total 38 questionnaires were received and analysed.

Case study evaluation of seven long term programmes and projects was done to provide qualitative data for testing hypotheses 3 and 5.

The data from the questionnaires were collected, coded and entered into computer and database access used for data storage. The data was analyzed using stata econometric and statistical software. The presentation was done using chart graphs and tables presenting frequencies of responses or average scores of the ranking allocated to categories.

3 RESULTS AND DISCUSSION

3.1 The Role of the Research System in Uptake Promotion is not Recognized in Policy and Strategy Documents

This section presents results with respect to hypothesis 1, namely: *the role of research systems, institutions and researchers in uptake promotion is rarely recognized or promoted in policies and strategies that guide research in soil and water management*. Information related to the amount of recognition and support given to researchers and research institutions in uptake promotion was obtained by reviewing policy and strategic documents at the government, ministerial (Ministry of Agriculture), and research (KARI) level. The findings are as indicated below:

3.1.1 Government level documents

Poverty Reduction Strategy Paper (PRSP) 2001-2004 (GoK, 2001a):

This is a short-term strategy (3 years) of the long-term vision for poverty eradication in Kenya. In this paper, the government has put a commitment to increase resource allocation to improve the general performance of the agricultural sector with research and development as one of the objectives (GOK, 2001a - pgs 7 and 78). The strategy does not mention S&WM research and hence there is no statement in the strategy regarding uptake promotion or impact of outputs from S&WM. However, the expected outputs from research and development include: development of pro-poor technologies, sustenance of research, and strengthening linkages between research and extension. The role of other stakeholders in the chain is not mentioned. The PRSP was evaluated one year after launching and was rated poorly (GOK, 2001a - pgs 73). It was noted that there was no proper monitoring & evaluation (M&E) system. The paper emphasized the need to establish a stakeholder M&E Committee, as well as provision of resources to closely monitor progress of implementation and impact assessment.

Some of the reasons given for poor performance of the PRSP are:

- Severe drought which negatively impacted all sectors of the economy,
- Delays in the disbursement of donor funds,
- Government cut-down of expenditures allocated for the sector by 50 %,
- Introduction of new financial accounting procedures, which resulted in slow disbursement of funds to priority activities,
- Poor governance,
- Poor access to affordable credit to farmers,
- Lack of proper extension services,
- Capacity constraints of stakeholders,
- Lack of joint collaboration and partnership process,
- Absence of an enabling policy environment.

National Development Plan (NDP) 2002 (GoK, 2002a):

This is medium-term policy document that translated the long-term objectives of the National Poverty Eradication Plan (NPEP) into actionable policy recommendations (GoK, 1999). Its theme is “Effective management for sustainable economic growth and poverty reduction”. In its strategic policy framework, the NDP refers to “inducing technological change to increase productivity” (GoK, 2002a – pg 12), but no guidelines on how to achieve this has been given. Stakeholders are not well articulated but the government is committed to working with all stakeholders including the private sector, civil society and development partners.

The NDP has shown the way forward, which will ensure attainment of impact as follows:

- Development of policies to create enabling environment for impact,
- Collaboration of the government with all relevant institutions to review training curriculum with the aim of promoting demand-driven courses (GoK, 2002a – pg 36),
- Adoption of more participatory and consultative process,
- Efforts to strengthen KARI’s adaptive research programmes be enhanced, while KARI continued leading in the development of technologies and dissemination (GoK, 2002a – pg 38),
- Involvement of private sector organization, non-governmental organizations (NGOs), community based organizations (CBOs) and religious organizations in order to contribute positively to the impact process,

- Establishment of an efficient and effective institutional framework by the Government to achieve development and management of the water sub-sector.
- Promote capacity building in the water sub-sector,
- In regard to up-take promotion and scaling-up, the implementation of District Focus for Rural Development (DFRD) strategy will be necessary.

The government emphasized the use of participatory methodologies in program and project implementation. However, from initial evaluation, the performance of NPEP was below average (GoK, 2002a – pg 7). Under research and development category, only 22% implementation was realized. The NDP's implementation reviewers concluded that poor linkages between policy formulation, planning and budgeting have contributed to the limited realization of intended objectives. Some of the barriers highlighted included constraints in financial resources availability and allocation, legal and institutional impediment, lack of an institutional set-up for co-ordination and implementation, and inadequate involvement of various stakeholders.

National Poverty Eradication Plan (NPEP) 1999-2015 (GoK, 1999):
This national policy document hardly refers to the research systems.

3.1.2 Ministerial level documents

Strategy for Revitalizing Agriculture (SRA) -2004 -2014 (GoK, 2004b):
This is an important part of the Economic Recovery Strategy (ERS). The primary objective of SRA is to provide a policy and institutional environment that is conducive to increasing agricultural productivity. With the anticipated institutional reforms the strategy is expected to improve extension service system.

The strategy recognizes that stakeholders have been working without much integration and therefore identifies a need to integrate the agricultural sector with other sectors. The identified stakeholders include regional research institutes, international research institutes, and agro-based companies e.g. Kenya Breweries, Kenya Canners (Del Monte), flower companies, universities and colleges, NGOs, CBOs etc.

The strategy has identified important areas that should be addressed in order to ensure impact from research is attained (GoK, 2004b – pg 39). These include changing of policies bearing on agriculture, completion of the privatization of agricultural parastatals that engage in commercial activities and reform of the Extension Service Systems to create more effective linkages between extension and farmers as the ultimate beneficiaries. The SRA proposes formation of an implementation structure and framework that will involve stakeholders at 3 levels: National level to ensure political goodwill, Ministerial level to ensure co-ordination with relevant Government agencies, and local level to ensure involvement of the intended beneficiaries. The plan also proposes the establishment of a feedback mechanism linking the government, farmers and other stakeholders, setting modalities for continuous assessment and evaluation; strengthening and expanding a centre for research advisory committee to include farmers, civil society and NGOs; establishment in each regional centre a dissemination section to link with extension agencies, as well as strengthening Ministerial support for research extension-farmer linkage activities.

The SRA alluded to up-take promotion & scaling-up in such statements like:
Restoring the public extension service system (PESS) to become an agricultural advisory service (AAS) with a new arrangement to facilitate better linkage between research and extension, and a national extension fund (NEF) established and allocated government funds for agricultural extension.

National Agricultural Extension Policy (NAEP) December 2001 (GoK, 2001b): This was prepared to guide and harmonize management and delivery of extension service in the country. The policy supports the development of pluralistic and demand-driven agricultural extension services. Although no direct pathway to impact is highlighted, assumption made is that strong extension service will contribute to some impact. The policy is geared towards involvement of relevant stakeholders. The major categories of stakeholders include farmers, farmers' organizations, extension agents, research organizations, CBOs, NGOs, local governments, relevant central government departments, training institutions and development partners. Each of these has a role to play and their specific roles and mandates are elaborated in the implementation framework. Policy was formulated with the aim of guiding all stakeholders to strengthen coordination, collaboration and partnerships (GoK, 2001b– pg 25).

The strategy proposes that as a way of revitalizing agriculture, the government will privatize and revive some of the agricultural training institutes that have been rendered non-operational due to budgetary constraints. In addition, the curriculum of training institutes, colleges and universities was to be regularly reviewed and adjusted to match the changing sector requirements.

To promote uptake, and scaling-up of research results, the capacity of farmers training centres (FTC) was to be raised by allowing management boards to run the centres. To have greater outreach, it was proposed to increase the use of the group approach, field days, and demonstrations in technology dissemination. The policy suggested that shows and exhibitions be managed commercially, targeted to addressing pressing needs of farmers and the agro-business community.

National Agriculture & Livestock Extension Programme (NALEP) December 2001 (GoK, 2001c): This program is the framework prepared to assist in the implementation of NAEP. In its policy settings, the government acknowledge its role to provide an enabling policy and legal environment for new technology and investments. The NAEP was thus set to strengthen research-extension-farmer linkages in technology development and dissemination in order to enhance the rate of technology adoption. No direct pathway is identified to promote soil and water management research results for increased impact.

Involvement and facilitation of private sector in providing extension will develop a sense of ownership, partnership and sustainability of the Program. This good intention is yet to be realized. Linkages can take place through joint activities such as planning & evaluation meetings, on-farm research, field trials, joint visits and on-station research (GoK, 2001c – pg 19).

3.1.3 Research institute level documents

KARI'S strategic plan (2000-2010) (KARI, 2000a):
The Kenya Agricultural Research Institute (KARI) is Kenya's premier agricultural research institute responsible for research and technology generation on crops, livestock, soil and water management, and socio-economics **(**KARI, 1995a and 2000a).

The strategic plan identifies the Institute's six strategic objectives as follows:

- To develop and validate appropriate technologies and knowledge,
- To develop or enhance appropriate participatory and consultative development approaches and methodologies,
- To disseminate knowledge and technologies and catalyze the process of outreach and adoption of agricultural technologies,
- To contribute to and influence the development/change of agricultural policy environment,
- To strengthen the efficiency, effectiveness and sustainability of the institutional capacity, and to establish sustainable funding initiatives.

The plan recognizes that research and technology transfer should be organized in such a way that results from one area feed into the other in an interactive manner. The extension service system determines the target groups. The key stakeholders refer to any person or organization that has a direct or indirect interest or influence on the pathway which include the manufacturing and processing sectors, industrial researchers, universities, NGOs, farmer's representatives among others.

Agricultural Technology Information and Response Initiative (ATIRI) -2000 (KARI, 2000b):

The Institute has taken bold steps to ensure impact as evidenced by the development and implementation of the Agricultural Technology Information and Response Initiative (ATIRI) concept in 2000. The third strategic objective in the KARI strategic plan: (2000-2010), is to disseminate knowledge and technologies and catalyze the process of outreach. The concept of ATIRI was developed to catalyze dissemination process by instituting a shift from the "Supply model" to a "Demand model". ATIRI's aim is to bring together CBOs, government of Kenya extension staff and farmers by empowering farmers to demand for technologies and information (KARI, 2000a and 2001). Funded proposals originating from the farmers are expected to spark off the scaling-up process whereby more benefits are expected to reach more farmers more efficiently through creation of CBOs.

ATIRI is also geared towards capacity building within partner organizations through training in various fields. At inception, it was envisaged that creation of general awareness would be enhanced in future through all types of media unlike in the past attempt where awareness was limited to publications and pamphlets. Building of partnerships was to enhance scaling-up and promote the up-take process. ATIRI has been evaluated, and rated high in success, with regards to impact among farmers. This was an opportunity for KARI to move from top-down, science - driven research approach to a participatory, client and demand-driven approach while working with partners for impact. Success of ATIRI is attributed to a shift from just conducting adaptive and on-farm research to facilitating the farmers to demand for the technologies and information they require through intensifying linkages with partners where partners are used as bridge to reach more small-scale farmers.

Third Medium Term Plan (MTP III) July 2003/4 - June 2007/2008 (KARI, 2003a):

The 3rd Medium Term Plan (MTP III) of KARI represents the implementation document of the Strategic Plan 2000-2010 where delivery of information and technology to the farming community is a major emphasis and ATIRI was designed for this purpose. The MTP III was based on a nationwide priority setting exercise carried out in the year 2001.

In contrast, policy and strategic documents in KARI (KARI, 2000a, 2000b, 2001 and 2003) recognize and support the role of various stakeholders including researchers, and institutions

in uptake promotion, as a way of achieving impact. KARI through the ATIRI is taking the lead in organizing CBOs, farmers and extension staff to ensure wide dissemination and impact of technologies. KARI's MTP III, the implementation document of the Strategic plan, emphasizes the need for change of doing business from a linear model to one involving all stakeholders to ensure results are taken up (KARI, 2003). It should however be noted that other stakeholders, particularly the extension, who should play a major role, should be adequately facilitated.

3.1.4 Access and utilization of policy and strategy documents

To test whether researchers in soil and water management were aware of the national, ministerial and institutional policy and strategy documents, a questionnaire was administered to them. Their responses showed that a lot of researchers in soil and water management (68% of the respondents) had access to national, ministerial and institutional policy and strategy documents (Fig. 1). However only about 3% of the respondents used them all the time, 58% used them frequently while 3% never used them (Fig. 2).

The reasons for not using or accessing the documents were varied and ranged from non-availability to not being relevant to some researchers' work (Fig 3). However the majority of researchers keep abreast of the policies as indicated in Fig. 4 with the most easily accessible policy and strategy documents being KARI Strategic Plan followed by the Poverty Reduction Strategy Paper which were accessed through institutional libraries (Fig. 5).

3.1.5 Summary of findings for hypothesis 1

The national level policy and strategy documents hardly mention S&WM research hence uptake promotion and impact of outputs are not highlighted in the documents. Where uptake promotion is mentioned, there is no accompanying framework and supporting instruments to ensure implementation. Ministerial documents analyzed mainly blame failure of uptake promotion of research output to: capacity constraints of stakeholders, lack of joint collaboration and partnership process, and absence of an enabling policy environment. Development of policies to create enabling environment, privatization and commercialization for impact are seen as a panacea to failure in technology uptake. The institute level documents analyzed recognize uptake promotion of technologies as a multi-stakeholder responsibility. The research and technology transfer continuum is viewed as an interactive process with feedback loops. The demand rather than the supply paradigm is favored in the current strategies. Capacity building of stakeholders is seen as a precursor to increased dissemination of knowledge and technologies and catalyzes the process of outreach and adoption of agricultural technologies. Lastly, establishment of sustainable funding initiatives is also highlighted as a necessary condition.

