

REPORT ON

**INTEGRATING INDIGENOUS KNOWLEDGE (IK) IN
AGRICULTURAL RESEARCH WORKSHOP**

UGANDA INTERNATIONAL CONFERENCE CENTER

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Dr J. R W. R. Aluma

Deputy Director General-Research

EXECUTIVE SUMMARY

1. Indigenous knowledge (IK) has been accepted as consisting of the actual knowledge, skills, practices and methods of doing things based on local materials and developed overtime and learned from practice by the people of the area and therefore adapted to the local environment.
2. IK covers various aspects of human and animal lives with whole range of both specialized and general practitioners in the fields of agriculture, natural resource and institutional (society) management, health care and culture of the people concerned. That is IK is holistic in its approach and so fully integrated into peoples lives.
3. IK has been used in Uganda by the people from time immemorial but has not been officially recognized and integrated into the national socio-economic development process.
4. The major constraints facing IK recognition are lack of documentation, which affects validation and quantification of its contribution to the national economy and awareness of policy-decision makers. That is, there is no national programme.
5. The process of recognition and integration of IK started sectorially by the Ministry of Health in their policy and strategy development in 1999. During the same period the Uganda National Council of Science and Technology (UNCST) organized the first workshop which issued the Kampala Declaration on IK for Sustainable Development. NARO's Strategy and Medium Term Plan and the Plan for the Modernization of Agriculture all recognized IK. The draft policy of UNCST also recognizes IK.
6. NARO set-up a Task Force which developed a proposal to integrate IK into the agricultural research development and dissemination process. Therefore, NARO sought the assistance fo the World Bank to organize this workshop for wider discussion for endorsement, establish linkages and partnerships for its implementation.
7. This first technical workshop of 103 participants from government ministries, research and education institutions, NGOs/CBOs and IK practitioners was highly appreciated by all as a firm foundation for IK as it created the widest awareness on the importance of IK in Uganda. It equally generated great interest on IK.
8. During the workshop, well known IK and practices were identified and discussed in the areas of: (a) agricultural production, (b) food processing and preservation, (c) education and institutional management, (d) natural resource management, (e) health care in humans and animals (f) legal and policy aspects.
9. The major issues that came out of the discussions were related to: (a) identification and technical description, (b) documentation, (c) dissemination, (d) application and (e) intellectual property rights on IK and thus benefits to the society. It was also recognized that training of various people especially in identification and documentation was critical. It was then agreed that, since IK is a functional approach, its further development will have to be handled sectorially but in an integrated and coordinated manner with the concerns of traditional IK practitioners taken into account.

The issue of legal recognition was very opportune since there was already a process of law reform and members were urged to contribute ideas for consideration.

It was considered premature and the time was inadequate to discuss the issues of establishing an effective mechanism for coordination, regional collaboration and sourcing of funds especially when other institutions had not developed and clear plans for discussion.

10. In conclusion everyone appreciated the workshop, expressed great interest and readiness to participate in follow-up activities. They urged NARO and UNCST to seek assistance to organize more meetings so that further details on IK are developed. NARO was encouraged to continue with the awareness programmes, identify, validate, integrate suitable IK in its technology development process as its plan was very clear. This is estimated to cost US\$ 1 Million for five years. The traditional IK practitioners strongly urged NARO to fully involve them in the process.

The support from the World Bank was also highly appreciated and was urged to extend further assistance to establish a more concrete framework for IK. As a matter of fact, participants specifically demanded for a longer workshop where technical details of successful IK can be presented for acceptance and integration into the socio-economic development process.

Therefore any assistance to achieve this is very welcome.

INTEGRATING INDIGENOUS KNOWLEDGE (IK) IN AGRICULTURAL RESEARCH

1. Introduction

1.1 General

A participatory workshop was held at the Kampala International Conference Center, on June 16, 2001. The output of the workshop was expected to map out a way of integrating indigenous knowledge (IK) in NARO's agricultural technology development and dissemination process. NARO recognized the importance of IK while it was developing its ARTP II project and incorporated this in the Strategy 2001 – 2010 and the Medium Term Plan (MTP) 2000 - 2005. A NARO Task Force produced a proposal towards this cause and requested support from the WB for this workshop for wider discussion and reaching a national consensus on the way forward. Participants came from all relevant government ministries, research and training institutions, donor agencies, NGO/CBO and traditional IK practitioners.

