

INDIGENOUS KNOWLEDGE FOR DEVELOPMENT

A FRAMEWORK FOR ACTION

November 4, 1998

**Knowledge and Learning Center
Africa Region
World Bank**

Indigenous Knowledge for Development

A Framework for Action

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Summary and Overview

This paper has been prepared in the context of the Indigenous Knowledge for Development Initiative. The initiative is led by the World Bank in partnership with several organizations which are collaborating under the Partnership for Information and Communication Technology for Africa (PICTA). The main premise of the paper is that the vision of a truly global knowledge partnership will be realized only when the people of the developing countries participate as both contributors and users of knowledge. There is, therefore, a need not only to help bring global knowledge to the developing countries, but also to learn about indigenous knowledge (IK) from these countries, paying particular attention to the knowledge base of the poor. To this end, the paper: explains why indigenous knowledge should play a greater role in the development activities of the World Bank and its development partners; and proposes a framework for action for the development partners to help raise awareness of the importance of IK and to better integrate IK in their development activities so as to improve the benefits of development assistance.

What is indigenous knowledge?

Herbal medicine is a good example of IK, which has affected the lives of people around the globe. The literature on IK does not provide a single definition of the concept. Nevertheless, several traits distinguish IK broadly from other knowledge. IK is unique to a particular culture and society. It is the basis for local decision-making in agriculture, health, natural resource management and other activities. IK is embedded in community practices, institutions, relationships and rituals. It is essentially tacit knowledge that is not easily codifiable. The paper illustrates the concept with boxes describing several examples of IK practices and the key lessons for development: adoption of modern bean varieties in Columbia and Rwanda; distribution of food aid in Nepal; abolition of female circumcision/mutilation by women of Malicounda in Senegal; postpartum maternal and child health care rites among the Ibo in Nigeria, etc.

Why is indigenous knowledge important?

Indigenous knowledge provides the basis for problem-solving strategies for local communities, especially the poor. It represents an important component of global knowledge on development issues. IK is an underutilized resource in the development process. Learning from IK, by investigating first what local communities know and have, can improve understanding of local conditions and provide a productive context for activities designed to help the communities. Understanding IK can increase responsiveness to clients. Adapting international practices to the local setting can help improve the impact and sustainability of development assistance. Sharing IK within and across communities can help enhance cross-cultural understanding and promote the cultural dimension of development. *Most importantly, investing in the exchange of IK and its integration into the assistance programs of the World Bank and its development partners can help to reduce poverty.*

How is indigenous knowledge exchanged?

The integration of IK into the development process is essentially a process of exchange of information from one community to another. The process of exchange of IK within and between developing countries and between developing and industrial countries involves essentially six steps:

- **recognition and identification:** some IK may be embedded in a mix of technologies or in cultural values, rendering them unrecognizable at first glance to the external observer (technical and social analyses may, therefore, be required to identify IK);
- **validation:** This involves an assessment of IK's significance and relevance (to solving problems), reliability (i.e., not being an accidental occurrence), functionality (how well does it work?), effectiveness and transferability;
- **recording and documentation** is a major challenge because of the tacit nature of IK (it is typically exchanged through personal communication from master to apprentice, from parent to child, etc.). In some cases, modern tools could be used, while in other circumstances it may be appropriate to rely on more traditional methods (e.g., taped narration, drawings);
- **storage** in retrievable repositories: Storage is not limited to text document or electronic format; it could include tapes, films, story telling, gene banks, etc.
- **transfer:** This step goes beyond merely conveying the knowledge to the recipient; it also includes the testing of the knowledge in the new environment. Pilots are the most appropriate approach in this step; and
- **dissemination** to a wider community adds the developmental dimension to the exchange of knowledge and could promote a wider and deeper ripple impact of the knowledge transfer.

Exchange of IK is the ideal outcome of a successful transfer and dissemination. This is essentially a learning process whereby the community where an IK practice originates, the agent who transmits the practice, and the community that adopts and adapts the practice all learn during the process. The following is an example of a successful exchange of IK with lessons for the development process:

Application: *Transfer of the Washambaa agricultural system to Rwanda, adaptation, and re-transfer.*

The Washambaa of the Usambara Mountains in Tanzania had developed a land use system emulating the climax vegetation of the deciduous natural forest. They integrated annuals and perennials on the same plot in a multi-story arrangement. The principles were transferred to Nyabisindu, Rwanda in a GTZ assisted project; and special multipurpose contour bunds with trees shrubs and fodder grasses were added to the system. The adapted practice was later re-transferred to the Washambaa once dense population and need for firewood had depleted the soil cover and demand for dairy products had initiated the introduction of improved cattle breeds.

Lesson: *Emulation of natural vegetation is a valid approach to soil conservation; transferring and adding elements to address new problems adds value to the original concept, leading to effective exchange of knowledge.*

What should the development community do about IK?

The paper proposes a framework for action revolving around four pillars:

- ⇒ **Disseminating information:**
 - ◆ Developing a database of IK practices, lessons learned, sources, partners, etc.
 - ◆ Identifying and testing instruments for capture and dissemination of IK.
 - ◆ Publishing selected cases in print and electronic format.
- ⇒ **Facilitating exchange of IK among developing country communities:**
 - ◆ Helping build local capacity to share IK, especially among the local IK centers.

- ◆ Identifying appropriate methods of capturing, disseminating IK among communities.
 - ◆ Facilitating a global network to exchange IK.
- ⇒ ***Applying indigenous knowledge in the development process:***
- ◆ Raising awareness of the importance of IK among development partners.
 - ◆ Helping countries to prepare national policies in support of indigenous practices.
 - ◆ Integrating indigenous practices in programs/projects supported by partners.
- ⇒ ***Building partnerships:***
- ◆ Learning from local communities and NGOs.
 - ◆ Leveraging limited resources of partners to obtain greater impact on the ground.
 - ◆ Addressing the intellectual property rights issue of indigenous knowledge.

Using the above framework, the partnership that has developed around the IK Initiative has elaborated an initial plan of action for 1998-99, including specific objectives and deliverables. Within this framework, each partner institution would undertake activities consistent with the respective institutional policies and procedures. An external advisory panel composed of representatives of partner institutions has also been established to provide input on strategic and implementation issues.

The initial main focus of partner activities will be three-fold: increase awareness of IK; disseminate IK practices; and help build the capacity of local centers to further identify, document and disseminate IK practices. Partners could provide financial support to local IK centers for research into IK practices, for the establishment of Internet connectivity between the local centers as well as for more traditional dissemination tools to facilitate the exchange of IK practices across communities.

The main challenge for development partners will be to integrate IK practices in the design and implementation of development activities that they support. This will require: awareness raising among those who offer development advice; listening to and hearing clients to learn from local communities about what they know; and combining local knowledge with experience from around the world to find relevant and realistic solutions to the development problems of local communities.

What are the related issues?

- ⇒ ***property rights of indigenous knowledge.*** There is an emerging debate on whether and how to protect the intellectual property rights of IK practices (e.g., should traditional healers be paid royalties once active compounds of medicinal plants they use are isolated by pharmaceutical companies). WIPO is beginning to address this issue.
- ⇒ ***national policies in support of knowledge for development.*** Knowledge as an instrument of development has not received the needed attention in developing countries in general and in Africa in particular. This is changing. As the awareness of the importance of knowledge in the development process grows, the next logical step would be for the country authorities to begin elaborating specific policies in support of acquiring, absorbing and communicating knowledge, with particular attention to indigenous knowledge. The partners should encourage this process through financial and technical support.
- ⇒ ***role of information and communication technology.*** As the countries establish connectivity, modern ICT could become a powerful enabler for the exchange of IK. In the near future, however, most IK exchange is likely to rely more on traditional instruments. External support to help build local capacity for dissemination could focus on videos and radio broadcasts in local languages (especially in the rural areas), telecenters (again in the rural areas), and electronic networking, especially among local IK centers.
- ⇒ ***controversial aspects of IK.*** Some experts caution against any attempts to transfer IK because they believe: IK cannot or should not be exchanged across communities because it could be irrelevant or even harmful outside its original cultural context; “Western” science is

incapable of appreciating traditional cultures; and that attempts to record, document and transfer IK could lead to the dis-empowerment of indigenous people. Sensitive approaches will, therefore, be needed to reduce the potential risk of dis-empowerment of local communities, without compromising the principle of global knowledge partnership for the benefit of all communities.

Indigenous Knowledge for Development

A Framework for Action

I. Introduction

1. The vision of a truly global knowledge partnership will be realized only when the developing countries participate as both contributors to and users of knowledge. The Global Knowledge Conference (Toronto, June 1997) emphasized the urgent need to learn, preserve, and exchange indigenous knowledge. In his recent call for a new inclusive approach to development, the President of the World Bank has stressed the need for a framework that deals inter alia with indigenous people and their knowledge¹. In the context of the Partnership for Information and Communication Technology for Africa (PICTA), the World Bank has agreed to lead an Indigenous Knowledge for Development Initiative to help stimulate recognition, utilization, and exchange of indigenous knowledge in the development process.² This paper³ has been prepared in the context of the above initiative.

2. The paper's objectives are two-fold. First, it aims to explain why indigenous knowledge should play a greater role in the development activities of the World Bank and its development partners. Specifically, it focuses on the following questions: what is indigenous knowledge? why is indigenous knowledge important in the development process? and what is the process through which indigenous knowledge is exchanged? The second objective is to propose a framework for action which the World Bank and its development partners could follow to help (i) raise awareness of the importance of indigenous knowledge and (ii) better integrate indigenous knowledge in their development activities to improve the benefits of development assistance, especially to the poor.

II. What is Indigenous Knowledge?

3. Herbal medicine is a good example of indigenous knowledge (IK) which has affected the lives of people around the globe. The literature on indigenous knowledge does not provide a single definition of the concept. This is in part due to the differences in background and perspectives of the authors, ranging from social anthropology to agricultural engineering. Nevertheless, the various definitions also have some common traits. These are captured in the writings of two of the leading authorities on IK (see box).

¹ James D. Wolfensohn, President, World Bank, Address to the 1998 Annual Meetings of the World Bank and the IMF.

² An overview of the IK Initiative is in Annex I. The partners of the IK Initiative are: CIRAN/Nuffic, CISDA, ECA, IDRC, ITU, SANGONet, UNDP, UNESCO, WHO, WIPO and World Bank (lead partner).

³ This paper has been prepared by Reinhard Woytek (Consultant, Practice Manager, IK Initiative) under the overall guidance of Nicolas Gorjestani (Program Manager, IK Initiative). The paper has benefited from the suggestions of the IK Initiative Team in the World Bank (Africa Region and Information Solutions Group) as well as from the views of the external advisory panel of the IK Initiative composed of representatives of partner institutions. An earlier draft of the paper (dated October 15, 1998) was disseminated to the partners during the meeting of PICTA in Tunis on October 21-23, 1998. The present draft reflects the suggestions made and agreements reached by the partners at that meeting. Funding for the IK Initiative has been provided by a grant from the Innovation Marketplace of the World Bank.

