| **Case Study: Institution-Based Information Systems** |
| **Kenya Agricultural Information Network (KAINet)** |
| **Planning and Strategy Building** |

EXECUTIVE SUMMARY

The Kenya Agricultural Information Network (KAINet) was initiated in April 2006 in response to demand from the national and international community to promote information exchange and access among stakeholders in the agricultural sector. KAINet has evolved from the on-going Kenya Pilot AGRIS Project, which aims at building capacities in information management, dissemination and exchange in network members in Kenya. The project's objectives include establishing institutional repositories of agricultural information, facilitating the development of institutional and national Information and Communication Management (ICM) strategies and policies as frameworks for addressing issues that are critical to content development and information exchange, and supporting development of human capacity in ICM through training programs for information managers.

The main stakeholders in the implementation of KAINet are five national institutions: the Kenya Agricultural Research Institute (KARI), the Kenya National Agricultural Research Laboratories (KARI-NARL), the Kenya Forestry Research Institute (KEFRI), the Ministry of Agriculture (MoA) and Jomo Kenya University of Agriculture and Forestry (JKUAT). At the international level FAO, CABI Africa and the Regional Agricultural Information Network (RAIN) of the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) participated in developing the project and are supporting its implementation through providing expertise in ICM.

The project received financial support from the Department for International Development (DFID) of the UK Government through FAO. In addition, national and international project partners provide in-kind contributions.

Phase 1 of the project was mainly dedicated to creating awareness, ensuring the commitment of the management of the five stakeholder institutions, and assessing needs for capacity development. During Phase 2 emphasis was placed on strategy development for the KAINet network, as well as for individual participating institutions.

1. BACKGROUND

Rationale
Initiated in April 2006, the Kenya Agricultural Information Network (KAINet) is a response to demand from the national and international community to promote information exchange and access among stakeholders in the agricultural sector, including researchers, extension workers and others, in order to support decision-making, promote innovation in agriculture and improve livelihoods. KAINet has evolved from the on-going Kenya Pilot AGRIS (International Information System for the Agricultural Sciences and Technology) Project, which aims at building capacities in information management, dissemination and exchange in network members in Kenya. The project's objectives include establishing institutional repositories of agricultural information, facilitating the development of institutional and national Information

and Communication Management (ICM) strategies and policies as frameworks for addressing issues that are critical to content development and information exchange, and supporting development of human capacity in ICM through training programs for information managers.

At the national level KAINet is a response to a recommendation to build a Kenyan national agricultural science and technology information system, enshrined in the Kenya government strategy for revitalising agriculture (SRA). The SRA aims at achieving a reduction in unemployment and poverty through application of among other things, new technologies and information as the basis for a thriving agricultural system. The SRA also identifies linking the national research system with international information systems and establishing agricultural technology dissemination system linked to extension. At the international level, KAINet responds to the calls for coherence in the management of agricultural information in order to enhance information exchange and access. The latter has been identified through various consultations including the Expert consultation on mechanisms for documenting and disseminating outputs of Agricultural Research in sub-Saharan Africa held in Nairobi, Kenya, in May 2004, and the Expert Consultation on International Information Systems for Agricultural Science and Technology organised in Rome in October 2005.

Organizers
The development of KAINet is led by the Kenya Agricultural Research Institute (KARI). FAO, CABI Africa and the Regional Agricultural Information Network (RAIN) of the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) are key collaborators. They participated in developing the project and are supporting its implementation through providing expertise in ICM.

Funding Sources
The project received financial support from the Department for International Development (DFID) of the UK Government through FAO. In addition, national and international project partners provide in-kind contributions.

2. STAKEHOLDERS

The main stakeholders in the implementation of KAINet are five national institutions: the Kenya Agricultural Research Institute (KARI), the Kenya National Agricultural Research Laboratories (KARI-NARL), the Kenya Forestry Research Institute (KEFRI), the Ministry of Agriculture (MoA) and Jomo Kenya University of Agriculture and Forestry (JKUAT). Other key players in the agricultural research and extension sector in Kenya were represented at various stages of consultation, and are expected to come on board in the future. At the international level the key stakeholders are the project collaborators mentioned above. All implementing institutions are equal partners, contributing and sharing information and expertise.