1.2 Workshop Objectives

NARO took advantage of this consultative workshop to achieve the following:

1. Identify important IK
2. Develop National IK strategy focusing on agriculture
3. Identify criteria/methods for prioritizing IK
4. Identify priority areas for developing action plan for IK development
5. Make suggestion on mechanisms for coordinating national research on IK
6. Determine mechanisms to popularize IK
7. Determine mechanisms for regional collaboration
8. Propose areas for legalizing and regulating IK
9. Suggest mechanisms for sourcing funds to support IK activities in NARO in particular and the country in general.

1.3 Workshop Methodology (Appendix 1)

The IK workshop was participatory in that everybody was a resource person in one way or another and so valuable information was exchanged

Formal presentations were made by five participants and thematic discussions were held in groups and all wound up in plenary sessions. Opening remarks which included the objectives of the workshop by Prof. J. K. Mukiibi, DG NARO were delivered by Dr. J. W. R. Aluma, DDG-R NARO who was also responsible for the organization of the workshop.

The WB representative of the Africa Region-Operational Quality and Knowledge Sciences, Dr. R. Woytek delivered a paper on WB's concepts and approaches on IK for Development Program, Prof. Kakooza of Law Reform Commission gave an excellent overview on Law reform and IK, focusing on the intellectual property

rights, Dr. Z. Nyiira of UNCST outlined National IK Strategy and a view from IK practitioners was presented by their representative, Mr. Moses Male.

The DDG-R presented a NARO concept note on integrating IK in agricultural research and this introduced the six areas, which are of concern, namely:

- ❖ Agriculture and livestock rearing
- ❖ Food preparation and preservation
- ❖ Education and institution management
- ❖ Natural resource management
- ❖ Health-care (animal and human)
- ❖ Policy and legal aspects

The above issues served the purpose of orientating all participants to the same understanding of NARO's interests for subsequent discussions. Participants were then randomly divided into six groups and each group addressed one of the above issues. Each participant in every group offered ideas related to a specific topic describing a practice or belief so as to pool knowledge of several people and collect as much information as possible. Ideas were then sorted and classified according to the following categories:

- Information,
- Practices and technology
- Beliefs
- Tools and materials
- Experimentation
- Biological or human resources
- Education
- Communication

From IK technology examples generated by the groups, actions were proposed that could be taken to:

- Promote/popularise helpful indigenous practices and beliefs
- Offer alternatives to harmful practices and beliefs
- Coordinate research on and application of IK.

The group reports were presented in a plenary but were not fully discussed due to lack of time. The DDG-R advised that the participants would have to re-think issues and come back to discuss details during another workshop in future.

The IK practitioners also put up an excellent demonstration of the products and related information which was very highly appreciated by the participants: seeing is believing.

2. SUMMARY OF FORMAL PRESENTATIONS

2.1 Opening remarks : Dr. John R.W. Aluma (Appendix 2)

Dr. J. W. R. Aluma welcomed the participants to this very important workshop that was meant to bring all relevant IK stakeholders together to develop the broad areas of IK and therefore suggest ways of integrating it in agricultural research for the common goal of modernization of agriculture and poverty eradication in Uganda. He emphasised the fact that the world has now come to realise the importance of IK for the socio-economic development of people and protection of their environment and hence the need to develop its content and use further.

In conclusion, the DDG-R emphasised that the workshop was an essential exercise at a stage when we are in the process of implementing our MTP in which IK has been incorporated for the betterment of technology development and dissemination process. He thanked the participants once again for responding to the invitation and urged them to discuss the IK issues freely and fairly so that a consensus that is broadly acceptable to all stakeholders could be reached.

2.2 Overview on IK for Development Program of the World Bank by Dr. Reinhard Woytek (Appendix 3)

In his statement, the WB representative from the Africa Region-Operational Quality and Knowledge Sciences department welcomed the participants to a workshop that was to reflect on the way forward in the process of integrating IK into agricultural research for modernisation of agriculture in Uganda.

Dr. Woytek stressed that the WB is interested in the IK project and has the backing of the President of the Bank himself. He clearly explained that IK is a component of human and social capital, an element of global knowledge gateway to empowerment and a key to sustainable development, and helps to increase efficiency, effectiveness and sustainability.

He strongly cautioned that IK is not a panacea to everything. It needs to be shared and challenged and promised that the WB is a very interested partner in all the efforts towards incorporating IK in agricultural research.