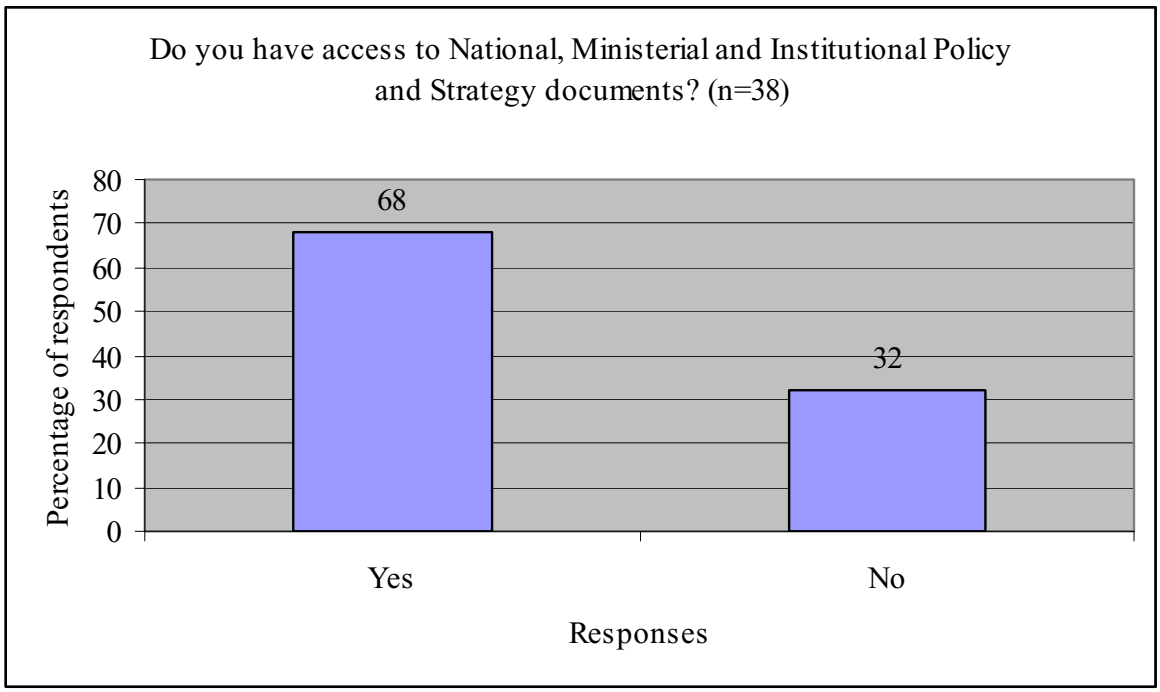


Fig. 1 Indication of the accessibility of national, ministerial and institutional policy and strategy documents

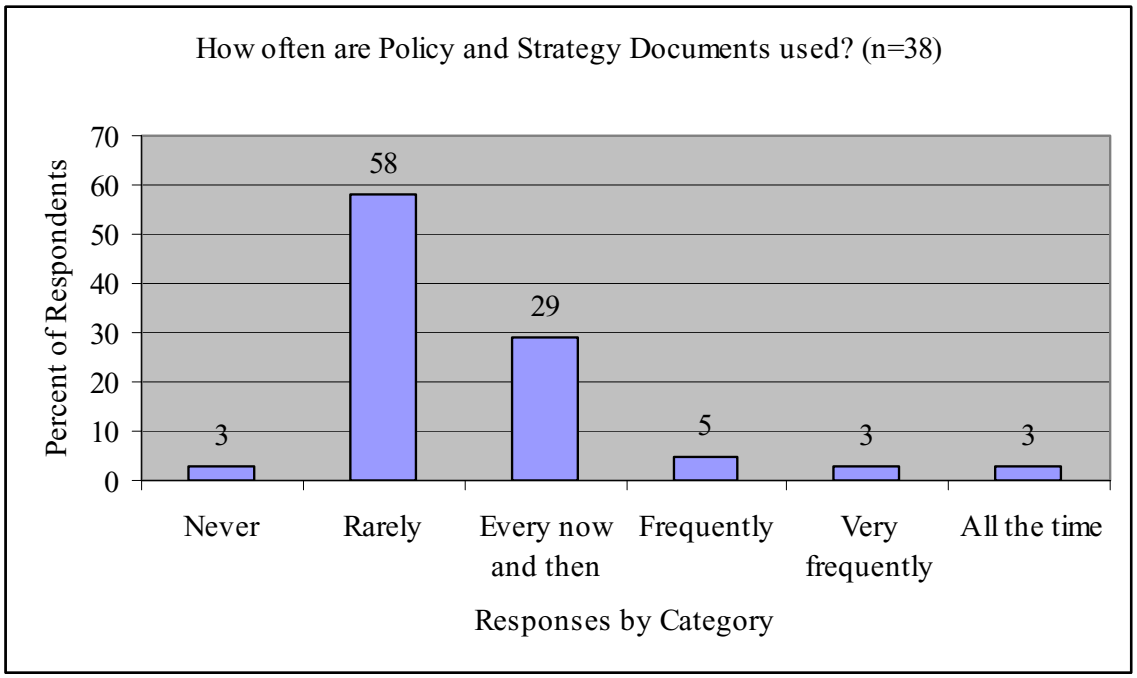


Fig. 2 Frequency of use of policy and strategy documents by researchers in soil and water management

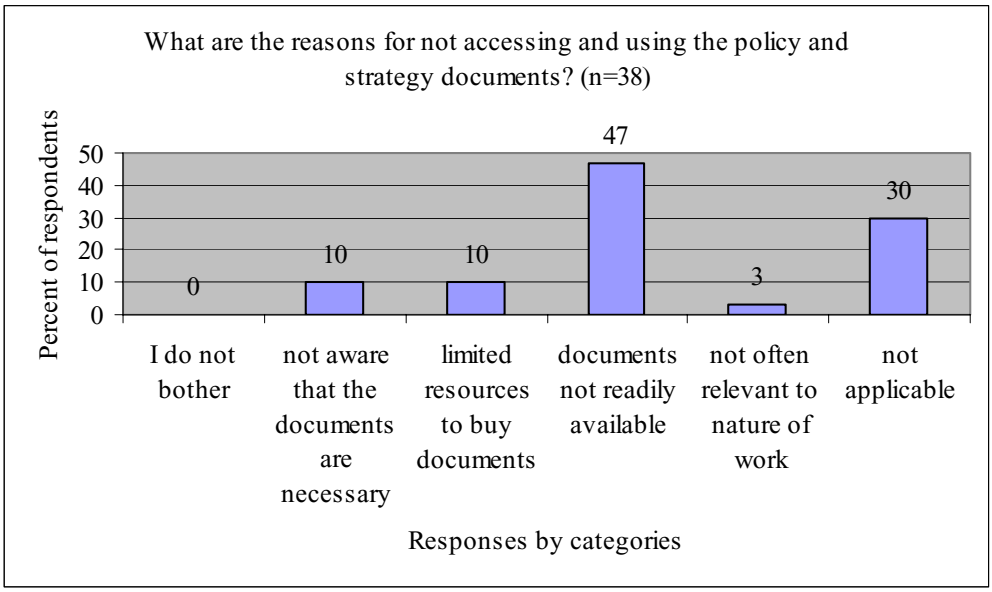
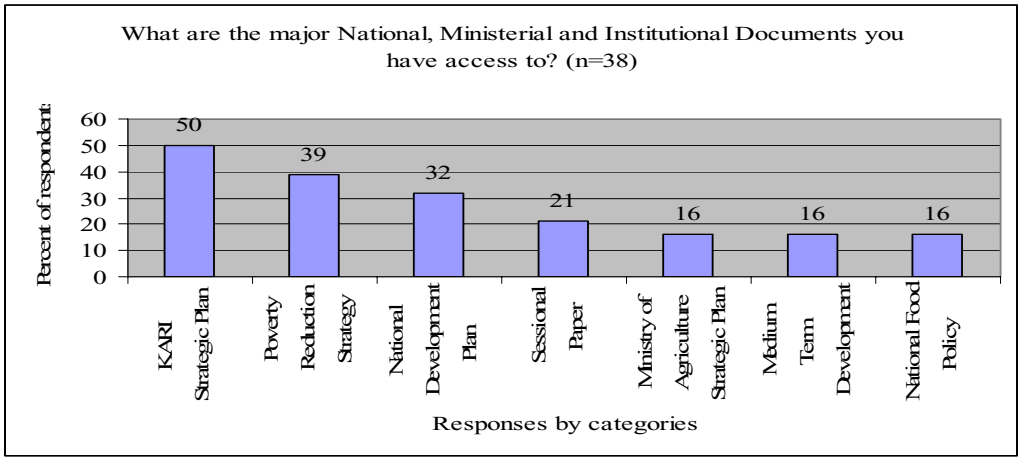
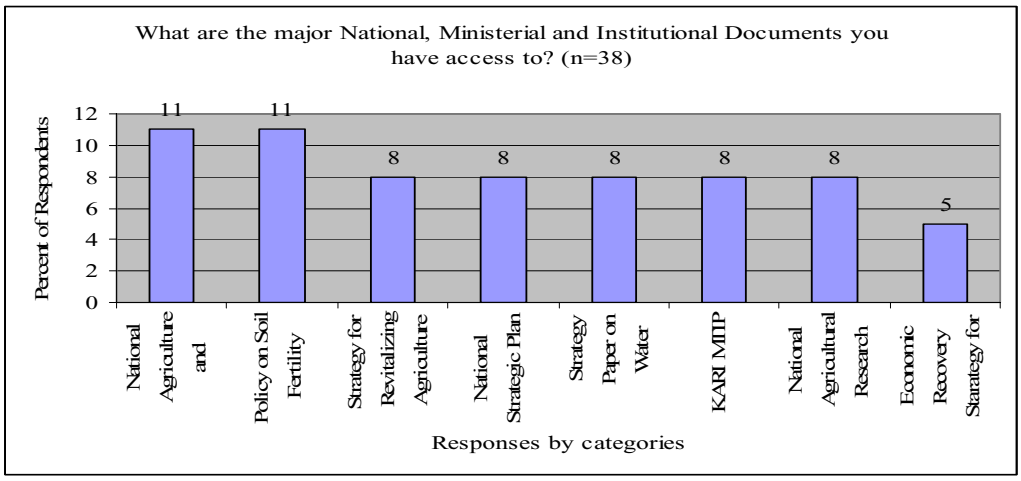


Fig. 3 Reasons given by researchers for not accessing and using policy and strategy documents





'Fig. 4 Types of policy and strategy documents that researchers in SWM have access to.

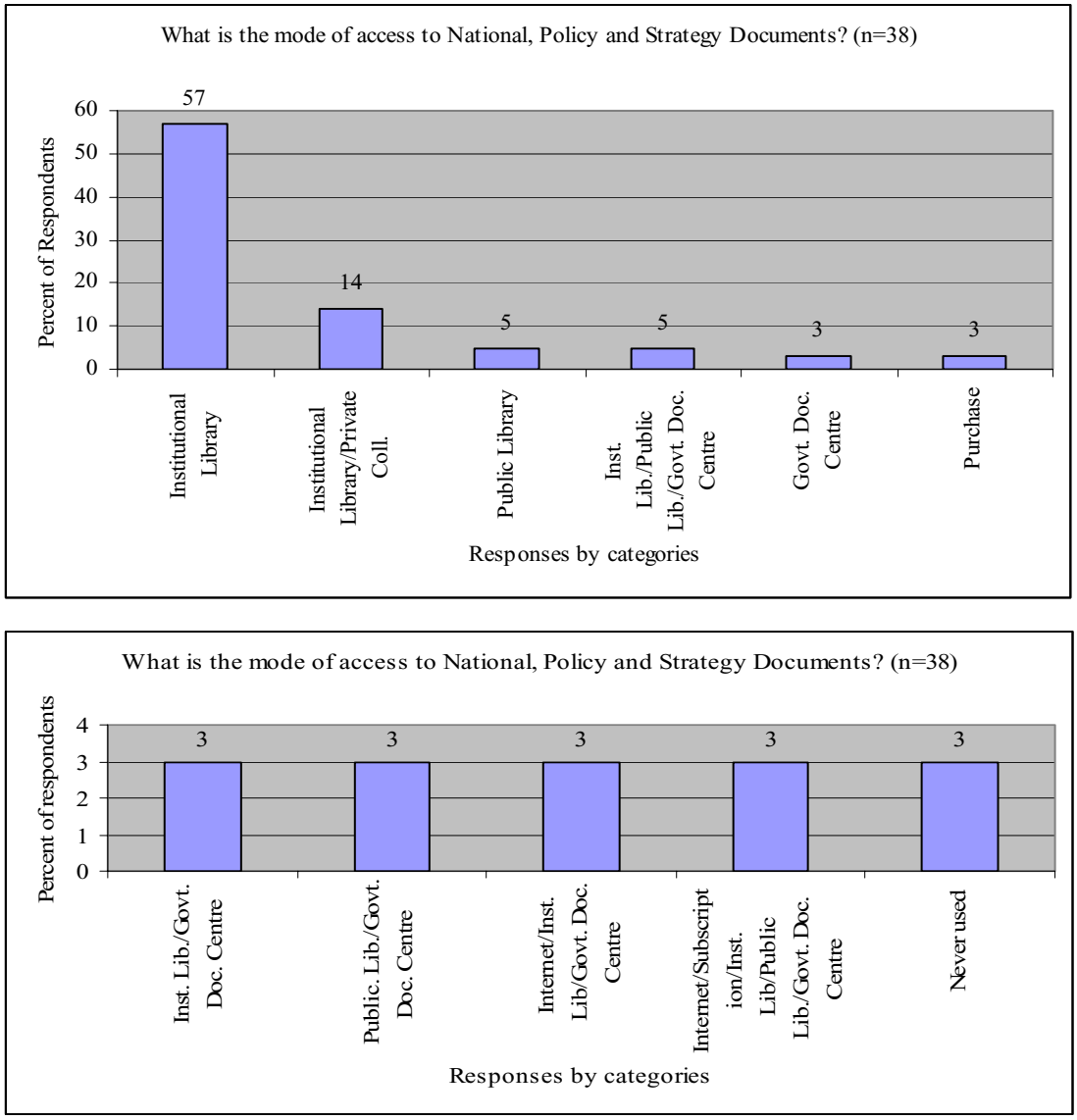


Fig. 5 Mode of accessing policy and strategy documents by researchers in soil and water management

3.2 Changes in the Linear Dissemination Approach

This section presents results that addressed hypothesis 2 which was stated that: *" The mind-set of most research planners, managers and researchers in soil and water management are still fixated in the linear dissemination approach of reaching the ultimate beneficiaries through the extension service".*

Analysis of the policy and strategy documents at government and ministerial levels, university curriculum and the guidelines for proposal writing of KARI showed that research planners, and managers have their mind-set fixated in the linear dissemination model. In this model, the role of researchers is to generate technology, while dissemination to farmers, has to be done by extension officers. This mindset appears to change in the National Development Plan of 2002 (GoK, 2002a), and in the Strategic plan of KARI (2000a), being put into actual implementation in the ATIRI. Researchers appear to appreciate that they have

a duty to ensure that results generated should reach the intended users and result into impact. This aspiration is however hampered by many problems; among them: a hostile mindset by other players (other players feel researchers are doing their jobs), poorly facilitated collaborators (e.g. extension officers), poor training, inadequate budget, and poor incentives.