Model of process management and/or governance
A multi-institutional team was set up from the start of the project to enable collective ownership by the institutions and to avoid dependency. At the national level, the technical aspects of the project are coordinated by KARI which leads the development of work plans, mobilizing resources, monitoring activity implementation and linking the national institutions with international collaborators. Two committees have been established:
− the Project Management Committee (PMC), consisting of one representative from each of the national participating institutions, which provides guidance to the project activities; and
− the Project Implementation Committee (PIC), comprising two members from each institution (a policy maker and technical officer), which is responsible for the planning and implementation of the activities.

CABI Africa is providing backstopping on technical matters, and specifically in reporting to FAO. At the international level the project is managed by FAO which ensures funding and reporting to DFID.

3. PLANNING AND STRATEGY BUILDING PROCESS

(i) Proposal Development
KARI, FAO, CABI Africa and ASARECA/RAIN developed the proposal for a project entitled "Kenya Pilot AGRIS Project" during the last half of 2005. FAO, which had led capacity building under the new AGRIS vision in the East African region, offered to seek funding for the project. The proposal obtained funding from DFID, and Phase 1 of project implementation started in May 2006.

(ii) Planning the Initiative and Bringing Stakeholders on Board
The first two months of the project involved consultations between CABI Africa, FAO, RAIN/ASARECA and stakeholders in the Kenya agricultural sector, following which five national institutions representing agricultural research, academic and extension sectors were selected to participate in the pilot. A draft project work plan was developed, and, under the leadership of KARI, visits were made to the five institutions to promote the project. Time was required to secure appointments with the management of pilot institutions in order to bring them on board. By June 2006, wide awareness of the project had been created and commitment to implement the project had been obtained from the CEOs of the five institutions. Vital information for planning had been obtained. In July 2006, a stakeholder consensus-building workshop brought together administrative-level managers and information services managers such as publications officers, librarians and information technology officers, to discuss the policy/strategy framework and the technical aspects of the project. They identified the broad capacity needs, discussed the project work plan, and proposed the formation of KAINet as a forum through which the project and other related activities would be implemented. The participation of the top managers or their representatives in the workshop and the interest shown by the Information managers signaled ownership of the initiative.

(iii) Analysis Policies and Strategies
The project team under the leadership of CABI Africa collected and reviewed relevant available policy/strategy documents in order to ensure that the project was integrated in national development objectives.
The review revealed a lack of functional institutional ICT/M strategies. Only one institution had a written ICT strategy and even that was not being implemented. However, national sectorial strategies, such as the National ICT Policy, the E-government Strategy and the Strategy for Revitalising Agriculture (SRA), provided good frameworks for implementing systems for sharing agricultural information.

The outcome of the review was shared with project partners and building institutional ICT/M strategies was made a priority activity that would support all activities under KAINet. Capacity to lead strategy development was identified as inadequate, and it was necessary to convince institutional managers to allocate resources to this activity.

(iv) Assessment of Capacity Needs
To confirm the needs identified during activities (ii) and (iii), an independent consultant conducted a full survey of human resource, infrastructure, content, ICM policy status of all pilot centres in August-September 2006. The outcome of the survey was shared and verified by project partners during a project planning and technical workshop in September 2006. Further visits to assess the specific technology requirements for establishing the institutional repositories were made by FAO in September 2006. The priority needs identified were used as a basis for planning Phase 2 of the project which started in December 2006.