Sample Definitions of Indigenous Knowledge

Indigenous knowledge is the local knowledge – knowledge that is unique to a given culture or society. IK contrasts with the international knowledge system generated by universities, research institutions and private firms. It is the basis for local-level decision making in agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in rural communities. (Warren 1991)

Indigenous Knowledge is (...) the information base for a society, which facilitates communication and decision-making. Indigenous information systems are dynamic, and are continually influenced by internal creativity and experimentation as well as by contact with external systems. (Flavier et al. 1995: 479)

4. Indigenous technologies, practices, and knowledge systems have been studied extensively by sector specialists and even more so by social anthropologists. However, most studies are descriptive; they concentrate primarily on the social or ethnological aspects of knowledge rather than on the technical ones. The literature contains limited information regarding the systematic transfer of local knowledge across communities and cultures. Yet, there is considerable impressionistic evidence of IK transfer from traditional societies to industrial countries (e.g., acupuncture, herbal medicine, rehydration salts, etc.). For a typology of IK, including knowledge areas, types of bearers of IK and the way IK is manifested in each area, see Matrix 1 in Annex II.

5. The following highlights the special features of indigenous knowledge, which distinguishes it broadly from other knowledge. According to the literature⁴, IK is:

- **local**, in that it is rooted in a particular community and situated within broader cultural traditions; it is a set of experiences generated by people living in those communities. Separating the technical from the non-technical, the rational from the non-rational could be problematic. Therefore, when transferred to other places, there is a potential risk of dislocating IK.
- **tacit** knowledge and, therefore, not easily codifiable.
- **transmitted orally**, or through imitation and demonstration. Codifying it may lead to the loss of some of its properties.
- **experiential rather than theoretical knowledge**. Experience and trial and error, tested in the rigorous laboratory of survival of local communities constantly reinforce IK.
- **learned through repetition**, which is a defining characteristic of tradition even when new knowledge is added. Repetition aids in the retention and reinforcement of IK.
- **constantly changing**, being produced as well as reproduced, discovered as well as lost; though it is often perceived by external observers as being somewhat static.

4 Adapted from Ellen and Harris (1996)

Why is Indigenous Knowledge Important?

Importance of Indigenous Knowledge for the Development Process

6. The features described above suggest that indigenous knowledge is an integral part of the development process of local communities.⁵ According to the 1998/99 World Development Report, knowledge, not capital, is the key to sustainable social and economic development. Building on local knowledge, the basic component of any country's knowledge system, is the first step to mobilize such capital. Moreover, there is a growing consensus that knowledge exchange must be a two way street. A vision of knowledge transfer as a sort of conveyor belt moving in one direction from the rich, industrialized countries to poor, developing ones is likely to lead to failure and resentment. "Governments and international institutions can certainly help countries with the daunting task of sifting through international experience, extracting relevant knowledge and experimenting with it. But they will have the most success if they help developing countries adapt knowledge to local conditions. Sharing knowledge with the poor is most effective when we also solicit knowledge from them about their needs and circumstances"⁶. Therefore, development activities, especially those that aim to benefit the poor directly, need to consider IK in the design and implementation stages of the process.

7. Recent World Bank client feed-back surveys provide additional insights regarding the importance of knowledge of local institutions and practices. These surveys indicate that clients are:

- highly satisfied with Bank staff's knowledge of international best practices; but
- less satisfied with staff's ability to adapt international practices to the local setting.

Among the key determinants of client satisfaction is knowledge of local institutions and local practices. A better understanding of the local conditions, including indigenous knowledge systems and practices could, therefore, help to better integrate global technologies to solve the problems facing local communities in the developing countries. This would in turn help to improve the impact of development assistance as well as client satisfaction with the services of the Bank and its partners.

8. The challenge for the development community is to find better ways to learn about indigenous institutions and practices and where necessary adapt modern techniques (i.e., "global best practices") to the local practices. Only then will global knowledge be rendered relevant to the local community needs. The key factor in the adaptation process is the involvement of those who possess indigenous knowledge. A study of 121 rural water projects in 49 countries found that 70 percent succeeded when the intended beneficiaries participated in project design, compared to a 10 percent success rate among programs where they did not.⁷ As the following examples illustrate, knowledge of local practices and the involvement of local communities can be a powerful tool for the effective adaptation of global knowledge of best international practices to the

⁵ Until relatively recently, the development community's conception of knowledge was influenced primarily by the philosophy and methods of western science. "Few, outside of some anthropologists and historians recognized that there are myriad sciences embedded in cultures of other peoples and civilizations throughout the world. Today, both scholars and public policy makers are recognizing the importance of various local or culture-based knowledge systems in addressing the pressing problems of development and the environment" [foreword to the proceedings of Conference on Traditional Knowledge and Sustainable Development, World Bank, September 1993, in support of the United Nations Year of the World's Indigenous People (Davies, S. and Ebbe, K., editors, 1995)].

⁶ Oped article by Joseph Stiglitz, Vice President and Chief Economist, World Bank, in International Herald Tribune, October 6, 1998.

⁷ 1998/99 World development Report: Knowledge for Development.

local setting.

Application: Adoption of modern bean varieties in Columbia and Rwanda⁸.

Two or three varieties of beans considered by the scientists to have the most potential had achieved only modest yield increases. They then invited the women farmers who possessed valuable indigenous knowledge about bean cultivation to examine more than 20 bean varieties at the research stations and to take home and grow the two or three they thought most promising. The women farmers planted the new varieties using their own methods of experimentation. Their selections outperformed those of the scientists by 60 to 90 percent.

Lesson: *IK can help inform the process of adaptation of modern cultivation techniques.*

Application: Communities ensure transparency in the distribution of food aid⁹

To ensure that food aid reaches the intended population, a Food for Work program of the Nepalese government assisted by GTZ, consulted with the villagers. It was jointly determined that using local distributors and community-based supervision would be the most appropriate way to distribute food. Instead of using covered trucks, bullock carts were used for transportation. This approach yielded various benefits. Hiring bullock carts provided additional income for rural communities as opposed to using city-based truck companies. The load of a bullock cart is a local standard, and the amounts delivered could be easily calculated by the people of the community. Any missing portion could easily be estimated publicly and any loss or inappropriate allocation could be questioned in public. Other WFP programs in the country have eventually adopted this approach.

Lesson: *Using local standards and means of transport for bulk load deliveries of rice in a food for work program facilitates transparent delivery of staples and brings about good governance at the local level.*

Importance of Indigenous Knowledge for the Poor

9. Indigenous knowledge is an important part of the lives of the poor. It is an integral part of the local ecosystem. IK is a key element of the “social capital” of the poor; their main asset to invest in the struggle for survival, to produce food, to provide for shelter or to achieve control of their own lives.

10. Indigenous knowledge also provides problem-solving strategies for local communities and helps shape local visions and perceptions of environment and society. Typical examples include¹⁰:

- midwives and herbal medicine.
- treatment of cattle ticks by the Fulani using *Tephrosia* plants.
- soil and land classifications in Nigeria.
- water catching stone bunds in Burkina Faso.
- construction of buildings with natural “air conditioning” in the Sudan.
- Kpelle artisans' steel making technology in Liberia.
- Agroforestry systems emulating the natural climax vegetation on the Kilimanjaro.
- settlement for land disputes between farmers and nomads in Togo.
- communal use and individual allocation of land by the Washambaa in Tanzania.
- local healers' role in post-conflict resolution in Mozambique.

⁸ 1998/99 World Development Report.

⁹ “Linking Food Relief and Development - A Matter of Good Governance”, Upadhyaya K. and Beier, M., Katmandu, 1993.

¹⁰ See Annex III for more detailed descriptions of selected practices.

- transfer of knowledge through elders, rituals, initiation, and story tellers in West Africa.
- systems to control power and distribute wealth among the Maasai in East Africa.

11. Finally, IK is of particular relevance to the poor in the following sectors or strategies:

- Agriculture¹¹
- Animal husbandry and ethnic veterinary medicine
- Use and management of natural resources
- Primary health care (PHC), preventive medicine and psycho-social care
- Saving and lending
- Community development
- Poverty alleviation

12. It is important to note, however, that not all indigenous practices are beneficial to the sustainable development of a local community; and not all IK can *a priori* provide the right solution for a given problem. Typical examples are slash and burn agriculture¹² and female circumcision. Therefore, before adopting IK, integrating it into development programs, or even disseminating it, practices need to be scrutinized for their appropriateness just as any other technology. In addition to scientific proof, local evidence and the socio-cultural background in which the practices are embedded also need consideration in the process of validation and evaluation.

13. Nevertheless, as the following example illustrates, local communities can mobilize (and should be integral participants of any program) to change indigenous practices that may pose a constraint to the social well-being of a local community.

Application: Senegalese rural women abolish female circumcision in their community¹³.

Women of Malicounda decided that the problem they wished to address was the custom of female circumcision -- a pattern in Bambara/ Mandingue and Pulaar communities. By informing themselves on practices elsewhere and on the effects of circumcision on girls' health and sexual life, they developed an arsenal of arguments and eventually convinced the village council to abolish the practice officially. Not satisfied with this result, they subsequently created a team in order to visit neighboring villages, speak to women there and help them win cases in their own communities. In January of 1998, a congress of 16 villages from the region -- all of Bambara or Mandingue lineage -- met to discuss the change in practices and adopt the "Declaration of Malicounda." Word of their initiative traveled to the Casamance region of southern Senegal, where another group of sixteen villages -- all of Pulaar lineage -- assembled for a similar conference and declaration. In fact, President Abdou Diouf of Senegal himself proposed the "Oath of Malicounda" as a model for national adoption.

Lesson: Mobilizing public opinion against the established order can help to modify discriminatory indigenous practices.

This example also illustrates that indigenous knowledge is not static. The practice of female circumcision could be overcome through the advocacy of an association of women, which manages to influence their local political environment, using traditional as well as modern institutions.

¹¹ For example, the Tonga and Kalanga communities in Zimbabwe rely on indigenous knowledge systems for determining food production and labor division between gender and age groups, and as part of community survival. See "IK-Notes 2" (publication of the IK Initiative, published by the World Bank, November 1998): "Sustainable Indigenous Knowledge Systems in Agriculture in Zimbabwe's Rural Areas of Matabelel and North and south Provinces".

¹² There is some debate on whether slash and burn techniques are always detrimental. Some have argued that slash and burn agriculture may be an appropriate technique in certain circumstances.

¹³ P. Easton, University of Florida, "IK-Notes 3" (forthcoming, December 1998).