2.3 Remarks on Law Reform and Intellectual Property Rights (IPR) / IK by Uganda Law Reform Commission: Prof. J.M.N. Kakooza (Appendix 4)

Prof. Kakooza welcomed participants to a very important workshop that could be a milestone to recognition and protection of IK by the law. He enlightened participants on intellectual property rights concepts and requirements, the different categories most common and its status under the law of Uganda, and how IK fits in. He explained that for the purpose of the workshop in line with

recognition and protection of IK, copyrights and patents are most important categories of rights to be considered. He therefore appreciated the workshop as it provided an opportunity to learn something about IK.

He emphasised the fact that it was unfortunate that many herbalists in Uganda have up to now failed to meet required standards for patenting their IK, and also refused to accept a compromise whereby they release their information to a company and the company gets the patent, while the individual owns shares in the company. He explained that the latter scenario is successfully happening in Ghana.

In his conclusion, Prof. Kakooza further emphasised that the Law of Intellectual Property rights in Uganda is not against the existence of IK or the utilisation of the IK individually or collectively in a legitimate and morally acceptable manner, but that the challenges are more complex when it comes to patenting IK. He stressed that the Law Reform Commission is not giving up in despair but is calling upon all stakeholders to join them in their reform process so that **“IPR and IK enjoy a happy marriage.”**

2.4 A Note on The National Strategy of Integration of Indigenous Knowledge in National Development Programs by Dr. Nyira, UNCST.

The Executive Secretary, UNCST, Dr. Z. M. Nyiira welcomed participants to the workshop that was meant to support the national IK development strategy as a means of increasing opportunities and sustainable solutions for socio-economic development, including the Plan for the Modernisation of Agriculture.

While reflecting on Uganda’s situation on IK and the National Strategy in particular, Dr. Nyiira pointed out the areas of IK application that the country should address. He further explained that the strategy addresses key issues that are central to fostering the development and application of IK and ultimately successful integration of IK in the national development process. At the global level, he gave an example of how Oriental herbs have been accepted internationally with some of the reasons being the proper processing, packaging and marketing of the products. He pointed out that this is the direction Uganda should take.

He concluded by saying that NARO’s efforts of integrating IK into research was such a brilliant idea and that the UNCST was entirely behind it. He informed participants that a National Steering Committee had been established with the coordinating unit based at the UNCST is operational. All these steps show that the programme for IK development in Uganda has taken off and now needs to be properly directed to achieve the goals.

2.5 Statement by IK Practitioners Representative by Mr. Moses Male

On behalf of the practitioners, the representative welcomed the participants and thanked NARO for preparing a workshop that was hoped to help bridge the gap

between **'scientists'** and IK practitioners and adding that, as a matter of fact, IK practitioners are the first and oldest scientists.

He explained the roles of IK in the community and how far farmers trust and use it. Mr. Male pointed out that there are an estimated 96,000 practitioners in Uganda with whom NARO has established working relationships. He gave the examples of how Banana contributes to treating 78 diseases, Beans to 16 diseases and Cassava to treating TB. It was at this point that Mr. Male pointed out the fact that many farmers find it hard to accept NARO technologies because of the gap that exists between scientific knowledge and IK and the associated costs of adoption. He emphasised that it was important for NARO to integrate IK into its technology development process for it is the entry point for easy adoption of NARO's technologies by farmers.

He urged that the practical collaboration between IK practitioners and NARO that had already started be strengthened and continued for future development and cooperation, through training in documentation, validation, processing, marketing, to mention but a few, with the ideal goal of modernising agriculture. He was very proud that these efforts had already been recognized and appreciated.

2.6 Discussions and Issues Identified

- (a) Dr. Grace Nambatya Kyeyune, Principal Research Officer at the Natural Chemotherapeutics Laboratory of the Ministry of health, and a lecturer in Chemistry at Makerere,** pointed out that IK ranges from the very basic to the more complex issues and that we are all scientists, including the herbalists. The Herbalists are scientists in the sector of the IK dealing with medical plants. She emphasized that scientists conduct systematic investigations of a problem with a focused objective of solving it and that is exactly what IK practitioners do.
- (b) "Prof." Hajji Lutakome Ssentamu who is the representative of herbalists on the Uganda National Drug Authorities Board and operates a clinic near Kisekka market,** was happy that, for the first time, Government (NARO) has organized such a workshop. He pointed out that we are not similar to the western world and have therefore, unwisely thrown out tradition and culture. He lamented that we tend to appoint the learned people on cultural committees and yet there are traditional leaders who understand this IK better and therefore should be fully involved to achieve better results. According to him, the present state shows that we are back in the old days of the bible.
- (c) Mr. Fredrick Musisi** was very concerned with the issue of IPR, patents and copyrights and wondered who determines the **"newness"** of the idea /invention? He seriously questioned that if one of the standards is that the invention must be industrially feasible with empirical data, how can this be achieved with our herbalists?

