FAO/ODI/ODI Strategic Programme for Information on Sustainable Livelihoods - The Desk Study

1. Introduction

The UN Food and Agriculture Organisation (FAO) and UK Department for International Development (DFID) are developing a major three-year "Strategic Programme for Information in Support of Sustainable Livelihoods" (SPISSL) to contribute to reducing poverty through the achievement of sustainable rural livelihoods. The specific purpose of the project is to improve the effectiveness of FAO's information systems in influencing poor people's livelihoods through improved methods, procedures and tools for information management.

The process of developing the project included a desk study to review documentary and web-site material on the provision and delivery of information on food and agriculture in developing countries; field missions to India, Ghana and Uganda to review existing and planned activities, and identify possible specific interventions and partners; and a consultative workshop to review findings and develop the project memorandum.

This document summarises the key findings of the desk study and outlines some opportunities the programme could explore further. It is synthesised from, and in a web-based version, linked to a series of more detailed background papers which are themselves linked to an annotated bibliography, a summary of web resources, and the background documents and web sites themselves.

Section 2 provides an introduction to the Sustainable Livelihoods Approach, describes the role of information within it, and how better information can contribute to better decisions. Section 3 describes current organisation and programmes within FAO and DFID, other DFID-funded programmes within FAO and how SPISSL is located within them. Section 4 describes information needs for farmers and other stakeholders, and some existing and emerging information systems. Section 5 describes the key issues for improving information systems including: information costs and financial sustainability; access, empowerment and democratisation; local content and context; building on existing systems; capacity building; realistic approaches to technology; and strengthening partnerships.

2. The Sustainable Livelihoods approach and the role of information

2.1 The Sustainable Livelihoods approach

Sustainable Livelihoods (SL) approaches have emerged through debate within a wide range of development agencies over the last decade, and have been incorporated into both DFID and FAO strategies and systems. Donor interpretations of an SL approach typically incorporate a set of principles, an analytical framework providing a broad and systematic understanding of the various factors that constrain or enhance livelihood opportunities and how they relate to each other, and a developmental objective i.e. to enhance the overall level and sustainability of livelihoods. There are variations in emphasis and interpretation of the approach between different agencies but the basic underlying principles are fundamental and common to all agencies. An FAO-sponsored Inter-Agency Forum on Operationalising SL Approaches produced strong agreement on the guiding principles that underpin SL approaches. It was also noted that many of the field-level tools and methods, such as participation, are already well-established in the work of many agencies, including the FAO. The need to better understand, and allocate resources to facilitate linkages between micro-level livelihood systems and their policy environment was well recognised, but identification of the most effective entry points for SL remains a key issue for further clarification. The Inter-Agency Forum produced a number of key lessons for the application of SL approaches.

For more information see Background Paper 2.1 The Sustainable Livelihoods Approach.

2.2 The role of information and communication in the SL framework

Information and communication are critical components of the SL framework, essential for linking and informing decision-making processes at every level. A Strategic Programme in Support of SL should aim to improve linkages between processes of policy design and implementation and the sustainability, productivity and profitability of livelihood outcomes. Information in support of SL, therefore, has a dual function; to supply the information required by the poor in order to pursue sustainable livelihood strategies, and to supply information required by institutions responsible for making decisions that affect those strategic livelihood options. In each case it is only through increased access to improved information that individuals and institutions can make better informed choices about the opportunities and constraints associated with agricultural development strategies.

Improved information is necessary but not sufficient for improved decision making. Decision-making is a political process and stakeholder participation in decision-making processes is crucially important. The SL approach is fundamentally people-centred and demands a detailed participatory assessment of information needs of target beneficiaries and stakeholders as an early activity in programme design. A differentiated approach to information needs assessment can be enhanced through attention to the role of information in relation to different livelihood assets. An effective information strategy in support of SL must identify the multiple levels of decision making at which information is used, and promote two-way flows of information between levels. The SL approach also emphasises multi-sectoral collaboration and partnerships between government departments, public and private sector, civil society and international development agencies. Specifically it seeks to build on existing strengths and opportunities and to supplement and enhance existing systems.

FAO's Communications for Development Group has been at the forefront of developing interactive participatory communication projects. Mechanisms for farmer-to-farmer learning, developed by FAO in the Farmer Field Schools of the Integrated Pest Management Programme in Indonesia are now being adopted in other sectors. The FarmNet concept, developed by FAO's Sustainable Development Research Extension and Training Division (SDR) and World Agricultural Information Centre (WAICENT) aims to provide information for a wide range of users from small scale to semi-commercial and export-crop farmers. FAO's Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS) aims to provide information for policy makers on the incidence, nature and causes of food insecurity and vulnerability at national and sub-national level. Each of these provide useful examples of how many of the principles of information in support of SL are already being applied by the FAO.