Ministerial level documents like the SRA, NAEP and NALEP have little recognition of the need to involve all stakeholders, i.e. research systems, institutions and researchers in uptake promotion of research results. Rather, all the documents subscribe to the linear model of disseminating research results, i.e. the extension receives results from the researcher and the extension service extends it to the farmers.

Results from data collected from research scientists showed that generally researchers are trained and are only able to communicate to fellow researchers or to extension workers. To this end the most dominant means used to promote research outputs is either field days (for extension and farmers) and presentation and publication in proceedings of conferences, workshops and seminars, and sometimes in local and international journals (for fellow researchers). Figure 6 show various communication means commonly used by researchers to promote research outputs in Kenya. The chart indicates that, publications, seminars and workshops, leaflets and newsletters combined are used 71% of the time. These means of communication are targeted at extension workers and other research scientists. Radio and TV account for less than 5% of the time. When Radio and TV are combined with field visits and agricultural shows, they account for about 25% of the time. Radio and TV communication is the main means of reaching a broader set of stakeholders. These results indicate that the linear approach is still evident in Kenya, despite the many efforts to change the dissemination approach.

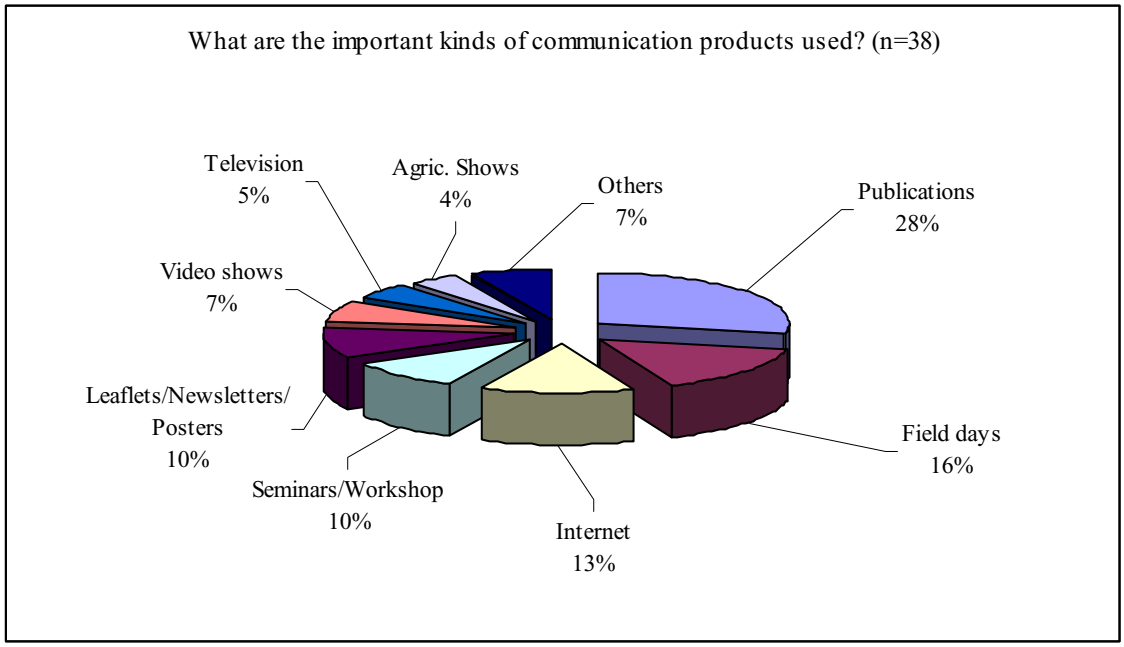


Fig. 6 Communication means used by researchers in soil and water management

Figure 7 indicates that barriers to effective communication of research outputs include inadequate funding, as reported by 43% of the respondents. Lack of proper training in

communication skills was the second most important barrier to effective communication of research outputs in Kenya

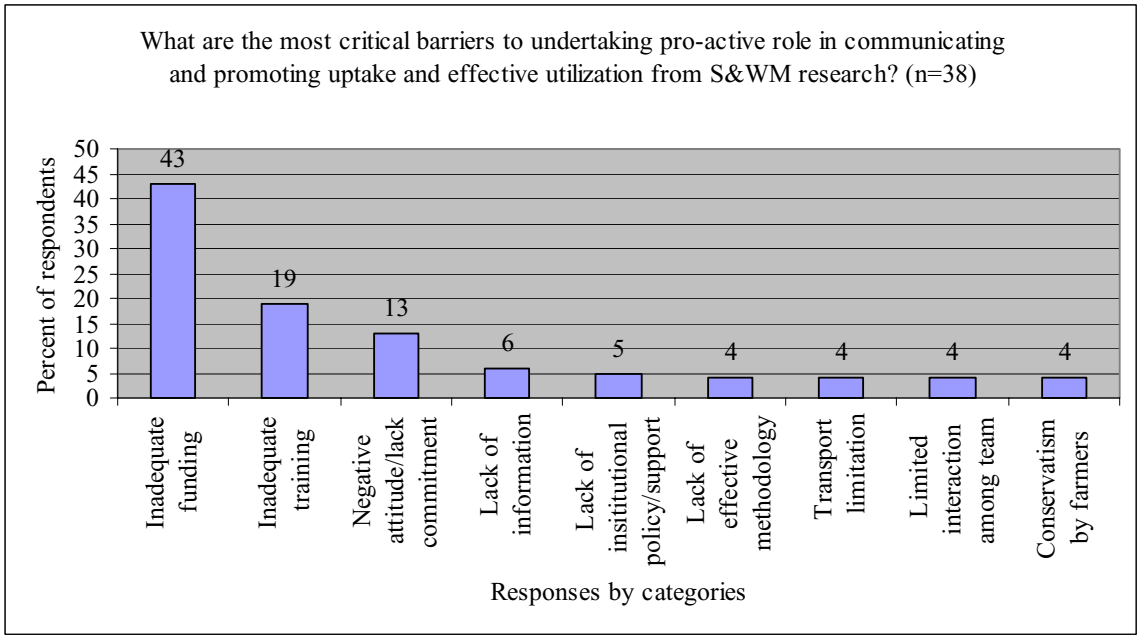


Fig. 7 Most critical barriers to undertaking proactive role in communication

3.3 Extent of Uptake Promotion and Scaling-up Plans in Research Programs and Projects

The third hypothesis stated that: "*Research programmes and projects rarely include communication and uptake promotion plans"*, and was tested through qualitative evaluation of long-term programmes and projects. Seven long-term projects and programs in KARI were analyzed. Relevant project documents (project proposals, progress and technical reports, and M&E reports) were analyzed to assess; i) inclusion of communication and uptake promotion in the project outputs or activities, and ii) the extent to which the stakeholders were analyzed and targeted. In addition, questions 9-13 of the questionnaire were designed to obtain estimates from researchers themselves on the frequency at which communication and uptake promotion plans were included in their research projects and programs. A short description of the case study projects is given below followed by the presentation of the findings.

3.3.1 The case study projects

a) Small scale drip irrigation system project

KARI in cooperation with Chapin Watermatics launched the small-scale drip irrigation system at KARI-NARL, Kabete, near Nairobi in 1997. The main objective of the project was to disseminate technologies to different stakeholders (farmer groups, stockists and extension providers) in the dry areas. The research outputs generated from the project were communicated through technical reports, publications in conferences and workshop proceedings, instruction manuals, leaflets and brochures as well as e-mails, demonstrations, training of interested people, letters and posters.

The project has made some impact since its inception and has been scaled-out to 7 other KARI centers and offers specific advice to many stakeholders. By the year 2003, the Program had spearheaded installation of over 12,000 drip and bucket irrigation kits in different parts of the country, particularly in dry areas) but it has no specific budget for communication of research outputs although it has committed a lot of time and effort to uptake and scaling up of technologies.

b) NUTMON: NUTrient MONitoring methodology

The NUTMON methodology developed by the Winand Staring Centre (Holland) in 1990/91, was used to determine farm nutrient balances. Some pilot nutrient studies were conducted in four ASAL[1] districts of Kenya (1998-2003) and their results used to develop strategies to optimize use of on-farm resources. It was anticipated that the application of the NUTMON concepts in semi arid areas would assist in developing land and water practices that would reduce nutrient depletion and enhance land productivity. The project identified in close cooperation with farmers the major soil fertility constraints faced by small-scale households in ASALs of Kenya.

The main research outputs that were generated from the NUTSAL project include mission reports, internal working documents, papers for national and international conferences, an issue in the popular series "Managing Africa's Soils No 26", 1 MSc thesis, and a paper to an international scientific journal.

The pathways used to communicate the results to the end-users included, study tours, participatory learning and action research trials, farmer's participation in village "baraza" meetings, joint researchers and farmers' evaluation field days, plenary discussions, stakeholders' workshops, scientific conferences.

By the use of participatory research methodologies, the project has made an acceptable attempt to involve the stakeholders' participation both in technology development and dissemination which leads to scaled up adoption, organizing a workshop specifically for policy formulation briefing was found to be very encouraging. One shortcoming of this project is that NUTSAL is just a methodology and model, but no efforts were ever made to translate the results into a problem-solving package which could be disseminated to the stakeholders. No specific budget was allocated to communication and uptake pathways.

c) Integrated soil fertility management project

There is increasing demand to come up with a well-managed system of nutrient management, based on available resources at the farm level, such as animal manure in combination with modest application of inorganic fertilizer. This project was set out on the basis that this approach holds the key to increasing and sustaining crop yields. A limiting nutrient trial was carried out in order to select farms with nutrient limitations particularly nitrogen. This used Participatory Learning and Action Research (PLAR) approach to carry out a socio-economic study to determine factors influencing the adoption of integrated use of manures and inorganic fertilizers.

The research outputs generated were disseminated using the following communication pathways:

[1] Arid and Semi-Arid Lands

- Authorship in agricultural books and book chapters,
- Publications in journals,
- Contributions in regional and international conferences,
- Pamphlets,
- Semi-annual reports to the RF foundation, TSBF, and annual reports to KARI.

Use of PLAR and farm demonstrations was found to be effective in incorporating the farmers. The inputs were affordable as most could be accessed at farm levels. The farm units were geo-referenced hence there is a possibility for scaling up to other similar domains. No specific budgetary allocation was made for promotion uptake.

d) National Agro-forestry Research Programme (NAFRP)
This was a collaborative project jointly implemented by KARI, KEFRI and ICRAF with KARI being the host institute. It incorporated aspects of National Agricultural and Livestock Extension Programme (NALEP) in the Ministry of Agriculture. The project had a mandate of spearheading applied agro-forestry research in the smallholder farms of central Kenya. It embraced the following elements in the NALEP implementation framework: collaboration, coordination of research, improving information and technology transfer and development of new initiatives for improving research and extension for agricultural development. The project was started in 1991 and continued upto December 2004.

The project addressed three principal research themes namely soil and water management, fodder production and utilization, and high-value tree (HVT) production, and two crosscutting themes, namely; socio-economics and development and dissemination.

The communication and uptake techniques have been addressed throughout the four major phases under the crosscutting theme referred to as "technology transfer theme" in some of the reports. The phasing out period was dedicated to scaling out of the developed technologies. The necessary stakeholders for ensuring uptake promotions were well targeted and incorporated in the project.

The following are the approaches that were used for scaling up in this programme:
- Farm extension groups,
- Training of individual farmers who latter on train others within and outside their domain,
- Community training through field days and demonstrations,
- Use of farmers' field schools.