14. Indigenous practices can generally adapt in response to gradual changes in the social and natural environments, since indigenous practices are closely interwoven with people's cultural values and passed down from generation to generation. However, many IK systems are currently at risk of extinction because of rapidly changing natural environments and economic, political, and cultural changes on a global scale. Practices can vanish, as they become inappropriate for new challenges or because they adapt too slowly. Moreover, many local practices may also disappear because of the intrusion of foreign technologies or development concepts that promise short-term gains or solutions to problems without being capable of sustaining them. Accordingly, care must be taken not to undermine effective indigenous practices. For example, local practices require fewer material resources than imported technologies, allowing the former to weather the vicissitudes of local shortages and material constraints. The following story about the use of rehydration salts illustrates the challenge of preserving IK in the context of adoption of modern technologies.

Application: *Oral rehydration solutions to combat diarrhea*¹⁴.

In some countries, aggressive promotions of subsidized, ready-made industrial packets undercut the use of long-known home remedies. When the subsidies ended and health education efforts stopped, the rate of use fell. But households that might have then reverted to traditional home remedies did not, because confidence in them had been undermined by the promotion of the commercial remedy. To avoid such an outcome in Nepal, oral hydration programs preserved indigenous knowledge by encouraging the use of homemade simple solutions alongside the modern packet solution.

Lesson: *It is possible to preserve indigenous knowledge alongside modern techniques.*

15. The potential disappearance of many indigenous practices could have a negative effect primarily on those who have developed them and who make a living through them. A greater awareness of the important role that IK can play in the development process is likely to help preserve valuable skills, technologies, artifacts, and problem solving strategies among the local communities. Often such local practices also have an impact on issues of global concern. Therefore, preserving the IK capital can enrich the global community and contribute to promoting the cultural dimension of development. In some cases it can also help to protect the global environment, as illustrated by the following example.

Application: *Preserving traditional cultivators in local communities.*

The international community is establishing gene banks to preserve genetic information of local varieties or indigenous species. Genetic traits of these species and the knowledge of cultivators may prove instrumental in future breeding programs to introduce resistance against pests or diseases or endurance for harsh climatic conditions. However, preserving genetic traits without preserving the knowledge of their husbandry may prove futile as the seeds and clones stored in seed banks do not carry the instructions on how to grow them. Hence, gene banks cooperate with farmers and communities who still cultivate local varieties to preserve such essential knowledge and skills *in situ*.

Lesson: *Local knowledge is vital for preserving bio-diversity.*

¹⁴ 1998/99 World Development Report: Knowledge or Development.

16. The preceding examples illustrate how:

- IK can provide problem-solving strategies for local communities, especially the poor;
- learning from IK can improve understanding of local conditions;
- understanding IK can increase responsiveness to clients;
- building on local experiences, judgments and practices can increase the impact of a development program beyond cost-effective delivery of staples;
- indigenous approaches to development can help to create a sense of ownership that may have a longer lasting impact on relations between the local population and the local administration, giving the former a means of monitoring the actions of the latter;
- IK can provide a building block for the empowerment of the poor.

17. In summary, IK is important for both the local communities and the global community. The development partners need to recognize the role of IK, understand its workings in the context of the local communities, and integrate systematically the most effective and promising of such practices into the development programs they support. As mentioned above, the impact and sustainability of international practices could be enhanced if they are adapted to the local conditions and the indigenous practices. Yet, IK is still an underutilized resource in the development process. Special efforts are, therefore, needed to understand, document and disseminate IK for preservation, transfer or adoption and adaptation elsewhere. By helping to share IK within and across communities the development community can learn a lot about the local conditions that affect those communities. IK should complement, rather than compete with global knowledge systems in the implementation of projects. By investigating first what local communities know and have in terms of indigenous practice, development partners could better help improve upon those practices by bringing to the dialogue international practices from development experiences in other parts of the world. Moreover, this process can contribute to better cross-cultural understanding and to the promotion of culture in development. But, above all, investing in the exchange of indigenous knowledge and its integration into the development process can help to reduce poverty.

IV. Exchange of Indigenous Knowledge

18. Although IK is readily shared among members of a community (in so far as these IK practices are a part of the daily life of the community), it is generally shared to a lesser degree across communities. Moreover, as IK is predominantly tacit or embedded in practices and experiences, it is most commonly exchanged through personal communication and demonstration: from master to apprentice, from parents to children, from neighbor to neighbor, from priest to parish. Recording tacit knowledge, and transferring and disseminating it is, therefore, a challenge. Exchange within a community where providers and recipients speak the same language and share its underlying cultural concepts is much more easily accomplished than transferring tacit knowledge across cultures. To facilitate the understanding of the exchange process, it is useful to break down the process into its various elements.

19. Exchange of indigenous knowledge is a process, comprising essentially six steps:

- The process typically begins with **recognition and identification** of knowledge as expressed in a technology or a problem solving strategy. However, identification of IK can at times prove difficult. For example, some IK may be embedded in a mix of technologies or in cultural values, rendering them unrecognizable at first glance to the external observer. Others may have become part of every day life of a community to an extent that makes it difficult to isolate such practices even by individuals or communities applying them. In such cases, technical and social analyses of certain practices may be needed to identify IK.
- The next typical step is to **validate** IK in terms of its significance and relevance (to solving one or several specific problems), reliability (not being an incidental occurrence), functionality (how well does it work), effectiveness and transferability. The users themselves should preferably conduct or be involved in the validation at the original site of application of IK. Transfer of IK from one community to another may in some cases prove difficult. This is because most IK is stored in tacit form, which in certain circumstances may make it transferable only through direct practice and apprenticeship. Proof of an efficient process at the point of origin does not necessarily ascertain its efficacy under seemingly similar conditions in other locations. Lessons from earlier transfers of modern as well as appropriate technologies indicate that the cultural, political, and economic environment and the level of technical competence of recipients are critical for sustainable adoption and adaptation of foreign technologies. Consequently, it is important to carry out pilots to test the new technology with the recipient. Nevertheless, in some cases it should be possible to undertake a general assessment of transferability, subject to confirmation with follow up pilots.
- The next step, i.e., **recording and documenting**, is another major challenge again because of the tacit nature of indigenous knowledge.¹⁵ The scope of recording/documentation is largely determined by the intended use of the information. Thus, while scholars would want to understand and capture a more comprehensive view of knowledge with all its ramifications, a practitioner might be satisfied with an answer to the question “How did they do that?” The recording may require audio-visual technology, taped narration, drawings, or other forms of codifiable information. In case the tacit nature of a practice does not lend itself to such recording, information about locations, individuals or organizations that can demonstrate or teach a practice could be used as a pointer to the source of IK.
- **Storage** in retrievable repositories is the next typical step in the process. This involves categorization, indexing, relating it to other information, making it accessible and conserving, preserving and maintaining it for later retrieval. Meta-information needs to be produced to make retrieval more user-friendly. This could include electronically stored and indexed abstracts, directories of experts or applications. Storage should not, however, be restricted to only text documents. It should also include other retrievable types of repositories of information such as tapes, films, databases and IK practitioners.
- The **transfer** of IK goes beyond conveying it to the potential recipients. An important element of the transfer is to test the knowledge in the new environment. Economic and technical feasibility, social and environmental impact and other criteria as deemed necessary by the recipients need to be examined.

¹⁵ A manual on how to capture indigenous knowledge has been prepared by the IIRR in 1996: “Recording and Using Indigenous Knowledge”, Silang, Cavite, Philippines.

Individuals, a community group, a civil society organization, or researchers could be used to help test, reject or adopt and adapt the new knowledge. These transfers could be supported by government, and donor agencies. The transfer may involve intensive practical training, apprenticeships or demonstrations. Some local practices can only be transferred directly, from practitioner to practitioner. Only few people in a community will have the risk bearing capacity to accept substantial failure of an imported technology. Careful selection of cooperating partners and potential beneficiaries in a participatory process is a prerequisite for a successful transfer. The risk of failure is reduced if the new technology builds upon existing local knowledge.

- Once the transfers and adaptation process has been carried out successfully through a pilot, the **dissemination** of IK to a wider community adds the developmental dimension to the exchange of knowledge and could bring about a wider and deeper impact of the knowledge transfer. Depending on content and context, dissemination activities could include public awareness campaigns, public broadcasting, advertisements, seminars, workshops, distribution of information material, publications and the incorporation of IK in extension programs or curricula. Dissemination activities could be either targeted to specific groups or address the general public. Governments could encourage the process by creating a favorable political, economical and legal framework.
- **Exchange** of IK is the ideal outcome of a successful transfer. This is essentially a learning process whereby the community where an IK practice originates, the agent that transmits the practice, and the community that adopts and adapts the practice all learn during the process. The following is an example of a successful exchange of IK.

Application: *Transfer of the Washambaa agricultural system to Rwanda adaptation and re-transfer.*

The Washambaa of the Usambara Mountains in Tanzania had developed a land use system emulating the climax vegetation of the deciduous natural forest. They integrated a annuals and perennials on the same plot in a multi-story arrangement. The principles were transferred to Nyabisindu, Rwanda in a GTZ assisted project; and special multipurpose contour bunds with trees shrubs and fodder grasses were added to the system. The adapted practice was later re-transferred to the Washambaa once dense population and need for firewood had depleted the soil cover and demand for dairy products had initiated the introduction of improved cattle breeds.

Lesson: *Emulation of natural vegetation is a valid approach to soil conservation; transferring and adding elements to address new problems adds value to the original land use system.*

20. For an overview of the traditional modes of exchange of IK please see Matrix 6 and for modern modes see Matrix 7 in Annex II. For a more detailed description of the exchange of IK according to actors and instruments to be applied see Matrix 8 in Annex II.

21. Since the early 1990s, a number of conferences and workshops have been held in various parts of the world to address the issues involved in the exchange of IK and its use in the development process (for a list of key events and conferences related to IK see Annex VI; for a selected bibliography and a list of newsletters and periodicals related to IK see Annex VII). These conferences have contributed to awareness building and identification of possible ways to help preserve and use IK more systematically. The challenge now is to develop specific proposals for the development community to help put IK into action for development.

V. Framework for Action

22. This section proposes a framework for action to respond to the challenge of better integrating IK into the development process. The framework revolves around four pillars (see Annex II, Matrices 2 to 5 for details, including the specific areas of action, the work that has already been undertaken, and the additional actions that would be required to better integrate IK into the development process):

⇒ **Disseminating information.** Key actions include:

- ◆ Developing a database of IK practices, lessons learned, sources, partners, etc.
- ◆ Identifying and testing instruments for capture and dissemination of IK.
- ◆ Publishing selected cases in print and electronic format.

⇒ **Facilitating exchange of IK among developing communities.** Key actions include:

- ◆ Helping build local capacity to share IK, especially among the local IK centers.
- ◆ Identifying appropriate methods of capturing, disseminating IK among communities.
- ◆ Facilitating a global network to exchange IK.

⇒ **Applying indigenous knowledge in the development process.** Key actions include:

- ◆ Raising awareness of the importance of IK among development partners.
- ◆ Helping countries to prepare national policies in support of indigenous practices.
- ◆ Integrating indigenous practices in programs/projects supported by partners.