For more information see Background Paper 2.2 - The role of information and communication in the SL framework

2.3 Better decisions and livelihoods with better information

The table below provides examples of the types of decisions taken at different levels, which can be enhanced through improved systems for the management and communication of agricultural information.

Decision-making level	Decision type	Information required
Rural poor household	Livelihood strategies (prioritisation of livelihood activities and investment decisions)	Availability of agricultural inputs & services, output market prices, institutional & policy context
Producer organisations	Collective strategies (production, processing & marketing)	Information on opportunities and constraints in agricultural sector
Local NGO	Design of projects to support the rural poor	Information about existing livelihood opportunities & constraints
Local government	Local & District policy making (prioritising resource allocation)	Information about the status of agriculture & poverty
Public service providers	Formulating national, district & local technical assistance programmes	Context specific information agricultural systems constraints
Private sector organisations	Assessing market demand for agricultural goods and services	Market information and agricultural system constraints
National NGOs	Advocacy work & informed engagement in policy making processes	Agricultural policies institutions & decision-making processes
National government	Formulating targeted national policies and strategies for Agriculture	Monitoring national food production status and trends in poverty and food insecurity
International Donor agencies	Setting priorities for donor assistance programmes	Monitoring global food production and status and trends in poverty and food insecurity

Attention to the means of communication, format and content, and degree of transparency is also important if farmers are to be empowered to make better decisions. Issues of information quality and quantity need to be balanced with the capacity of decision makers to use the information provided. Improved systems for the management and communication of agricultural information, built upon the principles of SL, can help poor farmers organise as groups, exchange experiences, obtain technical information, and also to hold responsible institutions accountable and put pressure on relevant authorities to deal with their problems.

For more information see Background Paper 2.3 - Better decisions and livelihoods with better information.

3. Existing FAO and DFID Policies Programmes and Activities

3.1 The Food and Agriculture Organisation (FAO)

The overarching theme of FAO's activities is: 'helping to build a food-secure world for present and future generations'. A guiding premise is that effective development is achieved through improvements in the production and distribution of food and agricultural products. It should be noted that while the principal focus is on reducing food insecurity (rather than poverty) the FAO recognises that poverty is a major cause of food insecurity. Also, that efforts to increase food supplies are unlikely to completely eliminate food insecurity among vulnerable populations unless they are accompanied by complementary targeted measures to increase economic growth and reduce poverty.

Background Paper 3.1 - The Food and Agriculture Organisation (FAO) describes FAO's information and communication activities in the context of its fundamental mission, its overall

mandate and the basic functions of the organisation including both Operational and Normative activities. The latter include developing international norms, standards and conventions, providing a world centre of knowledge, information and expertise; and the setting up, maintaining and constantly updating of databases of statistical information, disseminating information in support of Member Nations and providing a neutral forum for policy dialogue among nations and for the preparation of international agreements.

A review of operations starting in early 1994 reinforced the importance of FAO's normative functions and a major element in the subsequent reform process was the development and implementation of the Corporate Communication Policy and Strategy. The policy aims at ensuring the consistency of the Organisation's messages and the quality of its information products. In particular it addresses the changes introduced as a result of the new communication technologies which, among other things, provide an opportunity for decentralising the production and dissemination of information. The Organisation's World Agriculture Information Centre (WAICENT) plays a central role in this. Responsibility for the technical content of FAO's information systems remains with each Department, but WAICENT helped establish and provides technical support through Specialised Information Systems. WAICENT also uses FAO's considerable expertise in the area of information management to develop Tools for Capacity Building including a number of information management tools for document management, electronic publishing, mapping and databases. The WAICENT Outreach Programme was established following the 1996 World Food Summit, recognising the key role that information and knowledge play in ensuring food security and sustainable development and focusing on ways to improve the capacities of decision-makers, professionals and the public at large in Member Countries to access and use agricultural information.

The Communications for Development Group within the Research Extension and Training Division of the Sustainable Development Department is responsible for providing communication support to all other departments in FAO, as well as strengthening national capacities in communication for development. The focus of the group is to enable farmers to access relevant information and knowledge according to their needs. It promotes the use of communication methods, technologies and tools to improve the exchange of information and know-how between farmers, extension workers, trainers and researchers to facilitate the participation of local populations and mobilise them to undertake development activities. Communication for development activities are designed to support national food security and rural development programmes and to strengthen governmental and non-governmental organisations operating in the field of communication for development.