(d) **Mr. Andrew G. Tindikahwa a Herbotherapist and Researcher in Plant Medicine of Applied Plants and Herbs of Africa Company** pointed out that a plant can not have a patent and yet the herbalists use plants in whole, parts or mixtures of plants. He suggested that the law be modified to suit the African context and realities.

(e) **Mr. David Hafashimana who is trained forester and also IK practitioner** informed participants that when indigenous knowledge goes abroad, it becomes patented and individuals get royalties from the information that once belonged to communities and was refined over thousands of years. Therefore ways and means be devised to have IK legally recognized so that the originators can earn some royalties if their IK is adopted for wide use.

He cautioned that it is difficult to maintain the same constitution of the plants when grown domestically especially in different ecology as when they were growing naturally and wild in their original environment. He was very concerned that our natural resources are not really protected.

(f) **The Concept Note: Integrating Indigenous Knowledge (IK) in Agricultural Research and Development by NARO: Dr. J.R.W. Aluma** generated the following issues:

- Can growing of medicinal herbs and trees be used as a source of income, noting that most should be grown in particular areas/climatic conditions to have the same properties?
- Are you eating a plant product as food or as a medicine? This arose because many of the herbal products are derived from plants that are edible, but a lack of this knowledge creates this ignorance of the benefits of the individual foods eaten.
- When samples of the same herbal medicinal product were shown to the audience, one packed in Uganda (cheapest in cost), the second packed in China and the third packed in the Western World (most expensive), the difference in packaging between the three was very obvious. The western package being most acceptable and convincing and presentable to the eye of the buyer. Therefore, the question arose whether Uganda herbalists can package their products in a more presentable and convincing manner so that they could be sold on the international market as the Chinese products are even in Uganda?

(g) **Dr. D. Olila a Pharmacologist with Veterinary Faculty of Makerere University** emphasized that IK herbal medicine is not a panacea, and therefore should be challenged, criticized and the truth disassociated from fake claims as one can not debate about the value of plants in medicine. However, the various claims have to be tested or analysed in the laboratory and the truth separated out. There is also a need to check the spiritual elements attached to some of the herbalists' practices as these

are opposed to the religious (Christian) views and thus access to the benefits of some of the herbs is limited or not possible by some religious clientele.

Dr Kabann Kabanukye of the Makerere Institute of Social Research insisted that the spiritual aspects of IK cannot be physically taken to a laboratory for analysis. Consequently if the thing works it should be accepted. Many people applauded suggesting that this was acceptable.

- (h) **Christopher Kajumba Ssetimba, a young herbalist of the Victor Herbalist Research Association** praised NARO for integrating IK in modern agricultural science, but there is an urgent need to speed up the process since many of the knowledgeable people in IK are old and dying with their knowledge. He asked the participants as to **“what will we put in place to preserve this knowledge?”**
- (i) **Mr. Andrew Tindikahwa** cautioned that herbalists have been taken for granted because much has been written but not practiced. He suggested that NARO should do the following in order to encourage the documentation and integration of IK:
- Give them computers
 - Plant medicinal plants and sell to the herbalists
 - Provide extension services to the herbalists to grow their own.

He pointed out that although certain books state that some plants have no medicinal value, he has personally used some of them to successfully treat various diseases. This situation casts doubt on the knowledge of writers of such books related to herbal medicine.