Mother and baby approach: This approach comprised the use of main demonstration "mother" and the adopted technology "babies". The farmers were adopting the "babies" basing on their affordability and availability.
Use of policy makers: community mobilization using the administration for enhancing coordination and enforcing of the governments policies more so in protecting the land and natural resources e.g. cultivation along the riparian zones; creation of a liaison unit in the project to provide a link between the project and the visitors to KARI-Embu that had varying interests. The project has at one time or another participated in different forums to influence scaling-up as indicated below:
- **Eastern Province stakeholders' forum**. The main aim of participation in this forum was to forge partnership with the MoA, KARI and other NGOs for harmonization of agricultural activities in the region thus ensuring coordination, monitoring and evaluation

to avoid duplication and contradictions and more importantly to sensitize the stakeholders on the need to forge a regional consortium for catalyzing scaling up/out of agricultural technologies.

- **Meru South stakeholder's forum.** This is a farmer-led consortium and it comprises of several key players in agriculture. It holds agricultural exhibitions in which NAFRP has actively participated.
- **Kiregi 4 forum.** This is a community-based forum that comprises of different personalities i.e. lawyers, politicians, farmers etc. where the project participated and exhibited research outputs.

Through the participation in these fora there has been a considerable impact since the researchers were able to reach the wider community as well as the policy makers. The crosscutting theme on technology transfer facilitated the transfer of the derived technologies.

e) Soil Management Project (SMP)

The soil management project was started in 1994 and was involved in developing and testing several low cost soil management technologies for improving farm productivity and income. The project adopted a participatory, multi-institutional and multi-disciplinary holistic approach to soil management and applied communicated based approaches which were considered ideal for communicating research findings. Participatory Rural Appraisals (PRA) were used in the initial stages to understand the main characteristics of the farming systems while the Farmer Participatory Research (FPR) and Farmer Field School (FFS) were the main approaches used in the scaling up process.

The project was conducted into two major phases namely; Phase 1 (1994-2000) was mainly devoted to the development of technologies using FPR approach. An adoption/diffusion study was undertaken in 2000 to assess potential for adoption of the derived technology. The results of the study showed a low level of adoption during the first phase, which was attributed to lack of awareness of the technologies by the wider communities. The focus of Phase 2 (2001-2005) was therefore to scale-up the technologies to more farming communities in order to enhance food security and alleviate poverty among smallholder farmers using the community-based approaches.

Research outputs included several annual technical reports, conference proceedings, refereed journal papers, a number of leaflets for farmers (21) and extension bulletins that are being finalized for scaling-out the above technologies. A KARI technical note series no.13 of March 2003 is a good example of an output that contains a synthesis report of the SMP since 1994 to 2002 (Mureithi, et al., 2003). It targets mainly the researchers as it identifies the most critical research gaps and suggests the way forward for the project.

The project adopted community based approaches which were considered ideal for communicating and upscaling research findings. These approaches involved the participation of farmers, extensionists and NGOs in technology evaluation and dissemination to enhance adoption. In FPR approach, farmers led by Farmer Research Committees (FRC) evaluate the technologies with backstopping from researchers and extension officers.

Farmer tours were also an integral part of scaling up. It is believed that farmers learn more quickly from their fellow farmers. The new farmers were facilitated to tour the old clusters

where they were received and taught by FRC and the Farmer Research Groups (FRGs). Workshops have also been used for all scaling up of INM[2] activities.

At the evaluation of the first phase, farmers were found to have raised some issues that were beyond the scope of the project and the project made efforts to link them with other agencies to assist them in solving the problems. The project has made an appreciable attempt in strengthening the link between the relevant stakeholders and empowering farmers through participatory technology development and dissemination. It incorporated the aspects of communication and uptake promotions more so in the second phase hence laying a good base for scaling up of the derived technologies.

f) Agricultural research / livestock support programme (ARSP II)
The main goal of this programme was to enhance economic integration of ASAL communities with the rest of Kenya's economy and the overriding purpose was geared towards ASAL communities increasingly utilizing appropriate crop and livestock production technologies. It focused on a more participatory research process in order to lead into a more client oriented and demand driven research activities with higher potential of adoption and impact (KARI 2003b).

The programme concentrated on ASALS where an increasing number of people are migrating for more food production and job opportunities because of the diminishing per capita arable land in high and medium rainfall areas. It was more specific in ensuring that the private and public sector extension staff engaged in ASALs will make increasing and more effective use of research recommendation, in order to offer pastoralists and farmers technically feasible, economically viable, environmentally sound and socially acceptable technologies, systems and concepts. It focussed on the following components:

- Human resources development and training including organizational development,
- Land and water management research,
- Range and arid lands research.

For the purposes of this project, land and water management research component was chosen for analysis. This component was mainly concerned with testing and disseminating integrated soil fertility and management concepts/techniques for various soil types and farming systems and making available recommendations for appropriate water harvesting and usage systems under ASAL conditions.

The main emphasis in terms of up scaling and out-scaling was on creating better conditions for adoption/adaptation of improved technologies, and widening farmers/pastoralists scope through exchange visits under selected activities. All on-farm trials were established mainly through community-based participatory action research (PLAR) and gender sensitive research methods. These methods were applied in close collaboration with extension staff, farmers (male and female), NGOs and CBOs in the ASALs. Capacity building was supported via short term and long term training of scientists, support to KARI and extension staff, farmers and pastoralists.

The main research outputs from the program were handbooks for researchers and extension staff, farmer and extension pamphlets, user's manual on animal drawn planters for vertisols and lighter red soils, KARI Technical Notes and a Fertilizer user manual (SFPNRP).Three

[2] Integrated Nutrient Management

major tools were also developed for managing vertisols, a chisel, a ridger and a dry planter with involvement of local artisans and the private sector. In this case, they were first trained and then given the specification of the tools to manufacture. The planter has been tested in other districts on red soils. The farmers appreciated the technology and also suggested some modifications to suit their needs.

Farmers were involved throughout the trial periods, they were offered training and had their results presented to them during feed-back sessions. They were also exposed to technologies in other regions through farmer exchange tours. Extension staff and researchers were reached through workshops, seminars and conferences. No specific budget was allocated to communicating the research results.

g) Kenya Agricultural Productivity Project (KAPP)

The Kenya Agricultural Productivity Project (KAPP) is a multi-sectoral and multi-institutional project jointly supported by the Government of Kenya and the World Bank. It is one of the initiatives to implement the Strategy for Revitalizing Agriculture (SRA) whose objective is to provide a policy and institutional environment that is conducive to increasing agricultural productivity, promoting investments, promoting private sector involvement in agricultural enterprises and agribusiness. The long term objective of KAPP is to contribute to sustainable increase of Kenya's agricultural productivity and improvement of the livelihoods of rural communities through the improved performance of agricultural technology supply and demand system. This objective will be achieved in three project phases that will be implemented over a period of twelve (12) years, beginning early 2005. The project has four components aimed at facilitating reforms in the agricultural sector leading to agricultural productivity as stated below*:*

- *Policy and Institutional Reforms*, this component supports the establishment of the institutional framework required to increase agricultural productivity in the country.
- *Extension System Ref*orm, **t**his component aims at building on achievements made under the National Agricultural Extension Policy framework (NAEP) to establish a new system of national agricultural extension.
- *Research System Reform,* the aim of this sub-component is to reform agricultural research so that it encompasses a plurality of actors to enhance efficiency and accountability. This entails increasing the role of end-users in planning of activities, resource allocation, and monitoring and evaluation of implementation; promoting performance/result based resource allocation; inducing greater collaboration between and among public and private research institutions; ensuring effective integration of research, education and extension services at local levels and increasing the volume of appropriate technologies and knowledge generated and applied.
- *Farmer/Client Empowerment*, this component aims at developing institutional and financial mechanisms that will give farmers control over extension and research services and increase their access to productivity enhancing products.

The evaluation of the research componet of KAPP indicated that the project has made provisions for a communication and uptake promotion plan, and has used products from R8381 to start developing this plan. However, the proportion of allocated budget is still very small (Table 1). The project has made an appreciable attempt in strengthening the link between the relevant stakeholders and empowering farmers through participatory technology development and dissemination throug additional funds to ATIRI. All aspects of communication and uptake promotions are well articulated and this is as a result of some of

the outputs emernating from the results obtained from this project. The project also lays a good base for scaling-up of the derived technologies.

Table 1: Budget of the Research Component of KAPPand Proportion For Communication Plan

Year	2004/5	2005/6	2006/7
Total	568,175,400	618,590,000	482,707,500
Information and Communication	38,305,000	29,282,000	29,078,400
Percentage	7%	5%	6%

3.3.2 Findings

The findings of this analysis comparing the extent to which each of the seven projects addressed the aspects of communication and uptake promotion, are summarized in Table 2. For easy of presenting the table codes are used to represent measures of the level of inclusion of communication and uptake promotion in the project outputs or activities. These level were as follows:

1. CP indicated as an output: Where CP is indicated explicitly from the beginning of the project proposal and the output included as a measure of impact in M&E,
2. CP indicated as an activity/Output becomes important later: CP indicated as an activity and not as an output. The project managers realize the importance of CP later in the project but the impact not satisfactory,
3. CP included as an activity: CP not important throughout the project and output not important at all, and
4. CP not indicated at all: CP neither included as an activity nor as an output and no follow-up at all.

With respect to measure of inclusion of targeting of stakeholders in proposals, the codes in Table 2 stand for:

1. Higly targeted: All stakeholders targeted including farmers, extension agents, other researchers in NARS through appropriate CP methods and pathways,
2. Moderately Targeted: some stakeholders targeted including some farmers, extension agents, other researchers in NARS through appropriate CP methods and pathways, and
3. Poorly targeted: Some stakeholders targeted including farmers, extension agents, other researchers in NARS through inappropriate CP methods and pathways.

The results indicate varying levels of inclusion of communication and uptake promotion in the project outputs or activities and targeting of stakeholders in the various projects and programmes. However, all the research projects and programs analyzed had activities dealing with communication and uptake promotion (normally refered to as dissemination) though this was not always clear from the project documents. The small scale drip irrigation project for example, had a lot of time and resources reserved for promotion and scaling-up. In ATIRI, all the activities are based on uptake and scaling up of technologies. This initiative was a direct

response to an external review of KARI that criticized the institute for lack of impact. KAPP shows the new reaction by the GoK to uptake promotion by the inclusin of a specific budget for communication and uptake promotion.

Table 2: Analysis Levels of inclusion of communication and uptake promotion in the project outputs or activities and Targeting of Stakeholders

Project No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Inclusion of CP in project proposals	2	4	4	1	3	2	1
Stakeholders' analysis and targeting	1	3	3	1	2	2	1

3.4 Evaluation of Communication, Knowledge Sharing, Uptake and Utilization of Results

This sections discusses findings with respect to hypothesis 4, which was stated as, "*Research programmes and projects are rarely evaluated for communication, knowledge sharing, uptake and utilization of knowledge and technologies produced"*.

Results from the questionnaire administered to researchers showed that on average one third of researchers (37% of the respondents) have conducted between 3 and 4 projects over the last 5 years (Fig. 8). The researchers were asked whether the communication products they had used in the past had been evaluated and how effective they were. Only 18% of the respondents indicated that the products had been evaluated and were considered effective (Fig. 9). The majority of the respondents (82%) indicated that either the products had not been evaluated or were not considered effective. The researchers were further asked to rank the kind of communication and knowledge sharing promotion products they had used in the past. The products used were many and varied, ranging from laboratory results and recommendations to informal meetings (Table 3). The most commonly used product was results and recommendations from laboratories followed by office consultations. Informal meetings and pictorial presentations were the least used products.

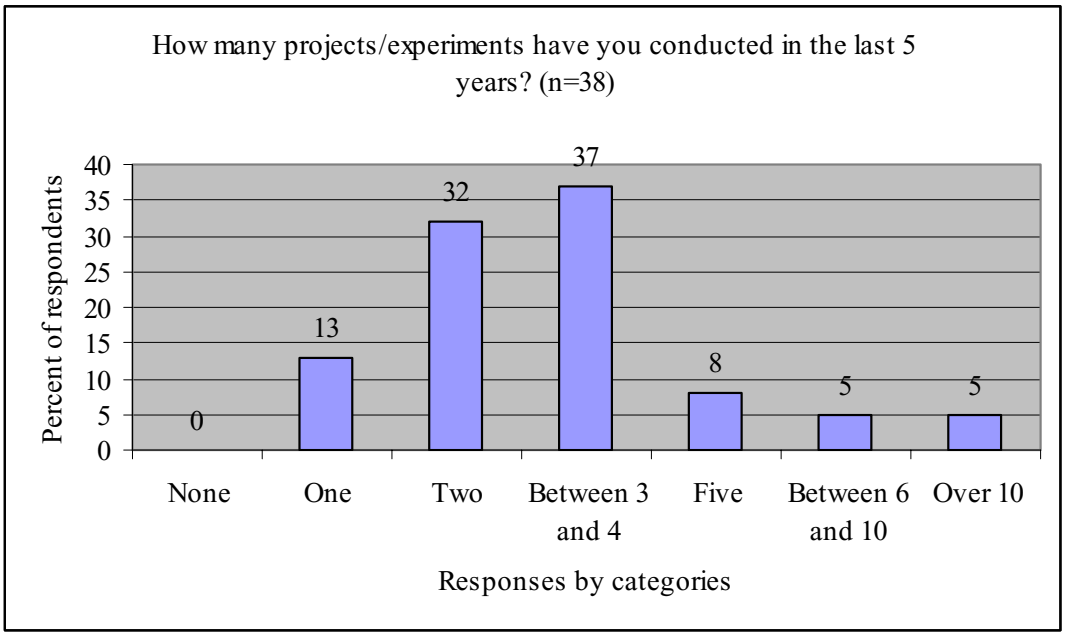


Fig. 8 Average number of experiments conducted by researchers in soil and water management over a 5-year period