⇒ **Building partnerships.** Key actions include:

- ◆ Learning from local communities and NGOs.
- ◆ Leveraging limited resources of partners to obtain greater development impact.
- ◆ Addressing the intellectual property rights issue of indigenous knowledge.

23. Using the above framework, the partnership that has developed around the IK Initiative has elaborated an initial plan of action for 1998-99. The specific objectives which the partners will endeavor to achieve in each action area, including the deliverables are summarized in the following table. An advisory panel has also been established to provide input on strategic and implementation issues (see Annex I). In implementing the agreed activities under the framework described above, the partners intend to work closely with local IK centers and other NGOs (see Annex V for implementation approach, methodology, and likely instruments). The initial priority is to: raise awareness; help identify/disseminate IK practices; and build the capacity of local centers to further identify, document and disseminate IK practices. This could include financial support for research into IK practices, establishment of Internet connectivity between the local centers as well as more traditional dissemination tools to facilitate the exchange of IK practices across communities.

24. The highlights of the main results achieved to date under the IK initiative are :

- developed IK data-base with about three dozen examples;
- established Website on the Internet to provide a gateway to information on IK, including pointers to IK data base, and centers involved in IK-related issues;
- launched “IK Notes”, a publication dedicated to IK practices (two issues published);
- surveyed the existing IK centers in Africa, and established partnerships with selected centers to carry out research and prepare syntheses of IK practices. See Annex I for details.

IK for Development Initiative Action Plan: 1998-1999

Objectives	Program Deliverables	Partner Deliverables
<i>Action Area 1: Disseminating Information</i>		
Develop a database of IK practices, lessons learned, sources, partners, etc.	At least 200 IK practices in data base on Internet.	<ul style="list-style-type: none"> • Each partner to contribute at least 10 practices. • World Bank to build and maintain data base on IK Website.
Identify and test instruments for capture and dissemination of IK.	Reference guide to instruments based on case studies.	<ul style="list-style-type: none"> • Each partner to contribute at least one case study. • World Bank to prepare and disseminate reference guide.
Publish selected cases in print and electronic format.	At least 24 issues of "IK Notes".	<ul style="list-style-type: none"> • Each partner to contribute at least 1 article. • World Bank to publish and disseminate.
<i>Action Area 2: Facilitating Exchange of IK Among Developing Communities</i>		
Help build local capacity to share IK	At least 10 IK Centers strengthened with enhanced connectivity, capacity to identify IK practices.	Each partner to strengthen at least one center.
Identify appropriate methods of capturing, disseminating IK among communities.	At least 10 case studies of successful examples of IK exchange across local communities.	<ul style="list-style-type: none"> • Each partner to contribute at least one case study. • World Bank to disseminate.
Facilitate a global network to exchange IK.	At least 10 telecenters supported for IK exchange.	IDRC, ITU, SDNP, WB to assist at least one center.
<i>Action Area 3: Applying Indigenous Knowledge in the Development Process</i>		
Raise awareness of the importance of IK among country policy makers and development partners.	<ul style="list-style-type: none"> • Workshops for partner institution staff. • Special presentations on IK for external audiences during partner-sponsored events. • Regional Conference on IK (Fall 1999). 	<ul style="list-style-type: none"> • At least one workshop per partner. • At least one event per partner. • World Bank organize conference (partners provide support).
Integrate indigenous practices in programs/projects supported by partners.	10 projects/programs using some form of IK practice in project design.	Each partner to design at least one project/program using some form of IK practice.
<i>Action Area 4: . Building Partnerships</i>		
Learn from local partners and NGOs.	Identify and disseminate partner-supported projects which use IK practices in project design.	<ul style="list-style-type: none"> • At least one project/program per partner. • World Bank to disseminate.
Leverage limited resources of partners to obtain greater impact on the ground.	Harmonize/coordinate partner activities under IK framework for action.	Each partner to develop, finance and implement specific plan of action consistent with the overall IK framework for action.
Address the intellectual property rights issue of indigenous knowledge.	Identify specific actions.	WIPO to take lead to identify specific actions.

Agreed at PICTA Meeting, Tunis, October 22, 1998.

VI. Related Issues

Intellectual property rights of indigenous knowledge

25. There is an emerging North-South debate in the IK study community on whether and how to protect the intellectual property rights of IK practices. For example how should the healers with iatro-botanical (i.e., medicinal use of plants) knowledge be paid royalties once active compounds of the medicinal plants they use are isolated by pharmaceutical companies and sold on a commercial basis? Patenting such compounds by foreign companies is a related and yet unresolved issue. WIPO, one of the partners of the IK Initiative, has already begun to address these issues in dialogue with the other development organizations and civil society. Specific proposals are expected in the near future.

National policies in support of knowledge for development

26. Knowledge as an instrument of development has not received the needed attention in developing countries in general and in Africa in particular. In the past, country development policies would typically focus on the adoption of “Western” practices with a view to modernizing the society and transforming the productive sectors. As a result, there was very little systematic effort to promote indigenous practices in the development process. However, this is changing. Since the early 1990s, a number of conferences and workshops around the globe have helped to raise awareness of the importance of knowledge in development. There has also been progress in moving IK from the realm of folklore into the developmental domain.

27. The next logical step would be for the country authorities to begin elaborating specific policies in support of acquiring knowledge (e.g., accessing and adapting global knowledge, creating and capturing indigenous knowledge), absorbing knowledge (e.g., creating opportunities for lifelong learning), and communicating knowledge (e.g., harnessing the potential of new information technology, bringing access and disseminating knowledge to the poor). Some African country authorities are starting to address these issues in a more systematic fashion. For example, the South African Parliament is preparing a document that may soon become a declared policy on IK¹⁶. This experience could provide important pointers for other countries as they embark on a similar process in the future.

28. The development partners can play a supportive role by encouraging this process and by providing financial and technical assistance to help elaborate national knowledge policies. Partners should consider developing adapted tools for such support. The World Bank has recently developed the concept of Learning and Innovation Loan (LIL), which provides an example of the kind of flexible lending instruments that could be used in support of formulation of national policies and targeted interventions to leverage knowledge in general and IK in particular in country development programs.

Role of information and communication technology (ICT)

¹⁶ In 1995, the Portfolio Committee on Arts, Culture, Science, Language and Technology of South Africa’s Parliament introduced indigenous knowledge as a critical component in the restructuring of South African Science and Technology System. In collaboration with the Council for Scientific and Industrial Research (CSIR), a pilot project was undertaken to identify indigenous technologies. In 1997, the portfolio Committee set up a variety of structures to help protect and promote indigenous knowledge and technology. A White Paper is under preparation to serve as a basis for a national policy.

29. The use of modern ICT is still the exception rather than the rule in the direct exchange of indigenous knowledge within and between communities. As the countries establish connectivity, modern ICT could become a powerful enabler for the exchange of IK. In the near future, however, more traditional and appropriate tools for dissemination could be used to facilitate the transfer and exchange of IK. The following represents the kind of tools that could be used depending on the local circumstances and the degree of access and connectivity of a country and a community. External support to build local capacity, including the dissemination of such tools among local communities could facilitate the process of IK exchange:

- ***video and radio broadcasts in local languages*** could disseminate IK practices using story telling techniques, especially in the rural areas;
- ***telecenters*** could help make knowledge flow in a “two way street” from the local communities outward (indigenous practices) and from the global community inward (international practices). Telecenters are being introduced in several countries (e.g., Senegal, South Africa, etc.).
- ***electronic networking*** would be most appropriate to establish exchanges among civil society groups and to link the nearly dozen existing local IK centers in various countries (see Annex IV).

Controversial aspects of indigenous knowledge

30. This report would be incomplete if it did not identify some of the controversial issues of the debate on indigenous knowledge. The following highlights the main issues raised in the literature:

⇒ ***indigenous knowledge cannot be codified and recorded***, and hence cannot be exchanged across communities and cultures. Other authors go even further and insist that being unique to and part of a particular culture of a people, transferring local knowledge would render it irrelevant, inappropriate or even harmful. These authors claim that IK could only be preserved *in-situ* by continuous application.

⇒ ***“Western” science is incapable of appreciating traditional cultures*** and their knowledge systems and practices. It is also assumed that the “Western” scientific approach cannot appreciate local practices, as it does not recognize the spiritual elements of IK. This assumption is re-enforced by claims that “Western” values would still be imposed on local cultures by means of imported technologies.

⇒ ***attempts to record and transfer IK could lead to the dis-empowerment of indigenous people.***

31. The issues raised by critics would have to be addressed when dealing with indigenous knowledge in the development process. The primary concern should be the bearers of indigenous knowledge themselves or the intended beneficiaries of a knowledge transfer. Careful and sensitive approaches are needed, based on dialogue and participation, and leaving decisions on sharing and adoption of knowledge to the local communities. This should reduce the perceived risk of dis-empowerment of these communities, without compromising the principle of a global knowledge partnership for the benefit of all communities.

INDIGENOUS KNOWLEDGE FOR DEVELOPMENT

A FRAMEWORK FOR ACTION

Annexes

Overview of the Indigenous Knowledge for Development Initiative

Background

The Global Knowledge Conference (June 1997, in Toronto) emphasized the urgent need to learn, preserve, and exchange indigenous knowledge. In the context of the Partnership for Information and Communication Technology for Africa (PICTA), the World Bank has agreed to lead an indigenous knowledge initiative to stimulate recognition, utilization, and exchange of indigenous knowledge in the development process. Funding for the World Bank's contribution to the Initiative is provided through a grant from the Innovation Marketplace.

Partners

The following partners have participated in the formulation of the initiative: **ECA, CISDA**, (Centre for Information Society Development in Africa) **IDRC, ITU, UNESCO, UNDP**, and **WHO**.

Meanwhile, other partners have joined the initiative:

CIRAN -- Centre for International Research and Advisory Networks at Nuffic (Netherlands Organization for International Cooperation in Higher Education)

SANGONet -- Southern Africa NGO Internet Provider

WIPO -- World Intellectual Property Organization

ILO -- International Labor Organization

Objectives

Disseminating information

- Developing a database of indigenous knowledge practices and lessons learned
- Publishing cases in print and electronic format

Facilitating information exchange among developing communities

- Helping build local capacity to share indigenous knowledge
- Identifying appropriate methods of capturing and disseminating indigenous knowledge among local communities
- Facilitating a global network to exchange indigenous knowledge

Applying Indigenous Knowledge in the development process

- Raising awareness of the importance of indigenous knowledge development partners
- Helping countries to prepare national policies in support of indigenous practices
- Advocating the use of indigenous knowledge in programs and projects of the World Bank and its development partners

Building partnerships

- Learning from local communities and NGOs
- Leveraging the limited resources of partners to obtain greater development impact.
- Addressing intellectual property rights issue of indigenous knowledge

Progress in implementation (as of October 30, 1998)

Disseminating information

- Designed and disseminated promotional *brochure* on IK in English, French and Portuguese
- Started *IK practices database* (about three dozen practices synthesized and referenced)
- Launched “*IK-Notes*”, a monthly periodical to disseminate IK practices in the Bank and to external audiences (15,000 mailings per issue); first issue published in October 1998; second issue in November.
- Launched *IK Web Page* at URL: <http://www.worldbank.org/html/afr/ik/index.htm>.
- Contributed "Box" on IK for the 1998/99 World Development Report: Knowledge for Development

Facilitating information exchange among developing communities

- Launched jointly with CIRAN a *survey of 14 African IK centers*. Follow up field visits (underway) to help to identify the potential for building local capacity for dissemination of IK.
- Agreements with IK centers in Cameroon and Zimbabwe to *research IK practices and prepare syntheses*.