- (j) **Mrs. Rhoda Tumusiime, The Commissioner for Planning in the Ministry of Agriculture, Animal Industry and Fisheries** pointed out that IK is not only medicinal but also other important areas such as in nutrition, as indicator crops or in food preservation. She urged participants not to lose sight of these other very important IK areas adding that documentation of IK, standardization, packaging and presentation needs to be improved.
- (k) **Dr. W. Olaho-Mukani, the Director of NARO’s Livestock Research Institute (LIRI)** expressed concern over the slow process of formulating the law protecting IK in Uganda. He referred to the Kenyan situation where there was much concern because a lot of information and plants were being smuggled out. He therefore urged that the law being formulated has to protect Ugandan products or else Uganda will be vulnerable to external forces, as was the case in Kenya. He pleaded the process should be speeded up and that all the stakeholders should be involved in formulating the law.

(l) **Dr. Sophie Musana, a Senior Research Officer at NARO Kawanda Agricultural Research Institute (KARI)** expressed the main fear of IK practitioners/herbalists is that they are practicing this as a source of income. Therefore they take their information for patenting, they have to disclose their knowledge to chemists, pharmacologists, botanists, etc, and as a result, they will lose their source of income. This fear can only be eliminated if the law can be made to suit the realities of the Uganda situation. She also wondered how the complex concoctions of the herbalists can be successfully analysed in the laboratories?

(m) **General Answers/Responses**

(i) **Prof. J. M. N. Kakooza**

- IK is legally acknowledged as a source of income in Uganda. At the moment, the only thing that can be done is for the original source of information to be compensated. Later they can be acknowledged in the patent.
- Stakeholders are being involved as much as possible in the drafting of the law. It depends on whom they know and how these people respond to their calls.
- The new law will be ready in about 12 months from the workshop date. The law protects the product and not the owner of the product.

(ii) **Dr. Grace Nambatya Kyeyune**

- Planting the medicinal plants domestically will not produce the same ingredients as when they grow in the wild. Endeavors should be made to recreate the natural habitat where NARO is advised to grow these plants massively so that their composition does not change.
- One problem in our training is a lack of an interdisciplinary approach. Some of the herbs go into the body to improve the biological systems e.g. excretion and the body treats itself. This kind of treatment can not be proved in the laboratory. The lab tests are such that they are to detect the effect on a particular germ or bacteria or parasite. So such effects of improving the biological systems and thus getting well can not be proved in the labs. This poses a limitation to some of the products ever getting patented. She gave an example of eating of millet bread that produces alkaline in the body that neutralizes many of the other foods that produce acids in the body and thus controlling ulcers.

***** The discussions were so exciting with some being highly emotional that they could have easily taken a full day to sort out all the issues raised. This underlines the need for another workshop*****

3. OUTPUT OF GROUP DISCUSSIONS

The following IK technologies and their status were identified. The status was categorized as practice or belief. Recommendations were also made as to whether the technology should be promoted or needs scientific study.

3.1 GROUP 1-AGRICULTURE AND LIVESTOCK PRODUCTION

(A) Agricultural Crops

(i) Seed Preservation Methods

<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
➤ Hanging on Racks	Practice	Promote
➤ Using ash	Practice	Promote
Pounded Chillies	Practice	Promote
Banana juice	Practice	Promote
➤ Using Granaries & Mud Silos	Practice	Promote
➤ Using Under ground storage system	Practice	Promote

2. Crop Production & Management

<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
➤ Removal of the remunant inflorescence (banana castration)	Practice	Well known
➤ Pruning (Practice)		
➤ Thinning	Practice	Well known
➤ Wedding	Practice	Well known
➤ Trenching for water	-control	Promote
	-Rodents	Promote
	-Weed control	Promote
➤ Intercropping	Practice	Promote
➤ Mulching	Practice	Promote
➤ Orientation of suckers	Practice	Study
➤ Use of manure and ash for selected crops	Belief/Practice	Study
➤ Use of selected shrubs and weeds for pest control	Belief/Practice	Study
➤ Shifting cultivation	Practice	Well known
➤ Scare crows	Practice	Well known
➤ Use of Malakwang to control cotton stainer insects	Belief	Study

(B) Livestock

<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
➤ Breed selection and breeding	Practice	Promote
➤ Marijuana for warm control (illegal crop) increase milk production	observed	Study
➤ Herbal de-wormers	Practice	Promote/Study
➤ Camouflage	Practice	Study
➤ Nose Muzzles for restraining sucking	Practice	Study
➤ Reproductive Medication (Kikwatandiga)	Practice	Study