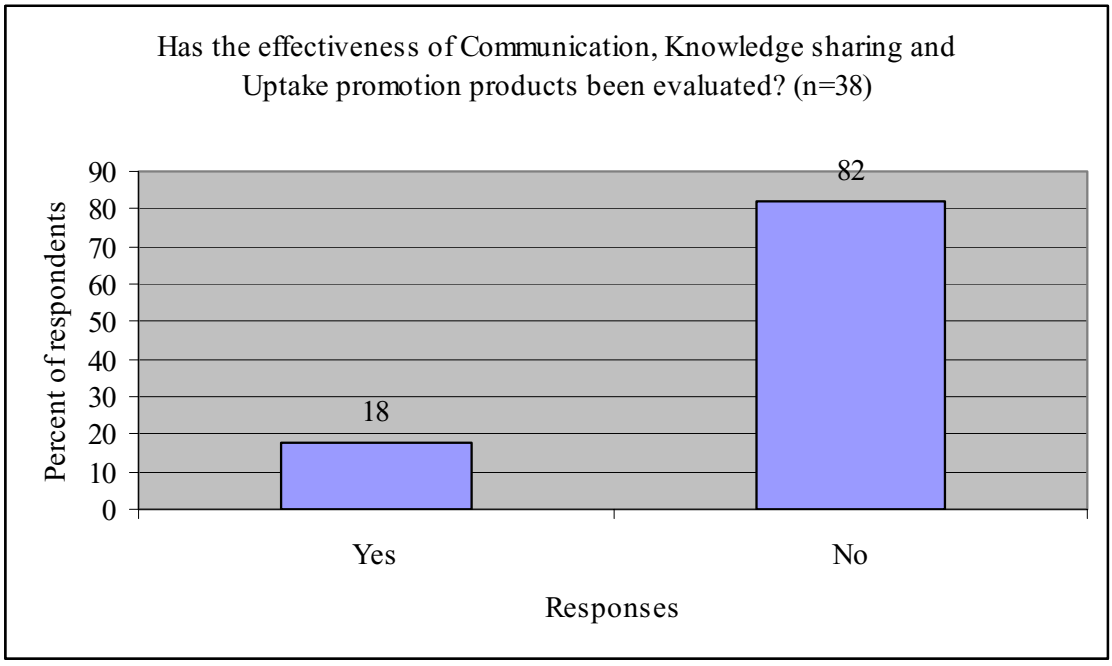


Fig. 9 Measure of effectiveness of the communication, knowledge sharing and promotion products used.

Table 3: Commonly used communication and uptake promotion products by soil and water management researchers

Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score
Laboratory test results and Recommendations	5.0	TV and Radio Programmes / Electronic Media	2.0	Journal/Refereed Papers	1.5
Office consultations	3.0	Websites	2.0	Public Barazas / Group Discussions	1.3
Promoting cross farmer/Centre visits by farmers/Tours/Exchange tours	2.3	Reports/Manual production	1.9	Video Presentations	1.0
Newsletters/Newspapers/Print media	2.3	Posters/Charts/Feedback Sessions	1.9	Pictorial	1.0
Training of extension staff/CBOs	2.2	Leaflets/pamphlets/booklets/ extension fliers	1.8	Informal Meetings	1.0
Seminars/Meetings/Conferences/Workshops	2.2	Internet	1.8		
Training of farmers/Field days/Open days/Field days	2.1	Agricultural Shows	1.7		
Brochures/Bulletins	2.0	Reports	1.7		
Manila Papers on boards	2.0	Visits/One on one Discussions/Interviews	1.6		
Slides (transparencies)	2.0	E-mails/Faxes/Telephones	1.6		
Lectures	2.0	Demonstrations/field days in outreach areas	1.5		
Farmer Participation in Experimentation and Participatory Surveys/ PM & E	2.0	Papers	1.5		

When asked to rank in terms of importance, the communication, knowledge sharing and uptake promotion products they were aware of and intended to use in the future, the list was topped by products geared towards researchers (internet and newsletters) followed by video clips and training sessions for farmers. The products viewed as least important were participation in professional associations, electronic mails, post, gender sensitization and web sites (Table 4).

The researchers were further asked to rate the effectiveness of the products they had used for communication, knowledge sharing and uptake promotion products in their work. Farmer visits/tours and telephone were considered very effective while videos, mail, agricultural shows and manuals were considered least effective (Table 5).

Table 4: Communication, knowledge sharing and uptake promotion products that researchers in soil and water management intend to use in the future

Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score
Internet	3.0	Workshops/Seminars/Conferences	2.0	Participatory Learning Approach to Research (PLAR)/ PM & E	1.5
Newsletters	3.0	Research-Extension linkages	2.0	Demonstrations/Open Days	1.3
Production of video scripts	2.7	Farmer Field Schools	1.9	Participation in Professional Associations	1.0
Training/Farmers/Extension staff/CBOs	2.5	Telephone	1.9	E-mail	1.0
Publications/Journal publications	2.5	Television Bulletins	1.7	Post-mail	1.0
Production of drama shows	2.0	Posters/Feedback Discussions	1.7	Gender Sensitisation	1.0
Brochures/Bulletins/Leaflets/Pamphlets	2.0	Lectures	1.7	Web-sites	1.0
Abstracts/Press releases in Newspapers and Special Magazines/Print media	2.0	Sessional Papers	1.7		
Publications/Technical reports/Manuals	2.0	Public Barazas/Group Discussions	1.6		
Field days/Visits/Exchange tours	2.0	Production of radio talk Shows	1.5		

Table 5: Ranked communication, knowledge sharing and uptake promotion products in terms of effectiveness

Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score
Cross farm/centre visit/tours/interviews	5.0	Electronic media: Internet mail	3.3	Reports	2.7
Telephone	5.0	Workshops/Conferences/Seminars	3.2	Cassette recording	2.0
Electronic media: Radio	4.5	Farmers field days	3.0	Agricultural Shows	2.0
Demonstrations/Trials/Outreach	4.3	Journals	3.0	Mails	2.0
Training	4.0	Direct Contact/Visits	3.0	Manuals	2.0
Electronic media/TV	3.5	PM & E	3.0	Video presentation	1.0
Extension-Extension linkages	3.5	Newspapers	3.0		
Barazas	3.5	Posters/Brochures/Leaflets	2.8		

3.5 Budgetary Commitments to Communication of Uptake of Research Results

Here we investigated hypothesis 5 that, "*A very small proportion of programmes and project budgets and activities are committed or used in the communication and uptake promotion of research results".*

The Government has, through the national policy and strategy documents analyzed for this study, stated a commitment to increase resource allocation to improve the general performance of the agricultural sector with R&D as one of the objectives. However, there is no specific statement and budgetary commitment in the strategy regarding uptake promotion.

Generally it was difficult to decipher how much resources were allocated to communication and uptake of research results within the institutional documents analyzed. In the NAFRP, rough calculations from "conferences, courses and publications" in the sub-activities indicated that about 23% of the total budgets was used. In the phasing out period i.e. July to December 2004, substantial amounts of funds were dedicated to scaling up of the derived technology.

Under the Agricultural Research/Livestock Support Programme, communication and uptake techniques were not clearly defined or stipulated on the relevant documents. Analysis of the Annual Work Plan and Project Cost Estimates (AWPCE) for 2003/2004, showed clearly that the funds dedicated to uptake promotions were relatively small.

To understand further the barriers to effective communication in knowledge sharing and up take promotion of results of research and soil and water management, the researchers were asked to indicate the budgets and time they allocated to communication, knowledge sharing and uptake promotion (Table 6). The mean monetary allocation was around $5,000 with a minimum and maximum of $0 and $42,000 over a 5-year period. Time wise, a mean of 184 man days were allocated to communication, knowledge sharing and uptake promotion with a maximum of 1,728 man days and minimum of zero time.

Table 6: Budgetary allocations (monetary and time) by researcher to communications, knowledge sharing and uptake promotion of results of research in soil and water management

Variable	Observations	Mean	Std. Dev.	Min	Max
Monetary Budget ($)	20	5,203	9,359	0	42,097
Time Budget (Man days)	24	184	341	0	1,728

3.6 Specific Advice Given to Stakeholders

To test hypothesis number 6 that " *Research outputs rarely include specific advice to farmers, input suppliers (e.g. fertilizer suppliers), extension service, policy makers and other clients",* researchers in soil and water management were asked to indicate the amount of information from their research outputs that was targeted to various stakeholders. Forty seven (47%) of the respondents indicated that they used half to three quarters (51-75%) of the

information they gathered for technical reports while 34% indicated they use all the information they gather in their projects to write technical reports (Fig. 10).

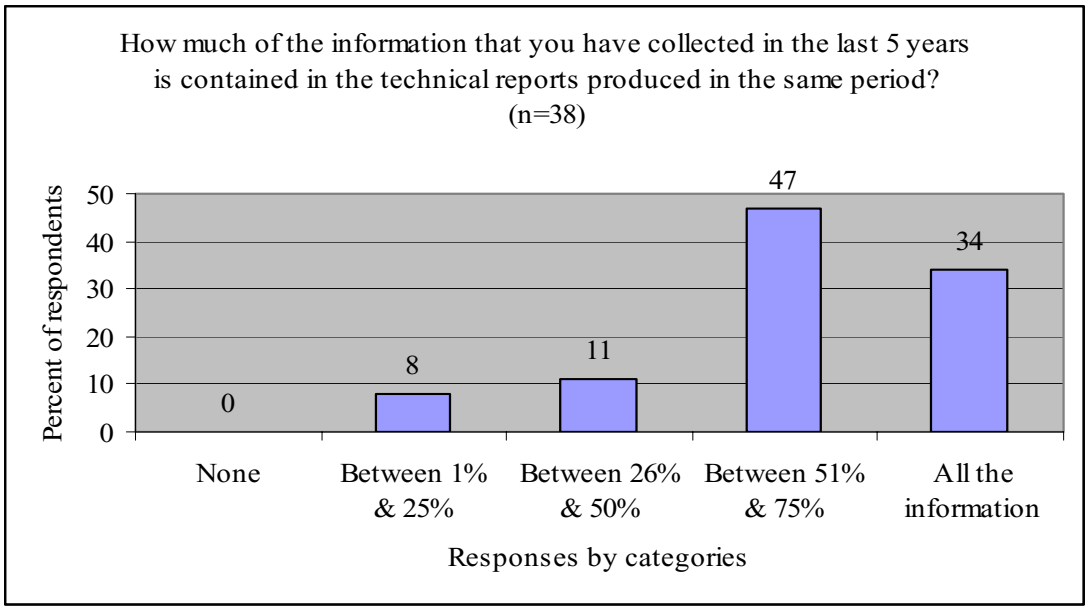


Fig. 10: Indication of how much information gathered by researchers and soil and water management is used for technical reporting

When asked how much of the information they put in technical reports was used to produce specific advice for farmers and other stakeholders, 32% of the respondents indicated that they used half to three quarters (51-75%) of the information to produce advice for the farmers, 5% used all the information and between 11 and 20% did not use any of the information to advice farmers (Fig. 11).

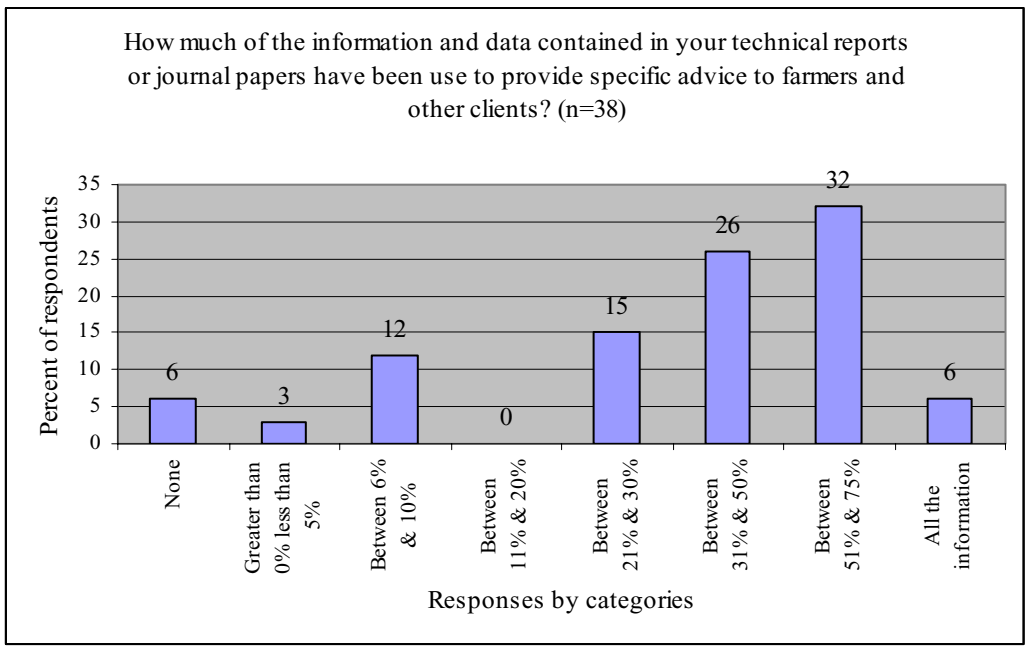


Fig. 11: Indication of amount how much information gathered in soil and water management research used to produce specific advice to farmers

3.7 Inadequacy of Training on Communication and Uptake Promotion

To assess whether the training given to researchers was adequate to enable them embark on communication and promotion of results from research in soil and water management, hypothesis 7 was staed as "*Researchers are not adequately trained for communication and uptake promotion".* It was tested through the review of curricula offered at two state universities, that is, Jomo Kenyatta University of Agriculture and Technology (JKUAT), and College of Agricultural Studies, University of Nairobi (UoN) that teach Soil and Water Management graduates, were reviewed and analyzed (JKUAT, 2004, UoN, 2004).