(v) Capacity Building in ICM Strategy Development and AGRIS Tools and Methods
Initial steps to build capacity in ICM strategy development were taken during the second stakeholder workshop held at the end of Phase 1, facilitated by FAO, CABI Africa, KARI and ASARECA/RAIN. The participants were introduced to FAO's Information Management Resource Kit on "Investing in Information for Development" which has a training module on information strategy development. FAO also led training on Web-enabled AGRIS tools and methodologies which are used to establish the repositories of full-text documents and associated metadata. A technical officer was outposted to Kenya for three months to provide technical support in the establishment of institutional repositories as well as assist in the review of the current information activities in the five participating institutions. The first step was to install the WebAGRIS data management system, replacing the outdated DOS/ISIS version used by the centers. Project personnel were trained on the use of WebAGRIS for cataloguing as well as export data with the AGRIS application profile.

The five institutions proceeded to migrate their data from DOS/ISIS systems into WebAGRIS and also adding full text electronic files where they exist to the metadata they create. Each institution reviewed its existing workflows, collection development and information management policies during the ICM "write shops" (see below) in order to develop effective policies that would enable better information management practices. Two institutions have already exported their first data to the AGRIS central repository.

Challenges
The short time available for the training workshop was not sufficient for hands-on sessions on the Web-enabled AGRIS tools. This was rectified through on-site training led by FAO staff during Phase 2 and will be further addressed through training programmes planned for Phase 3.

The process of creating a full text repository also was challenging due to numerous constraints, ranging from lack of resources (human and infrastructure) to poor or non-existing collection development policies and workflows. There were a few problems with troubleshooting the WebAGRIS data management system. To address this, the systems administrator undertook a study tour to FAO/HQ to be further trained in WebAGRIS skills and other technical aspects related to the dissemination of digital content over the Internet.

Lack of requisite equipments led to initial delays in text archiving but the process finally got underway. The purchase of equipments was slow due to the lengthy procurement procedures in the lead institution.

(vi) Development of the KAINet Strategy and Institutional ICM strategies
Following the birth of KAINet, consultations were held with the national partners to create wider awareness and buy-in for the network. This process continued into Phase 2. Development of the KAINet strategy and institutional ICM strategies and policies was initiated under the facilitation of a strategic planning consultant who worked closely with the PMC. The so-called "write-shops" approach was used, involving the project implementing committee (PIC) in strategy drafting. The participants worked in groups facilitated by project collaborators from CABI Africa, FAO and ASARECA-RAIN. Group rapporteurs presented outputs of their discussions which were critiqued, refined and later shared with the consultant who facilitated further synthesis and re-drafting.

Three "write-shops" were held: one (five days) aiming at developing institutional ICM strategies, and two (three and two days, respectively) to develop the KAINet strategy and work plan. Although the KAINet and institutional ICM strategies were developed separately, the process of developing them was similar and involved seven main steps:

Step 1: Review of background materials including relevant national, agricultural-sector and institutional strategies and policies: to ensure that the ICM strategies were anchored in the broader national/sectorial strategies and policies.

*Step 2***:** Situational analysis: to identify the challenges and constraints in ICM and their root causes so as to address them during strategy formulation.

*Step 3***:** Formulating the Strategic Focus: to develop the ICM visions, missions, goals and purpose capable of delivering their ICM missions.

Step 4: Developing the Strategic Objectives i.e. the necessary and sufficient objectives required to address the critical strategic issues.

Step 5: Developing intervention strategies to address each strategic objective.

Step 6: Developing implementation arrangements, namely the institutional and management structures.

Step 7: Developing implementation frameworks: A draft KAINet implementation plan was developed but the plans for the institutional ICM strategies were deferred due to lack of time.

Lessons:
Developing ICM strategies is a long-drawn process. Progress from one step to the next depends on obtaining harmonious views during the discussions. Consultation with stakeholders upon return to the institutions is paramount. Equally important is thorough preparation including sharing of relevant information before the write-shop.

Current state and level of ownership of the strategies
The KAINet strategy and action plan are at the first draft stage while the institutional ICM strategies for KARI, KEFRI, JKUAT and MoA are zero drafts. More time is required for further consultations within stakeholder institutions. Participants indicated that faster completion of the documents could be achieved using the "write-shop" approach which was appreciated as being very effective in impacting strategy development and strategic planning skills.