3.2 GROUP 2-FOOD PREPARATION AND PRESERVATION

<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
➤ Smoking Meat/Fish	Practice	Well known & Study
➤ Preserving beans (seeds)	Belief	Study
➤ Preservation of tubers by drying them after slicing them	Practice	Well known Study
➤ Preserving Fish Salting and drying	Practice	Well known Study
➤ Sun Drying Fish	Practice	Promote & Study
➤ Preserving simsim by coating it with honey	Belief/Practice	Study
➤ Using Tamarined juice to season porridge/millet paste	Belief/Practice	Study
➤ Brewing local drinks (Alcoholic)	Practice	Study
➤ Covering cassava under soil to keep it fresh	Practice	Study
➤ Fermentation of cassava to eliminate toxicity	Practice	Well known Study
➤ Preserving tomatoes and cassava in water	Belief	Study
➤ Preserving cooked food under hot ash	Belief	Study
➤ Using ash to quicken the cooking process	Practice	Study
➤ Using a specific stone for grinding	Practice	Study
➤ Preserving Blood in form of Bloodmeal	Practice	Study
➤ Drying leaf and vegetables	Practice	Well known Promote Study
➤ Drying (Ajon)	Practice	Well known Study
➤ Boiling sugar cane juice to produce sugar	Belief/Practice	Well known Study
➤ Hanging seeds over the cooking place/ verandah to preserve it	Practice	Promote & Study
➤ Storing of cereals in clay granaries	Practice	Promote
➤ Preparation of simsim into paste	Practice	Well known Promote/Study
➤ Extraction of sheanut butter	Practice	Well known Promote
➤ Preparation of local dishes		
➤ e.g. Gobe & Bean paste	Practice	Promote/Study
➤ Churning milk to get ghee	Practice	Promote/Study

3.3 GROUP 3-EDUCATION AND INSTITUTIONAL MANAGEMENT

<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
(A) Education:		
➤ Traditional Instruction Methods	Practice	Promote/Study
- Story telling	Practice	Promote/Study
- Proverbs	Practice	Promote/Study
- Music, Dance and Drama	Practice	Promote/Study
➤ Apprenticeships	Practice	Promote
- Practical Training	Practice	Promote
➤ Learning through Observing	Practice	Promote
- Percieve Training	Practice	Promote/Study
(B) Institution:		
<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
➤ Family	Practice	Promote
➤ Clan	Practice	Promote
➤ Tribe	Practice	Promote
➤ Monarchy	Practice	Promote

- (C) **Circumcision & Marriage**
- Common knowledge held by all in the community
Circumcision knowledge/skills
 - Specialised by few
 - Genital mutilation is being seriously discouraged

(D) **Impact of Technology**

<u>Technology</u>	<u>Impact</u>
➤ Story telling	History writing Lasting impression in mind
➤ Proverbs/riddles/poems	Educate Passing specialized information to a few Make you develop and inquiry mind
➤ Music Dance and Drama	Practical education Learning to read Entertainment/exercise Disciplinary measure (songs composed to deter wrong behavior) Signal Identification (cultural) Social cohesion
➤ Practical Training	Passing on survival skills
➤ Information Storage	Elders were the chief custodian
➤ Scientific Research Findings or Legal/Policy Aspects	Very valuable mode of education: suffer risk of being lost because documented (dies with the owner) Difficult to pirate (natural patent/copy rights) High rate of adoption

Harmful practice

Excessive ostracism could lead to self-exile, suicide.

3.4 GROUP 4-NATURAL RESOURCE MANAGEMENT

<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
(a) Medicine: Certain plants and animals have medicinal value and conservation	Belief/practice	Promote Study
(b) Totems: People attaching themselves to animals and plants to love and conserve culturalists	Belief/Practice	Well known
<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
(c) Taboos: Indicators of direction and seasons	Belief/Practice	Well known
(d) Plants: As indicators of soil fertility	Practice	Promote Study

	Hygienic Practices: e.g. Urinating in water sources, is bad omen	Practice	Dscourage
(f)	Shifting Cultivation: Conserves soil	Practice	Discourage/find Alternatative
(h)	Environmentally friendly practices and Beliefs:		
	➤ Use of Scare crows	Practice	Well known
	➤ Use of Tobacco	Belief/Practice	Study
	➤ Use of Urine	Practice	Study
	➤ Use of Repellant plants	Belief/Practice	Promote/Study
	➤ Rain makers:	Belief/Practice	Well known