In JKUAT, the postgraduate curriculum in the Faculty of Agriculture, MSc. in Agricultural Engineering offers three areas of specialization, namely, Power and Machinery Engineering, Processing and Structures Engineering and Soil and Water Engineering. The course outline for soil and water engineering option has 5 core units (Energy for Agriculture, Project Planning and Management, Statistics and Experimentation, Social and Physical Ecology and Environmental Management) and 11 elective units (Applied Hydrology and Agro-Meteorology, Soil Erosion and Sedimentation, Land Evaluation and Land Use Planning, Soil and Water Conservation Management, Field Irrigation Engineering, Land Drainage Engineering, Water Resources Systems Engineering, Water Resources Management and Administration, Engineering Hydraulics, Management of Irrigation Systems and Applied Mathematics).

There are no units that are specifically dedicated to promotion of communication and uptake techniques, but postgraduate students are encouraged to disseminate their results through seminars and workshops as well as publishing in scientific journals.

At the College of Agricultural Studies,(UoN), the post-graduate programs offered at the Faculty of Agriculture, Kabete, with relevance to soil and water management are MSc. in Agricultural Engineering; (Soil and Water Engineering option), MSc. in Land and Water Management, MSc. in Soil Science, and MSc. in Agricultural Resource Management (Soil, Water and Environment option), and were thus chosen for further analysis.

Masters of Science in Agricultural Engineering (Soil and Water Engineering Option) offers four core units (Energy for Agriculture, Project Planning and Management, Statistics and Experimentation and Social and Physical Ecology) and 11 selective courses (Applied Hydrology and Agro-meteorology, Soil Erosion and Sedimentation, Land Evaluation and Land Use Planning, Soil and Water Conservation Management, Soil and Water Conservation Structures, Field Irrigation, Land Drainage Engineering, Water Resources Management and Administration, Engineering Hydraulics, Water Resources Engineering Laboratory and Applied Mathematics). Analysis of the curriculum showed that communication and uptake are addressed only through technical report writing, research papers, oral presentations, posters and thesis preparation.

KARI has developed guidelines for proposal writing that all scientists were expected to follow whenever they prepared a proposal (KARI, 1996). The guidelines highlighted the following as the essential components of a well-formulated research project proposal: Project title, Project summary, Background information and Justification, Goals, Project objectives, Methodologies and Procedures, Activity and Work plan, Outputs, Project budget, Project

Monitoring and Evaluation, Reporting and Dissemination of results, Inter-linkage and Collaboration, References and Appendix.

Apart from analyzing the university curricula, practising researchers in soil and water management were also asked to indicate whether they had received any training in communication and promotion of research results. Result of a questionnaire administered to 50 scientists indicated that 71% of the respondents indicated they had received no training in communication and promotion of research results yet they were expected to do it. A smaller fraction (29% of the respondents) stated that they had received some form of training (Fig. 12).

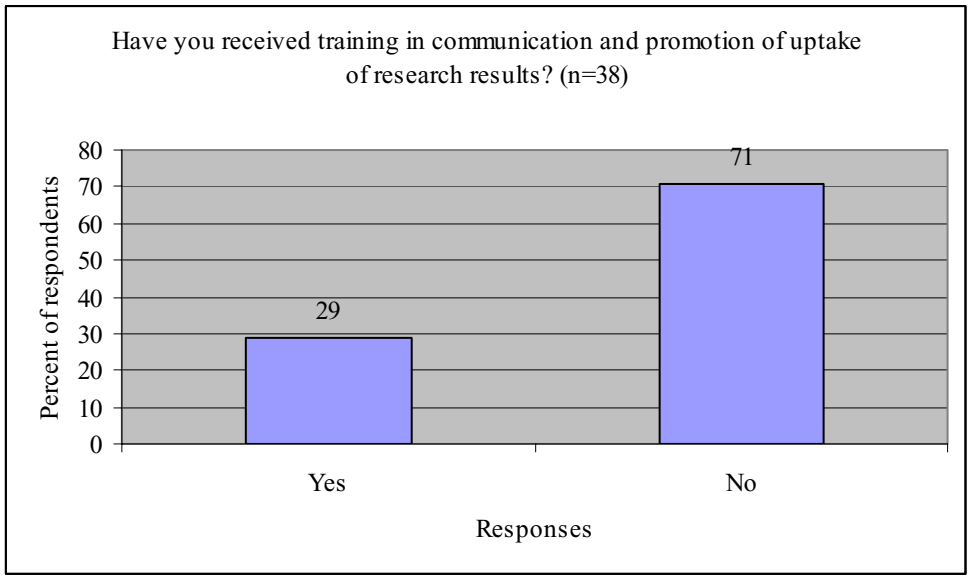


Fig. 12: Status of training of researchers in communication and uptake promotion of research results

Scientists further evaluated the various trainings that they had received various trainings towards communication and uptake promotion of research results. The type of training they considered most effective was sensitization on gender issues, development of media strategy & production of extension materials, project monitoring & evaluation, impact assessment, effective proposal & report writing, and management for senior researchers (Table 7).

Table 7: Assessment of the training received in communication and uptake promotion of research results

Assessment of training received in communication tools	Score
Sensitization on gender	3.8
Development of media strategy and production of extension materials	3.3
Project M & E/ Impact assessment	3.0
Effective management for senior researchers	3.0
Proposal and report writing	3.0
On-farm research on sustainable land management	3.0
Training of trainers	2.0

Statistics	2.0

When asked to assess themselves on their capacity to use specific tools in communication and uptake promotion of research results, the majority of the researchers indicated that they were very skilled in using tools such as telephones, mails, forming linkages and articulating gender issues (Table 8). On the other hand, the researchers did not think they were adequately skilled to handle tools such as propaganda, radio and advertisements.

Table 8: Assessment by researchers in soil and water management of own capacity in using specific communication tools

Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score
Telephone	5.0	Interview/questionnaires	4.0	Simple Posters Manila	3.0
Mail	5.0	Training in oral presentation	3.8	Lectures	3.0
Strengthening linkages	5.0	Reports	3.8	Involving Farmers in Field Experimentation	3.0
Gender in agriculture	5.0	Demonstrations/field aspects	3.8	PRA	3.0
Visits	4.5	E-mail	3.7	Internet / Websites	2.8
Barazas	4.5	Farmers' field schools/Field days	3.6	Electronic media: TV/Radio presentation	2.3
PLAR	4.3	Extension materials	3.5	Propaganda	2.0
Workshops/Conferences	4.1	Training of Trainers (CBOs, extension)	3.5	Radio	1.0
Overhead presentation	4.0	Print Media: Press Release / Newsletters	3.4	Advertisements	1.0
Agric. Shows	4.0	Audio / visual	3.3		
Facilitating agricultural field days	4.0	Papers (Technical, Scientific, proposal and Journal)	3.1		

3.8 Improvements in Reward and Incentive Systems for Researchers

This section deals with hypothesis 8 stating that "*The reward and incentive systems like salaries, promotion, and prizes to researchers do not demand evidence of utilization and impact of research".* The reward and motivation scheme for scientists in KARI was analyzed. In the past, researchers were not only paid low wages but there were no incentives awarded for ensuring that the results of their research are scaled-up (KARI 1994,1996,2001b). Over the past few years, the Institute has made commendable strides to rectify the situation, by developing an evaluation criterion for promoting research scientists Initially the criteria emphasized academic qualifications and scientific publications in referred journals and other scientific fora. During a subsequent evaluation, emphasis was shifted to include results and / or work done on-farm on a participatory manner, problem analysis and general involvement of stakeholders at the grass-root level (KARI, 2001b). This system is still evolving and

hopefully by the third evaluation, aspects of communication, knowledge sharing and uptake promotion will be included in the criteria. It is however noteworthy that many of the new and emerging projects and programmes in the institute have a bias towards effective partnerships at all levels and most of the projects are community driven.

3.9 Overall Picture on Barriers to Uptake Promotion and Scaling-up

To evaluate barriers to uptake promotion and scaling-up of research results, scientists were asked to rank barriers to undertaking communication and uptake promotion and scaling-up of research results. Scientists also gave an indication of what they considered the most critical barriers to undertaking a pro-active role in communicating and promotion uptake to ensure effective utilization of results from soil and water management. Funding was cited as the biggest barrier followed by inadequate training (Table 9). Other barriers included lack of communication tools, equipment and specialized personnel; limited hardware and software as well as limited access to internet, negative attitude towards communication of uptake and scaling-up among researchers (communication of uptake is extension work).

They also suggested that improvement of training, provision of adequate funding and development of infrastructure for communication would be some of the ways to ensure barriers to undertaking a proactive role in communication and promotion of research results and outputs were broken (Table 10).

Table 7: The most critical barriers to effective communication and uptake promotion of research result

Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score
Inadequate funding	76	Transport limitations	11	Dependence Syndrome	8
Inadequate training	53	Limited interaction among some team members	11	Poor Road Network	5
Lack/inadequate communication tools/equipment/specialized personnel	24	Conservatism by farmers	11	Inadequate evaluation and Monitoring of the impact of R & D	5
Limited hardware/software/internet	24	Not in-built in the Soil and Water Policy	8	Little Time Allocation (post project)	3
Negative attitude among researchers (MoA work)	18	Illiteracy among Farmers	8	Extension Package takes long to prepare	3
Lack of commitment by other stakeholders (R&E linkages etc)	18	Unavailability of Credit to farmers	8	Poor Leadership	3
Lack of information (e.g. Bureaucracy)	16	Language of Communication	8	Patronization of Work	3
Not institutional priority/no support	13	More attention paid to research activities than dissemination	8	Interpretation of Results not put in Economic Terms	3
Shortage of staff	11	Poor Remuneration (incentives) for Scientists	8	Lack of Effective Methodology	3

Table 8: Interventions to enable a proactive role in communication and uptake promotion of research results

Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score	Communication and uptake Promotion Products	Score
Improve training/capacity development(short courses, refresher courses etc)	44	Provide adequate Vehicles	2	Exposure in Utilizing Knowledge Acquired	2
Provide adequate funding (Build into project funds	39	Avail Credit to Purchase Agricultural Inputs	2	Better leadership	2
Infrastructural development for communication and promotion (including software and hardware/internet)	26	Change traditional beliefs through training	6	Interpretation of Results not put in Financial Terms	2
Institutionalizing Communication/Promotion units within KARI	15	Facilitating and Promoting Dissemination, evaluation and Monitoring	5	Involve Beneficiaries at all Levels	2
Improve communication between SW research team	13	Allocate adequate time	3	Deal with Farmers Directly	2
Adult literacy classes/Awareness campaign	9	Sensitization of other Stakeholders (R & E links)	3	Improve Incomes	2
Better remuneration for scientists	9	Have S & W Technology Demonstration Centres	3	Right Attitude	2
Improve rural access roads	8	Modify the Existing Methodologies	3	Low cost Technologies to be used	2
Support in making extension packages (motivation for innovation)	6	Elimination of Dependence Syndrome	3	Translate Technical Information in Local Language(s)	1

4 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusions

The methodology used in this study applied both qualitative and quantitative research methods. Qualitative methodologies used included case studies and interviews with key informants. A structured questionnaire elicited both qualitative and quantitative information for analysis. The multiple method approach proved to be very versatile in analysing data and information obtained to test the hypotheses.

The policy and strategy documents analyzed at the government and ministerial levels are very broad and refer only to the agricultural sector where agricultural research falls under. Soil and water management research falls under the agricultural research docket. Therefore one can only infer since soil and water management research is hardly even mentioned in these documents. That not withstanding, the documents hardly mentioned effective communication and uptake promotion of research results whether in relation to agricultural research or to soil and water management.

The Kenya Agricultural Research Institute (KARI) is the country's premier agricultural research institute and through its strategic plan has recognized the need to have impact of its technologies. However, the other stakeholders critical to ensuring that impact is achieved might not be well placed for such a role. In the past there has been 'hostility' that the Institute is overshooting its mandate by ensuring that its technologies are up scaled. This situation has eased in the recent years and the Institute is taking centre stage in not only ensuring its technologies are disseminated and taken up widely but also ensuring that the extension is well empowered to undertake its rightful role of dissemination.

The analysis also revealed that technology pathways do not cover all stakeholders. Institutional documents are more focused and put more emphasis on soil and water management research. Institutional documents have also attempted to include technology dissemination pathways and include other stakeholders such as input suppliers, equipment and implement manufacturers. However, the role of research systems, institutions and researchers in uptake promotion is rarely recognized or promoted in national policies and strategies that guide research in soil and water management. There was no evidence in the PRSP and the NPEP that the Government recognized the need to involve research systems, institutions and researchers in uptake promotion of research results, including the results from S&WM. However, the NDP recognized the role of the country's agricultural research institution in uptake promotion and scaling up of research results to achieve impact. The NDP (2002) particularly emphasized "inducing technological change to increase productivity". Implementation was however rated very low after evaluation, perhaps because the concept of participatory methodology was taking grounds then.

Universities teaching curricula for students do not cover courses in output promotion and scaling up of research findings. Neither do guidelines on proposal writing from KARI contain uptake promotion and scaling up of research results as part of the expected outputs. There were signs of a change of mind at the research Institute level, as all the research projects and programs had promotion and uptake promotion plans in their documents. Researchers do recognize that they have a role to play in promotion and scaling up of research results. However, their aspirations are rarely met due to lack of support from the other stakeholders.