The zero drafts of the institutional ICM strategies are almost fully owned by the parent institutions as they were supported by the CEOs and representatives of senior staff who contributed to their development. To obtain full ownership from stakeholders more awareness and 'buy-in' activities have been planned for Phase 3. The KAINet strategy is not yet fully-owned by its stakeholders as it has so far been championed only by the five institutions that established KAINet. More promotion and consultations among agricultural-sector stakeholders are required.

4. SUMMARY OF CONTENT OF THE KAINet STRATEGY (First draft)

Vision
To be an effective and efficient network for harnessing information for a transformed and sustainable agricultural sector that is modernized, productive, profitable and competitive nationally, regionally and internationally.

Mission
To build a common and freely accessible information system through partnership in the generation, collection, processing, archival, and dissemination of agricultural information.

Goal
To contribute to the transformation of Kenya's agricultural sector to one that is modernized, productive, profitable and competitive nationally, regionally and internationally.

Purpose
To establish effective and efficient partnerships in the generation, collection, processing, archival, and dissemination of agricultural information.

Strategic Objectives
  i.   To establish and manage performance driven national ICM networking, resource mobilization and partnerships mechanisms.
  ii. To establish and manage agricultural information resources, systems and services.
  iii. To promote the development and implementation of appropriate ICM policies and legal frameworks.
  iv. To promote the development and maintenance of adequate ICM infrastructure and facilities.
  v.   To promote the development and implementation of strategic ICM human resources capacity building, motivation and retention.
  vi. To enhance visibility, access, sharing and utilization of agricultural knowledge and information.

KAINet's Position, Structure and Activities
KAINet is integrated in the national and institutional policies and strategies and its activities such as the establishment of institutional and national repositories of agricultural information will complement on-going, national and global initiatives aimed at promoting sharing of information.

KAINet will be registered as a non-profit making Trust with a sub-regional mandate and a parallel registration at national level to provide a forum for participation by all stakeholders. Its organs will include a national stakeholders forum, KAINet board of trustees and network committee.

5. DEVELOPMENT OF THE KNOWLEDGE SHARING FRAMEWORK
The need to develop a knowledge sharing framework was realized early in the project and ASARECA/RAIN offered to lead this activity. A "learning by doing" approach was used to develop the framework in two work-shops (totaling four and a half-days) attended by the PIC and partner institutions. The output was a draft framework and action plan based on the DFID Natural Resources Systems Programme (NRSP) "*Project Communication Plan Guidelines for Research Projects*". The framework outlines the critical stakeholders required for the project to deliver its purpose, their knowledge, attitudes and practices (KAP) which the project seeks to influence, the messages to be communicated, the media and channels to be used at each stage of the project. While the process of developing the framework took long, the output will improve impact of the project and the skills gained will be applied elsewhere.

6. FINANCIAL ASPECTS OF THE PROCESSES OF PLANNING AND STRATEGY BUILDING
Funding of project activities has been adequate and timely. The budget for the planning and consensus building component (Phase 1) was US$ 50K. Approximately US$ 51K was spent to develop the KAINet strategy and action plan and to develop institutional ICM strategies (Phase 2). Approximately US $ 60K was available for developing a framework for knowledge sharing, provision of technical support and basic equipment to establish institutional repositories, documenting and managing the project. In kind contributions, including participation by project

collaborators (travel and upkeep costs), use of institutional resources and staff salaries, were equally valuable.

7. OWNERSHIP AND PARTICIPATION
The main challenge for this multi-stakeholder initiative has been sustaining participation and timely implementation of activities. To ensure ownership of the project, a six months planning and consensus-building exercise was carried out, including visits to institutions, meetings, workshops, email discussions and teleconferences. The PMC members in each institution ensured that KAINet activities are integrated in the institution's ICM activities/work plans. Overall the establishment of KAINet has progressed well and will be firmly grounded with the completion of its strategy and further strengthening of institutional capacities during Phase 3.