Applying Indigenous Knowledge in the development process

Concentrating in the initial stage on awareness building:

- Communication from senior management to World Bank Africa Region staff on importance of IK
- Produced report “*Indigenous Knowledge for Development A Framework for Action*”.
- Prepared 4-minute *video* on IK (played on World Bank Africa Region's external web site as a "hot topic").
- Show-cased IK at the *Knowledge Expo* during Annual Meetings of the World Bank and IMF (October 1998) with participation of partner CIRAN.

Building partnerships

- Launched *external partnership* with PICTA (Partnership for Information and Communication Technology for Africa, that includes CISDA, ECA, IDRC, ITU, UNDP, UNESCO) and other partners, among them ILO, WIPO, WHO and the SANGONet; external partners to exchange experiences with indigenous knowledge and promote the integration of IK in the development process.
- Established *external advisory panel*, to advise initiative on strategy and implementation.*
- Developed close collaboration with CIRAN (Centre for International Research and Advisory Networks) at Nuffic (Netherlands Organization for International Cooperation in Higher Education). CIRAN acts a hub for a *global network of indigenous knowledge centers*.
- WIPO has established unit to deal with *intellectual property rights* of IK.

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* At present, the panel members are: Shakeel Bhatti, World Intellectual Property Organization (WIPO); Karima Bounemra Ben Soltane, Director, Development Information Services, ECA; Derrick Cogburn, Director, Centre for Information Society Development in Africa (CISDA); Pierre Dandjinou, Sustainable Development Networking Programme (SDNP/UNDP); Hezekiel Dlamini, UNESCO, Kenya; Johan Ernberg, ITU; Anriette Esterhuysen, Executive Director, Southern African Nongovernmental Organization Network (SANGONET); Guus von Leibenstein, Director, Center for International Research and Advisory Networks (CIRAN); Charles Musisi, International Council for research on Agroforestry (ICRAF) Uganda; Kate Wild, IDRC.

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Matrices

Introduction:

Matrix 1 “Typology and Sectoral Features of Indigenous Knowledge at Community Level” assist in determining which approach to chose in support of IK in a development program. The Matrix describes: sector specific areas of indigenous knowledge; typical practices which are relevant for transfer; types of bearers of knowledge; manifestation of IK in hardware (artifacts) or software (laws, rituals, organization) which could assist in determining the relative ease of accessibility of IK to outsiders.

Matrices 2 to 4 (“Increasing and Improving the Available Information on Indigenous Knowledge”, “Increasing Awareness of the Importance of Indigenous Knowledge” and “Establishing a Global Network for the Exchange of Indigenous Knowledge”) describe the overall scope for action necessary to further integrate IK into the development process. For each area of action, its present status, required action and an approach is suggested.

Matrix 5: “Sharing Responsibilities in the Exchange of Indigenous Knowledge” indicates a possible scope of partnership. In view of the special nature of IK, it is most likely that NGOs and CBOs would be the primary agents for the collection and recording and some of the validation activities of IK at the community level. These organizations would need substantial support to help identify, record, validate and exchange indigenous knowledge. In this context, development partners could consider supporting the establishment of IK support units within selected NGOs.

Matrices 6 and 7 on “Traditional and Modern Means of Transfer of Indigenous Knowledge” describe the tools used in transferring knowledge within and across communities. These matrices also indicate the potential areas for involvement of the development partners.

More specifically, **Matrix 8 “Exchanging Indigenous Knowledge”** presents an overview of issues pertaining to the exchange process according to actors, instruments and possible constraints to be addressed in the context of external assistance.

These matrices do not claim to cover the entire realm of indigenous knowledge relevant to development. Any attempt to present a full coverage would lead to an unfocussed, encyclopedic presentation of local practices or ways of exchanging knowledge. Accordingly, the matrices have a rural bias. However, as the initiative evolves, it is planned to incorporate in the data base examples of IK practices in the urban areas as well. Partners such as UNESCO are supporting activities in some urban areas which may provide a good source of information on IK in these areas.

Matrix 1: Typology and Selected Features of Indigenous Knowledge at Community Level

Category Sector	Area of Knowledge (examples)	Bearers of Knowledge	Manifestations of Knowledge (examples)	Accessibility of Knowledge for Outsiders
Agriculture	<ul style="list-style-type: none"> ▪ soil and land classification ▪ cultivation, plant protection ▪ plant sociology ▪ characteristics of crops under stress 	<ul style="list-style-type: none"> ▪ all farmers (according to gender or ethnic distribution) 	<ul style="list-style-type: none"> ▪ local varieties, cultivation techniques, plant protection techniques 	<ul style="list-style-type: none"> ▪ good, if manifested in discernible practices and methods
Animal husbandry and ethnic veterinary medicine	<ul style="list-style-type: none"> ▪ breeding ▪ animal treatments ▪ plant sociology drought resistant species ▪ treatment of ekto- and endoparasites 	<ul style="list-style-type: none"> ▪ nomads, herds people, animal keepers 	<ul style="list-style-type: none"> ▪ breeds ▪ watering places ▪ livestock routes 	<ul style="list-style-type: none"> ▪ difficult, sometimes restricted rituals
Post harvest technologies and nutrition	<ul style="list-style-type: none"> ▪ protection against vermin ▪ treatment of seed and products ▪ food preparation 	<ul style="list-style-type: none"> ▪ most farmers ▪ specifically women 	<ul style="list-style-type: none"> ▪ storage systems ▪ food products ▪ cosmetic products 	<ul style="list-style-type: none"> ▪ usually good, unless related to rituals
Use and management of natural resources and environment protection	<ul style="list-style-type: none"> ▪ sources and qualities of raw materials ▪ plant sociology, underutilized plants / products ▪ erosion control measures ▪ long term cycles of climate and environment 	<ul style="list-style-type: none"> ▪ most farmers ▪ women ▪ crafts people 	<ul style="list-style-type: none"> ▪ forestry products ▪ contour bunds, ▪ regulation of commons, usufruct, village by-laws ▪ supply of raw materials and products 	<ul style="list-style-type: none"> ▪ fair
Handicrafts	<ul style="list-style-type: none"> ▪ wood working, ▪ foundry ▪ weaving 	<ul style="list-style-type: none"> ▪ specialist groups or individuals 	<ul style="list-style-type: none"> ▪ semi-finished products ▪ tools ▪ art 	<ul style="list-style-type: none"> ▪ good
Primary health care, (PHC), preventive medicine and psycho-social care	<ul style="list-style-type: none"> ▪ iatro-botany, family planning, reproductive health 	<ul style="list-style-type: none"> ▪ healers, women, special groups 	<ul style="list-style-type: none"> ▪ herbal medicines, treatments ▪ child care ▪ preparations ▪ botanical, animal and mineral products ▪ integration of mentally and psychologically ill members in society 	<ul style="list-style-type: none"> ▪ difficult
Saving and lending	<ul style="list-style-type: none"> ▪ risk assessment ▪ saving in kind 	<ul style="list-style-type: none"> ▪ savings groups ▪ money-lenders 	<ul style="list-style-type: none"> ▪ group collateral ▪ conditions ▪ risk sharing 	<ul style="list-style-type: none"> ▪ difficult
Community development	<ul style="list-style-type: none"> ▪ power sharing ▪ networking ▪ lobbying 	<ul style="list-style-type: none"> ▪ elders ▪ local leaders 	<ul style="list-style-type: none"> ▪ rituals ▪ by-laws, regulations ▪ advocacy 	<ul style="list-style-type: none"> ▪ moderately difficult
Poverty alleviation	<ul style="list-style-type: none"> ▪ risk aversion strategies, neighborhood assistance 	<ul style="list-style-type: none"> ▪ elders ▪ local leaders 	<ul style="list-style-type: none"> ▪ rituals ▪ dependencies, ▪ village by-laws, integration of marginalized, ▪ kinship 	<ul style="list-style-type: none"> ▪ fair

Source: World Bank staff

Matrix 2: Increasing and Improving the Available Information on Indigenous Knowledge

Area of Action	Status	Action Required	Approach
Record and document indigenous knowledge	<ul style="list-style-type: none"> ▪ numerous anthropological studies with information on indigenous knowledge ▪ growing number of field and literature studies and workshops devoted to the subject ▪ majority of studies descriptive rather than analytical with little feedback to local communities 	<ul style="list-style-type: none"> ▪ participatory tools for analyzing and packaging indigenous knowledge in a user-friendly fashion; ▪ systems for database storage 	<ul style="list-style-type: none"> ▪ field studies ▪ literature studies ▪ workshops ▪ cooperation with CBOs and NGOs
Test and apply field methodologies for recording using and transferring indigenous knowledge	<ul style="list-style-type: none"> ▪ limited number of methodological studies ▪ some projects involve testing by means of participatory approaches ▪ few projects integrate the recording of the use of indigenous knowledge ▪ substantial number of small NGO projects uses indigenous knowledge but very few experiences have been documented, not to mention exchanged 	<ul style="list-style-type: none"> ▪ studies on how projects can assess and apply project-relevant indigenous knowledge ▪ support for NGOs to document and analyze their experiences ▪ systematic studies of transfers of indigenous knowledge 	<ul style="list-style-type: none"> ▪ methodological studies ▪ analysis of projects that record and use indigenous knowledge ▪ learn from successful applications and transfers of indigenous knowledge ▪ study successful amalgamations of indigenous knowledge with foreign knowledge
Validation of indigenous knowledge	<ul style="list-style-type: none"> ▪ limited efforts so far (with the exception of research on medicinal plants); information on effectiveness is scattered and difficult to access; limited information on successful transfers 	<ul style="list-style-type: none"> ▪ field-testing and on-station research by national research institutions including economic analysis ▪ study records of early century scientists and practitioners, missionaries ▪ study records of technology transfers of indigenous knowledge 	<ul style="list-style-type: none"> ▪ glean assessments of users ▪ field testing ▪ on-station research ▪ laboratory tests ▪ record transfer successes
Make information available	<ul style="list-style-type: none"> ▪ over the past years, the amount of records and exchanges has increased (documents, newsletters, videos etc. the number of conferences networks), but analysis is still limited ▪ considerable (academic and descriptive) information is available on web-sites ▪ use-lists are in operation ▪ some databases on traditional ecological knowledge ▪ mass communication coverage related to indigenous peoples and bio-diversity increased ▪ in developing countries information activities not well coordinated ▪ museums traditionally exhibit local artifacts as manifestations of indigenous knowledge 	<ul style="list-style-type: none"> ▪ improve regional networking to promote exchange between indigenous knowledge sources, projects and actors ▪ increase public coverage ▪ establish accessible databases 	<ul style="list-style-type: none"> ▪ production and dissemination of documents, audiovisuals and artifacts ▪ arrange conferences ▪ support existing and functioning networks, clearinghouses databases demo plots exhibits museums etc.