The Institute has in the past 5 years or so put a lot of efforts, (financial and human) to produce research outputs geared to the end users. Different mechanisms have been employed to ensure that research results are communicated and their up-take promoted for wider utilization by the end users. Researchers, however, seem unsure of what their role is in the communication and uptake promotion of results from soil and water management. This scenario can be attributed to the traditional school of thought that researchers should only develop technologies and hand them over to extension staff to disseminate. There is therefore need for a complete change of mindsets all the way from policy makers to research managers to researcher to understand the need to work as a continuum and not as different entities every one doing their bit and handing over to the other party.

Researchers identified barriers to their proactive participation in communication and promotion uptake to include lack of training and capacity, funding, lengthy processes to produce communication materials etc. These barriers again point to the perceived 'roles' of researchers versus extentionists. The budgetary constraints arise out of putting the promotion and communication aspects as the lowest priority. The lack of training and capacity to undertake communication and promotion of results was again evident from the courses offered to the researchers in the universities. Of concern also is the fact research programs and projects are rarely evaluated for uptake and neither is there an awarding system for scientists who excel in this field.

This project of institutionalizing a culture of promotion, uptake, scaling-up the results of soil and water management research is therefore very timely if the trend of years and years of research work with hardly any up and out scaling is to be reversed. There is therefore need for the government policy and strategy documents to articulate very clearly pathways for communication of results of not only research from soil and water management research but research in general. Universities should also ensure graduates are well equipped to undertake promotion of the results of their research while research institutes should institutionalize scaling-up and uptake promotion of outputs from soil and water management research. Specifically, managers should ensure that adequate budgets are allocated for, and that evaluations of the projects cover scaling-up and uptake promotion of outputs.

4.2 Recomendations

Following the above findings on output communication and uptake promotional activities of research outputs, the following recommendations have been proposed:

- Curriculum developers at Universities should review their curricula to include short-term in-service training courses and long term courses on communication skills and promotion of uptake of developed technologies.
- National Agricultural Research Systems ((NARS) managers should ensure that all new projects and programmes, have appropriate plans and budgets included in the proposals for scaling up and uptake promotion of the outputs.
- Manpower development officers in National Agricultural Research Systems should ensure that existing researchers are trained in communication skills and that their promotions should include an assessment of the impact of their technologies to end users.
- Researchers should be provided with the appropriate information communication technologies (ICT). Poor infrastructures and unavailability of communication equipment could seriously hamper dissemination and uptake of research outputs.

- Policy makers should collaborate with stakeholders to review existing policy and strategy documents such that they integrate dissemination aspects into the research process.
- Research managers in NARS should sensitize policy makers to acknowledge that dissemination is one of the mandates of researchers.
- NARS should raise awareness and improve the accessibility of existing policies and strategy documents as well as on the relevant research outputs.
- All NARS researchers should scale up participatory approaches right from developing to implementation stage of research projects so as to ensure that most of the researches undertaken are client oriented or based on the farmers' needs.
- Policy making it mandatory that undergraduates in natural resources management should pursue a course in communication and uptake promotion of research outputs should be pursued.
- Although the methodology proved to be very versatile in application, the process should be standardized. More qualitative data should be collected to ensure more convincing quantitative tests of the hypothesis.
- The methodology should be expanded to more scientific disciplines for more scientific conclusive intra and inter disciplinary outcomes.

REFERENCES

GoK 1999. National Poverty Eradication Plan (1999 -2015), Nairobi, Kenya. Ministry of Planning and National Development.

GoK 2001a. Poverty Reduction Strategy Paper (2001-2004). Nairobi, Kenya. Ministry of Planning and National Development.

GoK 2001b. National Agricultural Extension Policy (NAEP). Nairobi, Kenya. Ministry of Agriculture and Marketing.

GoK 2001c. National Agriculture and Livestock Extension Programme. Nairobi, Kenya. Ministry of Agriculture and Marketing.

GoK 2002a. National Development Plan (2002-2008). Nairobi, Kenya. Ministry of Planning and National Development.

GoK 2004b. Strategy for Revitalizing Agriculture (2004 - 2014). Nairobi, Kenya. Ministry of Agriculture and Marketing.

JKUAT 2004. Prospectus (2004/2009). Juja, Kenya. Jomo Kenyatta University of Agriculture and Technology:

KARI 1994. Guidelines for research project proposal formulation. Kenya Agricultural Research Institute. Nairbi, Kenya:

KARI 1995. KARI priorities to the year 2000. Kenya Agricultural Reserch Institute. Nairbi, Kenya:

KARI 1996. Guidelines for research programming, review and evaluation. Kenya Agricultural Reserch Institute. Nairbi, Kenya:

KARI 2000a. KARI's Strategic Plans (2000-2010). Kenya Agricultural Reserch Institute. Nairbi, Kenya:

KARI 2000b. Agricultural Technology and Information Response Initiative (ATIRI) manual. Kenya Agricultural Reserch Institute. Nairbi, Kenya:

KARI 2001a. ATIRI Booklet. Kenya Agricultural Reserch Institute. Nairbi, Kenya:

KARI 2001b. Evaluation criteria for research scientists. Kenya Agricultural Reserch Institute. Nairbi, Kenya:

KARI 2003a. Third Medium Term Plan (July 2003/4 to June 2007/2008). Kenya Agricultural Reserch Institute. Nairbi, Kenya:

KARI 2003b. ARLSP Annual Work Plan and Project Cost Estimates (AWPCE) 2003/2004. Kenya Agricultural Reserch Institute. Nairbi, Kenya:

Mureithi, J.G. C.K.K. Gachene, and J. W. Wamuongo (2003). Legume cover crops research in Kenya: Experiences of the legume research network project.

UoN 2004. Prospectus (2004 - 2009). Nairobi, Kenya. Nairobi University:

APPENDIX 1. QUESTIONNAIRE FOR RESEARCHERS

Structured and semi-structured survey to researchers in soil and water management research:

1. Do you have access to National, Ministerial and Institutional policy and strategy documents_____
1. Yes 2. No

2. How often do you use policy and strategy documents _____?
1. Never 2. Rarely 3. Every now and then 4. Frequently
5. Very Frequently 6. All the time

3. If you don't what is the reason for not accessing and using these policy documents?
_____

1. I do not bother
2. Not aware that the documents are necessary
3. Lack access to a library and documentation centers
4. Limited resources to buy documents
5. Documents poorly prepared
6. Documents not readily available

4. List 3 major National, 2 Ministerial (MoA) and 2 Institutional (KARI) policy and or strategy documents you have access to
_____
_____
_____
_____
_____
_____
_____

5. What is the mode of access to the National Policy Documents _____

1. Internet 2. Subscription 3.Institution Library 4.Public Library
5. Government Documentation center 6. Other Specify_____

6. How many projects/experiments have you conducted in the last 5 years?
1. None 2. One 3. Two 4. Between 3 & 4 5. Five
6. Between 5 & 10 7. Over 10

7. How much of the information that you have collected in the last five years is contained in technical reports produced during the same period? _____
1. None 2. Between 0 & 25% 3. Between 25 & 50%
4. Between 50 & 75% 5. All the information

8. How much of the information and data contained your technical reports or journal papers have been used to produce specific advice to farmers and other clients?
1. None 2. Less than 5% 3. Between 6% & 10%
4. Between 11% & 20% 5. Between 21% & 30%

6. Between 31% & 50% 7. Between 51 & 75% 8. All the information

9. List in order of importance five kinds of communication, knowledge sharing and uptake promotion products you have used

_____
_____
_____
_____
_____

Where: 1. Highest rank in innovation in targeting specific stakeholders
5. Least rank in innovation in targeting specific stakeholder

10. List and rank in terms of importance five kinds of communication, knowledge sharing and uptake promotion products that you are aware of and intend to use

_____
_____
_____
_____

Where: 1. Highest rank in innovation in targeting specific stakeholders
5. Least rank in innovation in targeting specific stakeholders

11. Has the effectiveness of the products ever been evaluated
1. Yes 2. No

12. Briefly state the evaluation results for each of the of communication, knowledge sharing and uptake promotion products

Product	Effectiveness results	Comment
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Code:
1. Not effective 2. Fairly effective 3. Moderately effective
4. Highly Effective 5. Extremely effective

13. Give an estimate of your budget and time committed and used in communicating and promoting up-take of research results.

Monetary Budget ($ per annum)	Time Budget (Man days per annum)

14. Have you ever received any training on communicating and promoting up-take of research results? _____
1. Yes 2. No

15. If yes state and give an assessment of the training received on communicating and promoting up-take of research results.

Training	Assessment	Comment
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Assessment code:
1. Poor 2. Fairly Adequate 3. Moderately Adequate
4. Very Adequate 5. Highly Adequate
6. Extremely Adequate

16. Give a general assessment on own capacity in communicating and promoting up-take of research results._____

Assessment code:
1. Poor skilled 2. Fairly skilled 3. Moderately skilled
4. Very Skilled 5. Highly skilled 6. Extremely skilled

17. Give an assessment of own capacity in using specific tools in communicating and promoting up-take of research results.

Communication and promoting tool	Assessment	Comment
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Assessment code:
1. Poor skilled 2. Fairly skilled 3. Moderately skilled
4. Very Skilled 5. Highly skilled 6. Extremely skilled

18. List 5 of the reasons you consider as most critical barriers to undertaking pro-active role in communicating and promoting uptake and effective utilization of results from S&WM research.

_____
_____
_____
_____
_____

19. Suggest and rank five priority interventions to overcome the identified barriers.

_____
_____
_____
_____
_____

Where:
1. Highest in priority rank
5. Least in priority rank

APPENDIX II – ANALYSIS OF COMMUNICATION STAKEHOLDERS

Categories and Sub-categories		KAP on scaling-up and uptake promotion of S&WM research results		
		Knowledge	Attitudes	Practices
Ministers and directors of general planning in ministries responsible for agriculture, rural development, NRM, and research				
1. 1	Ministers, Assistant Ministers and Permanent Secretaries	National development policies and what is demanded from agricultural and rural development. Inadequate understanding of uptake pathways for knowledge in S&WM.	Policy is right, only implementation is the problem. Research is producing little impact. There are clear dividing lines between research and extension.	Rarely consult researchers or research reports before making policy decisions. Although looking for research impact, they rarely fund impact assessments. Often blame inadequacy of available technologies.
1. 2	Directors of general planning, monitoring and evaluation	General planning process of agricultural and rural development but have also got an inadequate understanding of uptake pathways for knowledge and technologies in S&WM.	Policy is right, only implementation is the problem; research is producing little impact; there are clear dividing lines between research and extension	Try M&E for impact but don't know how it should be achieved and do not consult research results during the planning process, which often depend on foreign consultants using standard templates.
National agricultural research departments, organizations and/or institutes				
2. 1	Director Generals at national level for agriculture and NRM research	A good understanding of national guidelines for research and the available resources. Well aware of the demand made by the government and other stakeholders on the research system. Have a medium appreciation of the merits of participatory and adoptive research due to many years of FSR programmes Have only low understanding of the multi-aspects of communication, knowledge sharing and uptake promotion to stakeholders other than farmers.	Policy and government funding is not adequately supportive of research in S&WM. The little research being done is producing good results and it is the extension, farmers and other end users who are hindering uptake and impact. Researchers can not be involved in uptake promotion directly as there are clear dividing lines between research and extension.	Rarely provide resources to researchers for scaling-up and uptake promotion activities. Although looking for research impact, they rarely fund impact assessments or reward researchers for impact. Follow-up research outputs only to the stage of technical reports. Therefore, are practicing scaling-up and uptake promotion at a very low level
2.	Directors,	Specialists in their own areas	Also believe that S&WM	Rarely provide resources

Categories and Sub-categories		KAP on scaling-up and uptake promotion of S&WM research results		
		Knowledge	Attitudes	Practices
2	Assistant Directors and Heads of departments responsible for research in S&WM and related subjects	but do not adequately understand the pathways to impact and therefore how to achieve effective scaling-up and uptake promotion. Understands merits of participatory and adoptive research but are unable to M&E against impact. Therefore have a medium knowledge of scaling-up and uptake promotions tactics.	research is not adequately supported and there is inadequate manpower.	to researchers for scaling-up and uptake promotion. Demand impact but accepts only technical reports, journal publications and presentations at workshops. Maintains information units which do only a limited amount of uptake promotion
2. 3	Managers of institutes and centers	Very close to the ground and often involve stakeholders in research planning and assessment. Due to the involvement of stakeholders there is a high demand for impact from research. However, the limitation of knowledge on tactics for ensuring scaling-up and uptake promotion by researchers, limit effectiveness.	Gives high prominence to research in S&WM especially irrigation in semi-arid areas.	Focus more on dissemination to farmers and promotes farmers field schools. This is not extended to other stakeholders in the uptake and impact pathway
2. 4	Heads of Information Units	This group has a concentration of knowledge and capacity for communication planning and production of relevant products	They feel that researchers do not wish to involve them actively in projects – but just come to them at the end of the project. Give minimum support due to limited ownership of the projects and the resultant outputs.	Normally only manage the library but in some organizations there are efforts to make these units more pro-active in the dissemination of the research results of the organization's work
2. 5	Researchers	A good number have been exposed and understand well participatory and farming systems approach However, there is still a big	Due to shortage of resources and poor salaries, more emphasis is put in writing proposals and fieldwork.	Minimum dissemination plans are included in proposals as per the requirement of donors Efforts are directed to

Categories and Sub-categories	KAP on scaling-up and uptake promotion of S&WM research results		
	Knowledge	Attitudes	Practices
	limitation in the capacity to analyze the full spectrum of stakeholders in uptake and impact pathways for research in S&WM	Very little effort is put in the preparation and implementation of robust communication plans – mainly because one does not get a per diem while working in the office	presentations at workshops and seminars
Universities especially directorates of PG studies, and faculties & departments with PG programmes in S&WM or related subjects			
3. 1 Dean and Directors responsible for Post Graduate (PG) programmes	Similar to the Director Generals in the NARI, they have only low understanding of the multi-aspects of communication, knowledge sharing and uptake promotion to stakeholders other than farmers.	Also satisfied that the university research system is doing a good job of generating technologies and information – and that adequate dissemination is achieved trough the training of students. The publish-or-perish syndrome puts a lot of demand on journal publications rather than communication products – which are often not recognized for promotion of staff.	Encourage scientists and lecturers to publish their results, but gives very little budgetary support to the publication stage of research work. PG Students are not encouraged to produce communication products prior to graduation. They are only supported to produce few copies of their thesis in *the brick* size and type.
3. 2 Deans, Heads or Chairs and staff involved in PG programmes in S&WM	A good number have been exposed and understand research planning but in the traditional way. However, they are better in communication and knowledge sharing. Therefore, there is a medium capacity to analyze the full spectrum of stakeholders in uptake and impact pathways for research in S&WM	Due to shortage of resources and poor salaries, more emphasis is put in writing proposals and field work. Very little effort is put in the preparation and implementation of robust communication plans – mainly because most of the research work is done by students and passing the exam is given more emphasis	Minimum dissemination plans are included in proposals as per the requirement of donors Training of PG classes gives only a limited emphasis to scaling-up and uptake promotion. Efforts are directed to journal publications and workshop proceedings to meet the pressure of *publish-or-perish*.