3.5 GROUP 5-HEALTH CARE IN HUMANS AND ANIMALS

	<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
(a)	Animals:		
	➤ When a cow gives birth it should not be milked for at least a week otherwise the calf will die.	Belief	Study
	➤ The calf should get enough colostrums (the rich milk with micronutrients) during its very early stage of growth for survival	Belief	Study
	➤ The cow that has lost a calf becomes stubborn unless its calf is present	Belief	?
	➤ The hide of a dead calf is used to lure/induce the cow to be milked, i.e. the cow accepts to be milked or is smeared with an irritating medicine to induce milking or the skin/hide of dead calf is put on another calf to induce milking	Practice	?
	➤ When an animal cannot walk/walks poorly, the legs are tied with cynodon strand or and beaten hard. As a result it will run or walk fast and soon after a few days will walk normally. Fact: Tying with grass irritates cow and tries to remove it . In the process the cow exercises the musles. Use of cynadon could have started by normadic cattle keepers who had no other forms of ropes except cynadon that grows well around the kraal	Practice	?
	➤ To treat headache or animal sickness the person or animal is cut to release blood Of course this reduces blood pressure.	Belief/Practice	Study

	<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
(B)	Humans When a woman gives birth she must be given offals and/or bean soup.	Belief	?

<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
When a member of a family has measles:		
(i) Family should not eat meat or meat should not be available in the house	Practice	?
(ii) Parents should not have sex	Belief	
(iii) When a person/child has mumps, he/she is smeared with blue or red soil. This is form of identification and serves as quarantine.	Belief	?
(iv) Children are told never to laugh at a person with blue (mumps). This instills sympathy for sick person	Belief	Promote
(v) Never cut a particular tree or else you will die. This to discourage cutting medicinal trees or those used for cultural practices.	Belief	?

3.6 GROUP 6-LEGAL AND POLICY

<u>Technology</u>	<u>Status</u>	<u>Recommendation</u>
➤ Crops harvested only when mature	Practice	Promote
➤ Harvest to be shared with neighbors	Practice	Promote
➤ Each family with a granary	Practice	Promote
➤ Burning of grass/weeds prior to planting	Practice	Promote Study
➤ Community group help to clear land, spray coffee wilt	Practice	Promote
➤ Harvest of crops at specific times season	Practice	Promote Study
➤ Storage of semi-processed seeds e.g. millet	Practice	Study
➤ Seeds stored near fire place	Practice	Promote

3.7 Discussions and Issues Identified

(a) Dr. Olila of the Faculty of Veterinary Medicine, Makerere University categorized IK as follows:

- Common knowledge that is known by most people in the community
- Shared knowledge that is known by only some groups in the community e.g. a 'Senga' with a daughter, or the elderly men with the young circumcised men
- Specialized knowledge that is personal to the owner, e.g. herbalists.

If focus is made on the first, some breakthroughs may be possible, but with the third category, no major breakthrough has so far been made and chances are still small because of the very secretive nature of the practice.

Therefore there is a need to push for a different approach to patenting since internationally, you can not patent a plant, but only compounds / chemicals. Chemists round the world have done studies on many plants and so it is difficult for IK practitioners today to say that they have found a useful compound because it may most likely already be published. However, it is possible to say the source is new, and thus be original.

(b) Hajji Ssentamu-Lutakome, a herbalist insists that no one gives free information on drugs or herbs, it is got to be protected lest our families future is washed down the drain.