Source: Mathias, E. (1995) with minor adaptations by World Bank staff.

Matrix 3: Increasing the Awareness of the Importance of Indigenous Knowledge and Enhancing the Application of Indigenous Knowledge in Development Activities

Area of Action	Status	Action Required	Approach
<p>Raise awareness of the value and potential use of Indigenous knowledge among</p> <ul style="list-style-type: none"> ▪ local people ▪ field level workers and organizations ▪ teachers, scientists and other academics ▪ policy makers and development planners 	<ul style="list-style-type: none"> ▪ activities still few but increasing ▪ some involve local people as partners or actors ▪ limited integration of indigenous knowledge modules into regular training courses on rural development ▪ information on indigenous knowledge is not suitably packaged for policy makers and development planners ▪ some policy papers recognize the value of indigenous knowledge (such as the World Bank guidelines for working with indigenous peoples) experience with practical application not recorded 	<ul style="list-style-type: none"> ▪ external involvement to help communities to record document and use their own indigenous knowledge ▪ participatory technology assessments ▪ personal exchange between practitioners ▪ integration of indigenous knowledge modules into curricula of schools training institutes and universities ▪ information packages for politicians decision makers and development planners ▪ country or sector guidelines 	<ul style="list-style-type: none"> ▪ projects ▪ workshops video-documentary ▪ prepare conferences, audio-visual and field visits ▪ exchange visits; develop “How-To Manuals” for recording sharing disseminating indigenous knowledge ▪ produce briefs; establish cost-benefits for indigenous knowledge applications or transfers for national economy ▪ tools for project planners and implementers on how to recognize validate and incorporate indigenous knowledge
<p>Provide tools and methods for the recording and use of indigenous knowledge in development projects</p>	<ul style="list-style-type: none"> ▪ field- worker handbooks how to record and document indigenous knowledge by means of participatory approaches are available for manual and computer use prepared by IIRR and CIKARD ▪ case studies are available but could be packaged in a more user-friendly form. 	<ul style="list-style-type: none"> ▪ increased user friendliness of manuals ▪ coverage of specific topics (e.g. indigenous knowledge and the conservation of crop genetic resources) and cultures 	<ul style="list-style-type: none"> ▪ adapt manuals to different audiences and purposes ▪ field testing of manuals
<p>Train GO and NGO field personnel in tools and methods</p>	<ul style="list-style-type: none"> ▪ limited availability (courses offered by University of Edinburgh IIRR) 	<ul style="list-style-type: none"> ▪ courses on methods for the recording and use of indigenous knowledge ▪ extension and education materials on indigenous technologies 	<ul style="list-style-type: none"> ▪ research stations and community colleges to adopt courses ▪ twinning arrangements; ▪ package training materials user-specific for extension workers, NGOs development workers etc. ▪ training of trainers ▪ improve communication between actors of indigenous knowledge exchange

Source: Mathias, E. (1995) with adaptations by World Bank staff.

Matrix 4: Forming a Global Network for the Exchange of Indigenous Knowledge

Area of Action	Status	Action Required	Approach
Strategic alliances	<ul style="list-style-type: none"> ▪ few initiatives ongoing (PICTA, Bellanet) ▪ limited resources ▪ isolated NGO-activities ▪ research directed at documentation and recording not at exchange ▪ private sector interests focused on single technologies or products 	<ul style="list-style-type: none"> ▪ agreement on sharing of information ▪ reconciliation of activities with international agreements (agenda 21 bio-diversity etc.) ▪ cooperation with NGO and private sector 	<ul style="list-style-type: none"> ▪ establish regular (electronic) exchange forum; ▪ sponsor international conference ▪ twin activities of research NGOs donors and private sector ▪ link up with existing networks, such as the IK Network
Clarification of outstanding issues	<ul style="list-style-type: none"> ▪ dispute on property rights not yet resolved 	<ul style="list-style-type: none"> ▪ implement or amend existing agreements 	<ul style="list-style-type: none"> ▪ sponsor international conference of experts and stake holders
Installation of regional and intra-regional clearing houses	<ul style="list-style-type: none"> ▪ not yet established on international basis some regional centers with limited capacities 	<ul style="list-style-type: none"> ▪ databases ▪ exchange framework ▪ operational and effective centers 	<ul style="list-style-type: none"> ▪ compile methodologies ▪ assist existing, effective centers in decentralized locations
Establish “Peer-to –Peer” exchange	<ul style="list-style-type: none"> ▪ knowledge exchange mostly South-North-South; some progress on connectivity 	<ul style="list-style-type: none"> ▪ direct exchange between providers and recipients of knowledge 	<ul style="list-style-type: none"> ▪ decentralize networks ▪ registers of knowledge ▪ pointers and centers of excellence ▪ semantic transcriptions ▪ quality standards ▪ quality monitoring ▪ improve communication structure

Source: World Bank staff.

Matrix 5: Sharing Responsibilities in the Exchange of Indigenous Knowledge

Actors	Area of Action	Activity	Key Partners
Local Communities	<ul style="list-style-type: none"> ▪ maintain and preserve IK ▪ record and document IK ▪ transfer IK 	<ul style="list-style-type: none"> ▪ “document” practices (not only explicitly) ▪ validate practices ▪ identify key knowledge sources ▪ develop preservation strategies ▪ share with other communities 	<ul style="list-style-type: none"> ▪ CBOs, NGO ▪ extension services ▪ volunteer services
CBOs, NGOs	<ul style="list-style-type: none"> ▪ maintain and preserve IK ▪ capturing and documenting IK ▪ transfer locally and regionally ▪ disseminate ▪ advocacy 	<ul style="list-style-type: none"> ▪ provide and operate documentation and access space (libraries, databases, info centers, tele centers etc.) ▪ produce information material (print, radio, TV, plays etc.) ▪ organize local exchange (advise, exchange visits, theater groups, use of media etc.) ▪ organize regional exchange by networking 	<ul style="list-style-type: none"> ▪ governments ▪ private sector ▪ research ▪ donor community
National Governments	<ul style="list-style-type: none"> ▪ provide legal and institutional framework ▪ facilitate networking 	<ul style="list-style-type: none"> ▪ protect (intellectual) property rights ▪ facilitate information access and exchange ▪ include local knowledge in national curricula ▪ facilitate regional travel ▪ facilitate access to media 	<ul style="list-style-type: none"> ▪ international organizations ▪ donor community
Research	<ul style="list-style-type: none"> ▪ acknowledge indigenous knowledge resources ▪ validate indigenous knowledge ▪ disseminate findings 	<ul style="list-style-type: none"> ▪ improve methodology for study of indigenous knowledge ▪ provide access to research findings ▪ include findings in teaching ▪ facilitate exchange with public and private institutions 	<ul style="list-style-type: none"> ▪ governments ▪ donor community
Private Sector	<ul style="list-style-type: none"> ▪ acknowledge rights of indigenous knowledge sources 	<ul style="list-style-type: none"> ▪ purchase of rights or licenses 	<ul style="list-style-type: none"> ▪ donor community ▪ NGOs
Donor Community	<ul style="list-style-type: none"> ▪ acknowledge importance of IK ▪ disseminate information on IK ▪ raise awareness among partners 	<ul style="list-style-type: none"> ▪ create internal platforms of exchange and cooperation ▪ network with sources of IK and partners ▪ include indigenous knowledge aspects in assistance strategies and approaches 	<ul style="list-style-type: none"> ▪ NGOs
International organizations	<ul style="list-style-type: none"> ▪ recognize special requirements of indigenous knowledge 	<ul style="list-style-type: none"> ▪ provide for special clauses in international agreements on IPR, trade, cultural exchange etc. ▪ provide access for protagonists of indigenous knowledge to international fora 	<ul style="list-style-type: none"> ▪ donor community ▪ NGOs
World Bank	<ul style="list-style-type: none"> ▪ raise awareness within the institution ▪ raise awareness among partners and stakeholders 	<ul style="list-style-type: none"> ▪ provide internal information on IK (web, print, dare to share fair, include in database of expertise...) ▪ provide information to partners (conference, special partnerships such as PICTA, support local initiative) ▪ foster and advocate project approaches that build on local knowledge ▪ call for international conference or workshop ▪ advocacy at international organizations 	<ul style="list-style-type: none"> ▪ NGOs • donor community • governments

Source: World Bank staff.

Matrix 6: Traditional Means of Exchange of Indigenous Knowledge

Actors and Mode of Transfer	Sectors	Means and Media	Context of Exchange	Content	Potential for Direct Involvement of the Donor Community ¹⁷
Parents -children	<ul style="list-style-type: none"> ▪ environment ▪ agriculture and animal husbandry ▪ nutrition ▪ handicrafts 	<ul style="list-style-type: none"> ▪ oral ▪ practice ▪ artifacts 	<ul style="list-style-type: none"> ▪ hierarchy 	<ul style="list-style-type: none"> ▪ traditional skills ▪ common practices ▪ values 	<ul style="list-style-type: none"> ▪ limited: unless through adult education
Trainer – apprentice	<ul style="list-style-type: none"> ▪ local medicine ▪ village based crafts ▪ PHC 	<ul style="list-style-type: none"> ▪ oral ▪ practice ▪ individual training 	<ul style="list-style-type: none"> ▪ hierarchy ▪ reputation ▪ expertise 	<ul style="list-style-type: none"> ▪ specialized knowledge and skills ▪ values 	<ul style="list-style-type: none"> ▪ moderate: TA, volunteer services
Public exchange (Markets, gatherings etc.)	<ul style="list-style-type: none"> ▪ environment, agriculture ▪ nutrition ▪ markets ▪ Handicrafts 	<ul style="list-style-type: none"> ▪ oral ▪ artifacts 	<ul style="list-style-type: none"> ▪ parity ▪ reputation ▪ expertise ▪ authority 	<ul style="list-style-type: none"> ▪ news, ▪ products ▪ awareness 	<ul style="list-style-type: none"> ▪ moderate: by supporting campaigns
Informal groups	<ul style="list-style-type: none"> ▪ environment ▪ agriculture ▪ nutrition ▪ Handicrafts 	<ul style="list-style-type: none"> ▪ oral ▪ artifacts, ▪ practice 	<ul style="list-style-type: none"> ▪ parity ▪ reputation ▪ expertise ▪ hierarchy 	<ul style="list-style-type: none"> ▪ news ▪ specialized knowledge and skills ▪ awareness 	<ul style="list-style-type: none"> ▪ low
Local organizations and traditional authorities	<ul style="list-style-type: none"> ▪ environment ▪ agriculture ▪ nutrition ▪ Handicrafts ▪ community development 	<ul style="list-style-type: none"> ▪ oral ▪ artifacts ▪ practice 	<ul style="list-style-type: none"> ▪ parity ▪ competition ▪ reputation ▪ expertise ▪ hierarchy 	<ul style="list-style-type: none"> ▪ news, ▪ specialized knowledge and skills ▪ values ▪ awareness 	<ul style="list-style-type: none"> ▪ moderate: training, support to NGOs and CBOs
Story tellers	<ul style="list-style-type: none"> ▪ unspecified, community development 	<ul style="list-style-type: none"> ▪ oral ▪ sketches and plays ▪ songs 	<ul style="list-style-type: none"> ▪ reputation 	<ul style="list-style-type: none"> ▪ news ▪ specific technical information ▪ values 	<ul style="list-style-type: none"> ▪ moderate
Spiritual leaders	<ul style="list-style-type: none"> ▪ environment ▪ agriculture ▪ health ▪ community development 	<ul style="list-style-type: none"> ▪ oral 	<ul style="list-style-type: none"> ▪ authority 	<ul style="list-style-type: none"> ▪ values ▪ community development 	<ul style="list-style-type: none"> ▪ moderate: cooperation, co-financing
Productive activities	<ul style="list-style-type: none"> ▪ Handicrafts ▪ agriculture ▪ environment ▪ community development 	<ul style="list-style-type: none"> ▪ oral ▪ artifacts 	<ul style="list-style-type: none"> ▪ reputation, parity, competition 	<ul style="list-style-type: none"> ▪ news ▪ specific information 	<ul style="list-style-type: none"> ▪ high: if targeted within sector approach
Migration	<ul style="list-style-type: none"> ▪ environment ▪ crafts ▪ values 	<ul style="list-style-type: none"> ▪ oral ▪ practice 	<ul style="list-style-type: none"> ▪ parity ▪ competition ▪ expertise 	<ul style="list-style-type: none"> ▪ knowledge and skills ▪ values 	<ul style="list-style-type: none"> ▪ moderate: in refugee and settlement programs