Categories and Sub-categories		KAP on scaling-up and uptake promotion of S&WM research results		
		Knowledge	Attitudes	Practices
Public extension system responsible for S&WM				
4. 1	National level directors of GO and other public organizations at national level	Just as their counterparts on the research side. They are well aware of the demand made by the government and other stakeholders for increased availability of improved knowledge and technologies However, most come from the old school of linear extension and technology transfer approaches. But are familiar with most of the basic requirements for effective up-take promotion	Believe that there are clear-cut division of labor between extension and research. Research does not provide the extension systems with what is required Resent that often research is allocated more funds than the extension side – and yet little come from the research	Simple research – extension - farmer linkages
4. 2	Leaders of zonal and/or regional GOs	The category of communication stakeholders that is very close to farmers, with the highest understanding of the needs of end users. However, limited in their understanding of the necessary uptake pathways necessary to improve access to knowledge and technologies	Their attitude is that the research system is not doing enough in the production of the relevant knowledge and technologies.	Simple research – extension - farmer linkages Farmer field schools Put only a limited amount of effort is the search and brokering for knowledge and technologies.
ASARECA and International Research Organizations				
5. 1	ASARECA Leadership and NPPs	International and regional agenda and nature of demand for impact from research in agriculture and NRM	Increasing support for utilization of knowledge and technologies	Increasingly putting emphasis on M&E and impact assessment an appropriate approach has not been agreed upon yet

Issue for Communication Plan, Expected Actions and most Appropriate Media Channels

Categories and Sub-categories		(Q4-WHAT): Issues and products to be communicated are:	(Q6-WHY): The stakeholders are expected to:	(Q7-HOW): Proposed Media and Channels are:
Ministers and directors of general planning in ministries responsible for agriculture, rural development, NRM, and research				
1. 1	Ministers, Assistant Ministers and Permanent Secretaries	Policy brief with recommendations on how to remove major policy and strategic impediments to uptake and scaling up	Gain increased awareness and thus support the initiation of changes in policies and strategies that affect negatively the scaling-up and uptake promotion of results from	2 pg A-4 size Leaflet Articles in National Newspapers Contribution of Video Clips to a relevant TV programme – e.g. ECO Journal in KTN-

Categories and Sub-categories		(Q4-WHAT): Issues and products to be communicated are:	(Q6-WHY): The stakeholders are expected to:	(Q7-HOW): Proposed Media and Channels are:
		of S&WM knowledge and technologies	research in S&WM	Kenya
1. 2	Directors of general planning, monitoring and evaluation	An Executive Summary of the major findings and recommendations of the project with respect to the 8 hypotheses	Support to strategies and budgets for overcoming impediments to uptake and scaling-up knowledge and technologies	Technical pamphlet (10 pgs max.) with illustrations Articles in National Newspapers (as for 1.1) Contribution of Video Clips to a relevant TV programme – e.g. ECO Journal in KTN-Kenya (as for 1.1)
National agricultural research departments, organizations and/or institutes				
2. 1	Director Generals at national level for agriculture and NRM research	The project itself – its justification, methodology and expected results. Basically *public relations*	Support the project through resources and allowing researchers to participate in awareness raising and training activities	A poster advertising the project – with possible translation into the five important languages in ASARECA – English, French, Arabic, Amharic & Swahili Face-to-face meetings
		Policy brief with recommendations on how to remove major impediments to uptake and scaling up of S&WM knowledge and technologies	Support and lobby for changes Allocate resources to scaling-up and uptake promotion Initiate amendments of regulations to demand for orientation to scaling-up and impact in proposals, M&E of projects, and assessment and rewarding researchers.	4 pg A-4 size Leaflet – illustrating the current situation and recommended solutions as per the findings of the project
		An Executive Summary of the major findings and recommendations of the project with respect to the 8 hypotheses	Promote strategies and budgets for overcoming impediments to uptake and scaling up of S&WM knowledge and technologies	Technical pamphlet (10 pgs max.) on the recommendations with illustrations (with 1.2)
2. 2	Directors, Assistant Directors and Heads of departments responsible for research in	The project itself – its justification, methodology and expected results. Basically *public relations*	Support the project through resources and allowing researchers to participate in awareness raising and training activities	A poster advertising the project – with possible translation into the five important languages in ASARECA – E, F, A, Am, S Power Point Slides Presentation for use where opportunity arises (face2face *meetings, seminars and workshops*)

Categories and Sub-categories		(Q4-WHAT): Issues and products to be communicated are:	(Q6-WHY): The stakeholders are expected to:	(Q7-HOW): Proposed Media and Channels are:
	S&WM and related subjects	Guidelines on how to effectively facilitate scaling-up and uptake promotion – e.g. through capacity building	Champion the building of capacity in their institutions for scaling-up and uptake promotion	Training and reference manual. Face-to-Face training of trainers course
		Details of the findings and products developed by the project	Distribute the project products to the relevant institutions and researchers and promote continued use	A package (especially electronic versions on CD and website) of all reports and products of the project with a summary promotional leaflet describing each report and product
2.3	Zonal and/or regional research boards and/or committees, and	An Executive Summary of the major findings and recommendations of the project with respect to the 8 hypotheses	Improve and implement regulations to demand for orientation to scaling-up and impact in proposals, M&E of projects, and assessment and rewarding researchers.	Technical pamphlet (10 pgs max.) on the recommendations with illustrations (with 1.2)
	mangers of institutes and centre	Details of the findings and products developed by the project	Distribute the project products to the relevant institutions and researchers and promote continued use	A package (especially electronic versions) of all reports and products of the project with a summary promotional leaflet describing each report and product (as for 2.2)
2.4	Heads of Information Units	The project itself – its justification, methodology and expected results. Basically *public relations*	Support the project in designing effective communication products	Face2face awareness raising seminars and meetings using the PPT and a summary of the project document
		Details of the findings and products developed by the project	Distribute the project products to the relevant institutions and researchers and promote continued use	A package (especially electronic versions) of all reports and products of the project with a summary promotional leaflet describing each report and product (as for 2.2)

Categories and Sub-categories		(Q4-WHAT): Issues and products to be communicated are:	(Q6-WHY): The stakeholders are expected to:	(Q7-HOW): Proposed Media and Channels are:
2.5	Researchers	Details of the findings and products developed by the project.	Will change practices in the way they develop, implement and disseminate research – by putting more emphasis on communication, knowledge sharing and scaling-up	A package (especially electronic versions) of all reports and products of the project with a summary promotional leaflet describing each report and product (as for 2.2)
		Direct capacity building for trainers	Train other in own country and institution and champion the scaling-up and uptake promotion movement	Training of Trainers course itself as well as the training materials – including a manual, and PPT slides
Universities especially directorates of PG studies, and faculties & departments with PG programmes in S&WM or related subjects				
3.1	Dean and Directors responsible for Post Graduate (PG) programmes	Similar to the directors category 2.1 Details on the technical findings of the project with respect to the gap in the training of PG students wrt scaling-up and uptake promotion	Similar to the directors category 2.1 Initiate amendments of regulations for approval of student research proposals, assessment and awarding of degrees	Similar to the directors category 2.1 Technical pamphlet (10 pgs max.) on relevant recommendations with illustrations
3.2	Deans, Heads or Chairs and staff involved in PG programmes in S&WM	Details on the technical findings of the project with respect to the gap in the training of PG students wrt scaling-up and uptake promotion	Initiate amendments of the curriculum on research planning for PG students in S&WM so as to include adequate elements on scaling-up and uptake promotion	Technical pamphlet (10 pgs max.) on relevant recommendations with illustrations (with 3.1)
Public extension system responsible for SWM				
4.1	National level directors of GO and other public organizations at national level	Policy Brief analyzing actual practice in research – extension linkages as compared to policy and strategies	Turn the current good will on research-extension linkages into real action supportive of effective scaling-up and uptake promotion	2- page A-4 leaflet Face-to-face meetings An article produced in relevant newsletters
		Project findings on the gap that exist between knowledge generation and impact and the benefits that can be obtained if that gap is removed	Assist in the removal of institutional impediments to pro-active participation of researchers in scaling-up and uptake promotion	Highly illustrative poster – with possible translation into the five important languages in ASARECA

Categories and Sub-categories		(Q4-WHAT): Issues and products to be communicated are:	(Q6-WHY): The stakeholders are expected to:	(Q7-HOW): Proposed Media and Channels are:
		Strategic briefing on the findings of the project on training needs to improve staff capacity in scaling-up and uptake promotion	Will facilitate through budgetary allocations to capacity building for extension staff on the subject of scaling-up and uptake promotion	2-page A-4 leaflet describing basic skills needed by extension staff for effective scaling-up and uptake promotion Power Point Slides Presentation for use in relevant seminars, workshops and meetings
4.2	Leaders of zonal and/or regional GOs	Guidelines on how the extension system can effectively facilitate scaling-up and uptake promotion	Participate and assist in scaling-up activities in their areas of responsibilities Champion the scaling-up movement	Training and reference manual. Face-to-Face training of trainers course
ASARECA and International Research				
5.1	ASARECA Leadership and NPPs	Similar to the directors category 2.1	Similar to the directors category 2.1	Similar to the directors category 2.1

Proposed Communication Plan

Stakeholders	Q4: What are the Issues and CP products?	Q5: What is the current K.A.P[3] of the CP Stakeholders?	Q6: What do we want the stakeholders to do after we do the Communication?	Q7: What media channels are most viable
Deputy Directors Research and Extension	-Explain the availability of results (show specific performance) and where the barriers are -Provide scientific evidence of the communication gap between research and extension -The best-bet approaches to removing those barriers -Inform with facts that there are more communication stakeholders than the	-Adaptive research is given more prominence -Think that there are clear cut lines between research, extension in terms of dissemination & uptake -Believe researchers should not be involved in communication as it is the role of extensionists -Get satisfied with technical reports -Demands impact but do not understand how	-Help in integrating research and extension -Assist in ensuring cps become an integral part of the research agenda -Assist in ensuring adequate funds are allocated for cps -Create an enabling environment e.g. putting CSs in policies, strategies & programmes -Create an acceptable strategy of Communication & role of researchers	Demonstrations Technical reports Policy Briefs Fact sheets

[3] Knowledge, Attitudes and Practices

Stakeholders	Q4: What are the Issues and CP products?	Q5: What is the current K.A.P[3] of the CP Stakeholders?	Q6: What do we want the stakeholders to do after we do the Communication?	Q7: What media channels are most viable
	traditional extensionists -Ask for support for capacity building to tackle issues communication -Ask for empowerment of research systems to communicate better	impact is achieved – e.g. do not provide adequate resources	-Support capacity building for researchers on CKSS	
Assistant Director Land & Water Management (AD L&WM).	-Inadequate resources to ensure CS are incorporated in research proposals -Put more emphasis on technical reports and scientific papers	-Satisfied with current dissemination practices -Demand for impact but not clear how to achieve -They are aware and support adaptive research -Communication is given low priority therefore is the first to suffer from any budget cut	-To support the idea of having CS Be instrumental in changing the mind set of the scientists	Technical reports Proposals
Chairs of Post-Graduate Training Departments	-Curriculum geared to passing exams with little or no emphasis on communication	-CP is not part of the curriculum of agricultural colleges	-Offer students skills to apply communication strategies in their work	
Soil and Water Research Coordinators	-Believe in linear mode of dissemination -Do not understand/know there is need for CS -More concerned with publication for career development	Communication is part of extension work -Believe researcher should go up to adaptive research and hand over results to extensionists for dissemination Include extension to satisfy their bosses	-Ensure all research proposal include a CP -Ensure it is applied	
Research Financiers Donors	-Usually impose what they can fund		-Insist on CP as part of fundable proposals -Ensure funds are allocated for CPs	
Q8: How to ensure that communication materials are useful?	Involve all possible stakeholders Make CPs simple, targeted to specific stakeholders, including local translations Ensure CPs are embedded in policy documents and are adhered to Ensure there are budgetary provisions for CPs Ensure students are taught the need for CPs– not something they are forced to do later in life Show/relate CP to tangible benefits			