- (c) **Pastor Wamala**, a herbalist pointed out that a lot of money and time is spent in carrying out research, so the results must be protected unless they are paid for.
- (d) **Ms. Sophia Apio Kerwegi Senior Research Officer at the Natural Chemotherapeutic Research Laboratory, Ministry of Health** stressed that most of the IK issues in health are categorized in the private sector. They are complex and difficult to address. IK in agriculture should be transformed into commercial/developmental packages. There is a need to start now to institutionalize the process of IK documentation. Although much has been documented, it is not being used. This should be a way forward for NARO.
- (e) **Mr. A.M Mwendya of Uganda National Farmers' Association** proposed that the institutional process should consider transforming IK because the private sector needs to agree with the public sector in order to make IK beneficial to the society, definitely at a cost.
- (e) **Prof. J.M.N. Kakooza of the Law Reform Commission** very strongly advised that here are only two options at the moment for IK practitioners. Either they write a contract with a company or have joint ownership if the IK (as is the case in Ghana where the Ghanaian practitioners formed a company and the patent goes to the company) but the individuals have shares in the company. This way, the individual can protect both themselves and their families in future or else they die with their knowledge and no one can protect their IK.
- (f) **Dr. Kabann Kabanukye of Makerere Institute of Social Research** recommended that there is need for all stakeholders to know each other's position, record, and see how the law comes in, as well as seeing how this information can be protected.
- (g) **Dr. J. Oryokot, Director of NARO's Serere Agricultural and Animal Research Institute (SAARI)** reminded the participants that the objective of the workshop was to identify common IK and harness this information and then see how to improve the situation. He gave an example of a plant that was used to control Striga long ago but this knowledge had been forgotten and yet striga is now a big constraint in maize, sorghum and millet production.
- (h) **Mr. D. Walugembe** wondered how can one IK into pharmaceutical products without having to loose them without patent rights? Therefore there is need to be more practical so that we identify ways of protecting it and bringing in all stakeholders on board and assist our IK to effectively participate in the law making process.
- (i) **Dr. Grace Nambatya Kyeyune of the Natural Chemotherapeutic Laboratory** insisted that not all healers are quacks and that the term

“Scientist” is all embracing. In principle phytochemists have not done any havoc as far as adulterating medicines in relation to IK, although we do accept that there are some ‘quack’ practitioners who do so. She pointed out that in the developing world, we in the laboratories tend to use unprocessed extracts. She very strongly maintains that IK practitioners are scientists and should be given credit for that work.

- (j) **Mr. Hafashimana a practicing herbalist Forester** informed participants that in the forestry, bush burning is a management tool but one needs knowledge so that it can be done effectively, efficiently and beneficially to avoid the damage caused by wild or uncontrolled fire.

4. **GENERAL CONCLUSIONS AND RECOMMENDATIONS**

- (a) From the presentations and discussions, conclusions and recommendations were made in order to help NARO effectively integrate IK into its technology development and dissemination process. Dr. C. Tizikara the facilitator of the workshop summarised this as follows:

IK falls into three categories:

- Common knowledge that is known by most people in the community and therefore not a claim for anyone,
- Shared knowledge that is known by only some groups in the community
- Specialized knowledge that may be contentious but personal to the owner and held – more related to medicine and therefore cannot be openly used.

It is therefore vital to identify, distinguish and describe the relevant IK for integration into the national development process.

(b) **Way forward for NARO**

Every one was convinced that NARO should concentrate on capturing and understanding the IK in the first two categories to incorporate into NARO’s research and dissemination efforts. Any person with IK in the third category that can convince NARO to buy their information would be adequately compensated and the knowledge used by NARO in its research and development efforts.

- (c) **Dr. R. Woytek of the World Bank** thanked NARO for organising a commendable workshop. He thanked participants for coming on a Saturday and spending part of their weekend attending this workshop. Dr. Woytek reminded participants that documentation of IK was important, and that it should be used; that validation of IK does not mean the IK is being applied; and that application of the IK does not mean it is being widely shared. These are the challenges facing NARO and other institutions in Uganda trying to integrate IK into the development process.

He once again emphasized the fact that not all knowledge is patented and not all patented knowledge is protected. He therefore appealed to stakeholders to concentrate on IK that will help the livelihood of the people and therefore the economic development of the country. He concluded by advising that there is need to exchange information on an equal footing as a practical way forward and let policy and administrative issues follow rather than come first.

He emphasized that The World Bank wishes to continue to partner with NARO / Uganda on IK, and reminded participants once again that The World Bank is interested in IK issues and not only in lending money and therefore has recently commissioned the production of a document stating its worldwide interest in IK.

(d) Closing Remarks – Dr. Aluma

In his closing remarks the DDG-R asked participants to take the common knowledge IK and extend it to other applications. e.g. de-barking a tree for bark cloth on a sustainable basis. He added that there was hope to continue to exchange ideas and improve our practices and make IK a developmental issue. In addition to medicinal use which are some times controversial; we need to think also of other important products for various uses.

He emphasized the need to re-think issues and come back to discuss in future and share information to improve productivity, income and welfare in one way or another. He once again thanked the participants for turning up and for their active participation in the workshop, on behalf of NARO.

APPENDICES

**Appendix 1: Opening Remarks by Dr. J. W. R. Aluma, Deputy Director
General-Research, NARO**

Appendix 2:

Appendix X: List of Participants