Source: World Bank staff.

¹⁷ Direct involvement of donors in the local transfer of knowledge depends largely on approaches chosen. Working through local intermediaries along participatory principles makes such processes more accessible.

Matrix 7: Modern Means of Exchange Indigenous Knowledge

Mode of Transfer	Sectors	Means and Media	Context of Exchange	Content	Potential for Involvement of the Donor Community
Primary and secondary education	<ul style="list-style-type: none"> ▪ unspecified 	<ul style="list-style-type: none"> ▪ teaching 	<ul style="list-style-type: none"> ▪ hierarchical 	<ul style="list-style-type: none"> ▪ knowledge ▪ skills ▪ awareness 	<ul style="list-style-type: none"> ▪ very high: curriculum development, provision of teaching aids, TA
Universities	<ul style="list-style-type: none"> ▪ unspecified 	<ul style="list-style-type: none"> ▪ teaching ▪ practice ▪ excursion ▪ ICT 	<ul style="list-style-type: none"> ▪ Hierarchy ▪ Parity ▪ Expertise ▪ Demonstration ▪ reputation 	<ul style="list-style-type: none"> ▪ knowledge, awareness 	<ul style="list-style-type: none"> ▪ very high: research funding, classification systems, validation, TA
Vocational schools	<ul style="list-style-type: none"> ▪ crafts 	<ul style="list-style-type: none"> ▪ teaching ▪ practice ▪ excursions 	<ul style="list-style-type: none"> ▪ hierarchy expertise 	<ul style="list-style-type: none"> ▪ knowledge skills 	<ul style="list-style-type: none"> ▪ high: curriculum development, funding of exchange programs, TA, training of trainers
Adult education	<ul style="list-style-type: none"> ▪ unspecified 	<ul style="list-style-type: none"> ▪ teaching ▪ excursion ▪ simulation ▪ games ▪ role plays ▪ work shop ▪ radio ▪ TV ▪ tele-centers 	<ul style="list-style-type: none"> ▪ hierarchy ▪ parity ▪ reputation 	<ul style="list-style-type: none"> ▪ knowledge ▪ awareness 	<ul style="list-style-type: none"> ▪ high: financing exchange programs, training of trainers
Advisory services	<ul style="list-style-type: none"> ▪ unspecified, ▪ mostly health, agriculture, and environment 	<ul style="list-style-type: none"> ▪ oral ▪ literature ▪ posters ▪ radio ▪ TV, video ▪ ICT ▪ theater plays ▪ meetings ▪ tele-centers ▪ excursion 	<ul style="list-style-type: none"> ▪ expertise ▪ reputation ▪ parity 	<ul style="list-style-type: none"> ▪ knowledge ▪ skills ▪ awareness 	<ul style="list-style-type: none"> ▪ very high: training of trainers, extension support programs, research funding
Missions	<ul style="list-style-type: none"> ▪ agriculture ▪ health ▪ crafts 	<ul style="list-style-type: none"> ▪ oral ▪ practice 	<ul style="list-style-type: none"> ▪ demonstration ▪ long term practice 	<ul style="list-style-type: none"> ▪ skills 	<ul style="list-style-type: none"> ▪ moderate: close cooperation, since many denominational services propagate indigenous knowledge
Advocacy groups, NGOs, CBOs	<ul style="list-style-type: none"> ▪ unspecified ▪ mostly community development 	<ul style="list-style-type: none"> ▪ oral ▪ meetings 	<ul style="list-style-type: none"> ▪ parity, reputation 	<ul style="list-style-type: none"> ▪ knowledge ▪ skills ▪ awareness 	<ul style="list-style-type: none"> ▪ high: cooperation, support, training
Distance education	<ul style="list-style-type: none"> ▪ unspecified ▪ mostly technical 	<ul style="list-style-type: none"> ▪ radio, TV, ▪ tele-centers ▪ literature 	<ul style="list-style-type: none"> ▪ parity, transfer on-demand 	<ul style="list-style-type: none"> ▪ knowledge ▪ awareness 	<ul style="list-style-type: none"> ▪ high: if modernization of ICT infrastructure feasible, support of media development, TA
Specialized information services	<ul style="list-style-type: none"> ▪ unspecified ▪ mostly technical 	<ul style="list-style-type: none"> ▪ radio, TV ▪ tele-centers ▪ literature 	<ul style="list-style-type: none"> ▪ transfer on demand 	<ul style="list-style-type: none"> ▪ knowledge ▪ skills 	<ul style="list-style-type: none"> ▪ very high: new applications, need research, high potential with modern ICT

Source: World Bank staff.

Matrix 8: Exchange of Indigenous Knowledge

Category Sector	Identification and Recognition	Validation	Documenting and Recording	Storage	Transfer	Dissemination	Feedback
Actors	<ul style="list-style-type: none"> ▪ proprietors of knowledge ▪ their representatives ▪ experts ▪ extension agents ▪ governments 	<ul style="list-style-type: none"> ▪ proprietors of knowledge ▪ NGOs, CBOs ▪ experts, researchers 	<ul style="list-style-type: none"> ▪ proprietors of knowledge ▪ NGOs ▪ subject matter experts ▪ experts for indexing and codifying ▪ libraries, documentalists 	<ul style="list-style-type: none"> ▪ proprietors of knowledge ▪ NGOs, governments ▪ data banks, libraries, archives ▪ documentalists 	<ul style="list-style-type: none"> ▪ proprietors of knowledge ▪ NGOs, CBOs ▪ information brokers ▪ extension services, teachers ▪ consultants, researchers, governments 	<ul style="list-style-type: none"> ▪ extension service ▪ information services ▪ public and private media 	<ul style="list-style-type: none"> ▪ depending on phase and feasibility, all actors involved
Participants	<ul style="list-style-type: none"> ▪ farmers, producers, practitioners, elders, clergy ▪ experts, researchers ▪ museums, shops and markets, information networks ▪ archives 		<ul style="list-style-type: none"> ▪ libraries ▪ media professionals 	<ul style="list-style-type: none"> ▪ information brokers 	<ul style="list-style-type: none"> ▪ farmers and producers ▪ firms ▪ students 	<ul style="list-style-type: none"> ▪ target groups ▪ stake holders 	<ul style="list-style-type: none"> ▪ proprietors of knowledge ▪ recipients of knowledge
Methods, means and media	<ul style="list-style-type: none"> ▪ surveys ▪ studies ▪ panels ▪ PRA ▪ remote sensing ▪ measurements ▪ reports of last century observers ▪ artifacts and products 	<ul style="list-style-type: none"> ▪ natural social and economic indicators ▪ evidence ▪ comparison ▪ peer reviews ▪ standards product quality ▪ field or laboratory tests 	<ul style="list-style-type: none"> ▪ studies ▪ surveys ▪ tapes photos videos ▪ products and specimens ▪ remote sensing ▪ measurements ▪ production processes ▪ resource persons 	<ul style="list-style-type: none"> ▪ documents ▪ data bases ▪ libraries ▪ photo video tapes ▪ processes and practices (in-situ and ex-situ) 	<ul style="list-style-type: none"> ▪ feasibility studies ▪ teaching ▪ pilot applications ▪ demonstration ▪ training ▪ exchange visits 	<ul style="list-style-type: none"> ▪ information campaigns ▪ adult education ▪ story tellers ▪ theater plays ▪ word of mouth 	<ul style="list-style-type: none"> ▪ exchange visits ▪ reports ▪ royalties for proprietors of knowledge
Constraints and problems	<ul style="list-style-type: none"> ▪ partial lack of methodology ▪ lack of personnel trained in methodologies 	<ul style="list-style-type: none"> ▪ lack of methodologies related to tacit knowledge ▪ pre-conceptions and mystification 	<ul style="list-style-type: none"> ▪ lack of personnel trained in methodologies ▪ prioritization ▪ widely practiced project financing for NGOs ignores role of documentation and information activities (overhead cost not covered information activities curtailed) 	<ul style="list-style-type: none"> ▪ projected transfer times underestimated ▪ top-down approaches ▪ technology choice ▪ lack of technological competence ▪ poor quality of information ▪ traditional one-way North-South transfer 	<ul style="list-style-type: none"> ▪ interference of special interest groups ▪ lack of supporting policies ▪ rate of adoptions not sustainable ▪ poor quality of information 	<ul style="list-style-type: none"> ▪ hardly implemented so far ▪ legal implications not yet settled 	
Role for Donor Community	<ul style="list-style-type: none"> ▪ identify areas with methodological gaps ▪ train personnel in proper methods 	<ul style="list-style-type: none"> ▪ assist in developing methodology and training ▪ create platforms for unbiased exchange on IK 	<ul style="list-style-type: none"> ▪ assist in developing methodology with particular reference to women as bearers of knowledge ▪ change financing and co-financing principles 	<ul style="list-style-type: none"> ▪ capacity building ▪ provide for pilot approaches and phasing ▪ propagate and support South- South transfer ▪ introduce information quality standards 	<ul style="list-style-type: none"> ▪ policy assistance ▪ assist established South-South networks 	<ul style="list-style-type: none"> ▪ leverage and demonstration 	

Source: World Bank staff..

Examples of IK Applications¹⁸

<p>Country Nigeria</p> <p>Domain Health</p> <p>Technology Child Care</p> <p>Bearers of Knowledge Igbo Women</p> <p>Source: Dan S. Obikeze (IK Monitor 5(2) 1997 CIRAN</p>	<p>Application: <i>Postpartum maternal and child health care rites and observances among the Igbo of Southeastern Nigeria</i></p> <p>During a four-week period after birth called 'Omugwo' the mother and the child are secluded and relieved from all other chores they are cared for by the grandmother of the new born. The new mother is given a stimulating hot soup made with dried fish meat yams plenty of pepper and a special herbal seasoning called 'udah' which makes the uterus contract and thus helps in expelling of blood clots. The diet helps to restore blood lost during childbirth to restore energy facilitated the healing of wounds and restores normal bodily functions and promotes lactation. For a first time mother the time is utilized to receive parental and house keeping practices from her mother.</p> <p>Lesson: <i>Health care programs need to acknowledge the 'Omugwo' rites and integrate them in their assistance strategies</i></p>
<p>Country Tanzania / Rwanda</p> <p>Domain Agriculture</p> <p>Technology Agroforestry</p> <p>Bearers of Knowledge Washambaa farmers</p> <p>Source: GTZ various reports 1980 - 90</p>	<p>Application: <i>Transfer of the Washambaa agricultural system to Rwanda adaptation and re-transfer.</i></p> <p>The Washambaa of the Usambara Mountains in Tanzania had developed a land use system emulating the climax vegetation of the deciduous natural forest a multi-story integrating annuals and perennials on the same plot. The principles were transferred to Nyabisindu, Rwanda in a GTZ assisted project; special multipurpose contour bunds with trees shrubs and grasses were added to the system and re-transferred to the Washambaa once dense population and demand for firewood had depleted the soil cover.</p> <p>Lesson: <i>Emulation of natural vegetation is a valid approach to soil conservation; transferring and adding elements to address new problems adds value to the original land use system.</i></p>
<p>Country Egypt</p> <p>Domain Shelter, Energy</p> <p>Technology Architecture</p> <p>Bearers of Knowledge Architects, builders</p> <p>Source Schreckenbach H. BASIN News (12) '97</p>	<p>Application: <i>Re-introducing traditional Egyptian architecture</i></p> <p>Following the re-orientation of national energy policies the Egyptian atomic energy commission started to research energy and material saving construction methods. A regional exchange of experience was arranged with the following observations: Curved roofs have a smaller surface area (and require less building material) for the same volume of indoor space. Computer simulations prove: the net heat gain of a dome can be 20 % less than that of a flat roof; curved roofs allow the warm air to rise leaving cooler air at floor level. Openings at the top can provide "natural air condition" by very cross-ventilation; skylights on vaults and domes provide 4 to 5 times more light per unit floor area than low windows on vertical walls. Less window area is needed heating and cooling loads are reduced; rooms with curved roofs have a pleasant psychological effect on the occupants: they seem less oppressive than rooms with flat ceilings.</p> <p>Lesson: <i>Create awareness among practitioners and policy makers by validating traditional knowledge with modern technology.</i></p>

¹⁸ These syntheses of IK examples are extracted from the IK data base under construction in the context of the IK Initiative.

ANNEX IV

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Methodology

In implementing the proposed activities, the IK Initiative has to take into account the interests of the various partners, the potential of the contributors of indigenous knowledge, and resource constraints. This requires an approach that facilitates continuous mutual exchange of information during implementation, building of local capacity, and a process that is open to new partners and contributors. An external advisory panel of IK and ICT experts advises the Initiative on strategy and key operational issues.

Dissemination of information

The initiative would identify pilot instruments for the capture, dissemination, and application of indigenous knowledge. To this end, identified IK sources in various countries would be commissioned to report on a number of indigenous practices. These reports would add to the knowledge base on IK, and would also serve as a means to evaluate modes and methods for the capturing of indigenous knowledge. Methods that could be applied are field interviews, participatory community assessments or focus groups with NGOs. Projects of the World Bank and of partners of the initiative would contribute their experiences with the integration of IK into the development process. Also the initiative will contribute to the knowledge base of the World Bank and its partners.

Facilitating information exchange among developing communities

Reports of IK practices would be collected and summarized in a publicly accessible database that also connects to the original source of information wherever possible. Cases that are of specific interest would be published in a monthly periodical. The initiative would – on a pilot basis – help to enhance the capacity of existing IK institutions to improve their networking among peers as well as to capture and disseminate IK information. This would include provision of or advise on basic connectivity as well as support in establishing access to the World Wide Web. Further, (also on a pilot basis) communities would be identified that could be assisted in the establishment and operation of a village-based telecenter.

Applying Indigenous Knowledge in the development process

Awareness creation, pilot applications and “mainstreaming” are the three elements required for a successful integration of IK into the development process. Initially, the initiative would focus on awareness building among decision-makers in development organizations and the national governments. Apart from publishing special IK cases, the initiative will feature special presentations during partner events (e.g., Annual Meeting of the World Bank). A regional conference in Africa is tentatively envisaged to raise awareness of importance of IK among policy makers. At a later stage, the focus would shift to developing pilots and to mainstreaming through projects. The latter would involve using “success stories” to demonstrate that use of IK can bring value to the process. Careful selection of pilots (countries and projects) would in turn help to develop further examples to be used in subsequent stages to convince other colleagues. For the partners, collaboration around pilots and providing “visibility” by involving agency leaders in “sponsoring” the pilots would help create the needed “signaling” to the development practitioners.

Establishing partnerships

The initiative will seek partnership beyond PICTA members. Special emphasis will be put on establishing close working relations with NGOs, the global IK network and, wherever possible through projects and

partner organizations, with local communities to learn from their experiences.

Key Events/Conferences Related to Indigenous Knowledge

United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992. The conference stressed the need to develop mechanisms to protect the earth's biodiversity. Many of the documents signed at UNCED also reflect the requirement to conserve the knowledge of the environment that is possessed by many local communities. The resultant Agenda 21 is the starting point for sustainable development. Agenda 21 called for major efforts to be directed to the recording of indigenous knowledge. The United Nations system agencies, have been responsive to these needs. In addition to the UN-family, other development agencies recognise the value of indigenous knowledge (e.g. the Consultative Group on International Agricultural Research (CGIAR)¹⁹.

International Conference on “Indigenous Knowledge and Sustainable Development” (September 1992 , IIRR, Silang, Philippines). This conference, which was sponsored by IDRC, was the first major international manifestation of IK among the development community.

Conference on “Traditional Knowledge and Sustainable Development” (Washington, September 1993). Sponsored by the World Bank.

International Conference on 'Adaptation and Development: Interdisciplinary Perspectives on Subsistence and Sustainability in Developing Countries', (July 1994, Bandung, Indonesia). Sponsored by the Indonesian Resource Centre for Indigenous Knowledge (INRIK), Universitas Padjadjaran, in co-operation with the Government of West Java Province of the Republic of Indonesia.

Workshops on subjects related to indigenous knowledge and alternatives for development: “Redefining the Life Sciences” and “Intellectual Property Rights of Peoples” (July 1997, Penang, Malaysia). Sponsored by the Third World Network.

Symposium on Indigenous Knowledge Systems for Plant Protection, (13th International Plant Protection Congress, The Hague, The Netherlands, July 1995). Convened by the National Institute of Public Health and Environmental Protection and CIRAN/Nuffic.

Perspectives on Indigenous Knowledge Systems in Southern Africa (Preparatory Workshop, Zimbabwe, April 1994, Field Surveys, and Regional Workshop in South Africa, 1995). Sponsored by World Bank /IUCN.

International Conference on ‘Creativity and Innovation at Grassroots for Sustainable Natural Resource Management (January 1997, Ahmedabad, India). Organised by the Centre for Management in Agriculture at the Indian Institute of Management.

Global Knowledge for Development 1997 (June 1997, Toronto, Canada). Organised by the Government of Canada and the World Bank. Considerable attention given to indigenous knowledge issues.

¹⁹ The CGIAR programme on Plant Genetic Resources includes a section on indigenous knowledge.

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- GATE**– German Appropriate Technology Exchange, GTZ, Eschborn
- Honey Bee:** Newsletter for Documentation and Experimentation of Local Innovations Developed by Farmers.
- Artisans and Horticulturalists.** Centre for Management in Agriculture, Indian Institute of Management, Vastrapur, Ahmedabad-380015, India.
- IFPP Newsletter.** Indigenous Food Plants Programme, P.O. Box 48108, Nairobi, Kenya.
- ILEIA Newsletter.** Information Centre for Low-External-Input Agriculture, P.O. Box 64, 3830 AB Leusden, The Netherlands.
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Canada KIS OB2.

Glossary

BASIN	Building and Advisory Service Network
CBO	Community Based Organization
CGIAR	Consultative Group on International Agricultural Research
CIKARD	Center for Indigenous Knowledge for Agriculture and Rural Development
CILSS	Inter-State Committee for Drought Control in the Sahel (Comité interétat de lutte contre la sécheresse au Sahel)
CIRAN	Centre for International Research and Advisory Networks at NUFFIC
CISDA	Centre for Information Society Development in Africa
ECA	UN Economic Commission for Africa
FAO	UN food and Agriculture Organization
GATE	German Appropriate Technology Exchange
GTZ	German Agency for technical Cooperation
ICIK	Interinstitutional Consortium for Indigenous Knowledge
ICT	Information and Communication Technologies
IDRC	International Development Research Centre of Canada
IIRR	International Institute of Rural Reconstruction
IK	Indigenous Knowledge
ILEIA	Centre for Research and Information on Low External Input and Sustainable Agriculture
ILO	International Labor Organization
IMF	International Monetary Fund
ITU	UN International Telecommunications Union
LEAD	Leiden Ethnosystems and Development Program
LIL	Learning and Innovation Loan
NGO	Nongovernmental Organization
NUFFIC	Netherlands Organization for International Cooperation in Higher Education
OECD	Organization for Economic Cooperation and Development
PADLOS	Support for Local Development in the Sahel
PHC	Primary Health Care
PICTA	Partnership for Information and Communication Technology in Africa
PRA	Participatory Rural Appraisal
SANGONet	Southern Africa NGO Internet Provider
SDNP	UN Sustainable Development Networking Programme
SID	Society for International Development
TA	Technical Assistance
TV	Television

UN	United Nations
UNCED	UN Conference on Environment and Development
UNDP	UN Development Programme
UNESCO	UN Educational, Scientific and Cultural Organization
WB	The World Bank
WFP	UN World Food Program
WHO	UN World Health Organization
WIPO	World Intellectual Property Organization