FAO's Strategic Framework 2000-2015 focuses on poverty eradication and food security through improving opportunities for the rural poor to strengthen, diversify and sustain their livelihoods, increase their incomes and improve their food security. It recognises the key role that information and knowledge play in ensuring food security and sustainable development and that rural development approaches must become more comprehensive, multi-sectoral and flexible. In support of the Strategic Framework the Consultation on Agricultural Information Management focused on ways of improving the capacities of decision-makers, professionals and the public at large in Member Countries to access and use agricultural information and on establishing a global framework for the future normative work of WAICENT. The FAO has also worked closely with DFID to incorporate SL approaches, notably through the Inter-Agency Forum on operationalising SL approaches.

For more information see Background Paper 3.1 - The Food and Agriculture Organisation (FAO).

3.2 Department for International Development (DFID)

The overriding goal of the 1997 DFID White Paper on International Development is the elimination of poverty in poorer countries. The subsequent 2000 DFID White Paper on the theme of globalisation reinforces this, and commits DFID to ensure that new wealth, technology and knowledge generated by globalisation brings sustainable benefits to the poor. DFID is committed to the International Development Target (IDT) of reducing by one-half the proportion of people living in extreme poverty by 2015, and is searching for new approaches and tools that will enhance the impact of its programmes on this and other related IDTs.

Following the 1997 White Paper, the DFID Rural Livelihoods Department (RLD) adopted an SL approach as a way of improving its impact on poverty. The objective of the DFID SL approach is to mainstream a set of core principles and a holistic perspective in the programming of its support activities, and also those of its partners. It is not a 'programming framework' but rather a way of thinking about poverty in order to identify issues and areas that should be addressed in a specific situation to reduce poverty. Specific strategic concerns of DFID field programmes include: direct support to assets (i.e. providing people with better access to the assets that act as a foundation for their livelihoods); and/or support to the more effective functioning of the structures and processes (policies, public and private sector organisations, markets, social relations, etc.) that influence access to assets and livelihood options and strategies.

A key challenge for DFID is to integrate SL approaches into those parts of the agency that are not concerned with natural resource management. SL approaches have as yet achieved little penetration in fields such as economic policy, infrastructure, health and social development, which have generally adopted sector-wide approaches. DFID is also actively involved in promoting strategic partnerships with other international organisations and promoting the use of SL approaches to develop a common, strategic and people-centred focus and partnership approach to poverty reduction.

The general shortage of practitioners with appropriate skills to implement SL approaches represents a significant capacity constraint. In order to address this problem, the RLD has established a Sustainable Livelihoods Resource Group (SLRG) consisting of representatives of development and research organisations, universities and NGOs, to draw together experiences in using SL approaches, to identify gaps in existing knowledge and to examine the associated opportunities and constraints. A key tool for this purpose is Livelihoods Connect, a web based learning platform for the development and dissemination of SL approaches.

For more information see Background Paper 3.2 - Department for International Development (DFID).

3.3 DFID-funded SL Programmes within FAO

FAO and DFID are collaborating on a number of extra-budgetary programmes to create a shared understanding of SL approaches to poverty reduction and their potential application to the design and implementation of FAO's programmes. The Livelihood Support Programme (LSP) aims to help FAO establish better internal mechanisms for interdisciplinary and inter-departmental collaboration on programmes supporting sustainable livelihoods. The Sustainable Fisheries Livelihoods Programme (SFLP) in West Africa provides support to governments for national level policy making and planning and to poor communities to enhance their capacity to participate in fisheries planning and management. The Pro-poor livestock policy facility aims to support policy processes to promote livestock production as a livelihood option for poor farmers in South Asia, the Horn of Africa, West Africa, East Asia and the Andean Countries by stimulating debate and providing unbiased

information to assist in the discussion and negotiation of livestock issues. The Strengthening participatory approaches in forest management in Uganda, Ghana, and Guyana Programme supports the capacity of government forest departments, forestry schools and training institutes, and other government and non-government agencies, to integrate broad-based participation in natural resource management.

The Strategic Programme for Information in Support of Sustainable Livelihoods will collaborate closely with these and other FAO and partner agency programmes, specifically to improve the effectiveness of FAO's information systems in influencing poor people's livelihoods. The programme will do this through a strategic set of activities designed to add value to FAO programmes in Rome, and to FAO and partner agency programmes in India, Ghana and Uganda, through improved methods, procedures and tools for information management. Figure 1 shows how SPISSL will contribute to FAO's Strategic Framework, Medium Term Plan, and other DFID-funded programmes.

For more information see Background Paper 3.3 - DFID-funded SL Programmes within FAO.

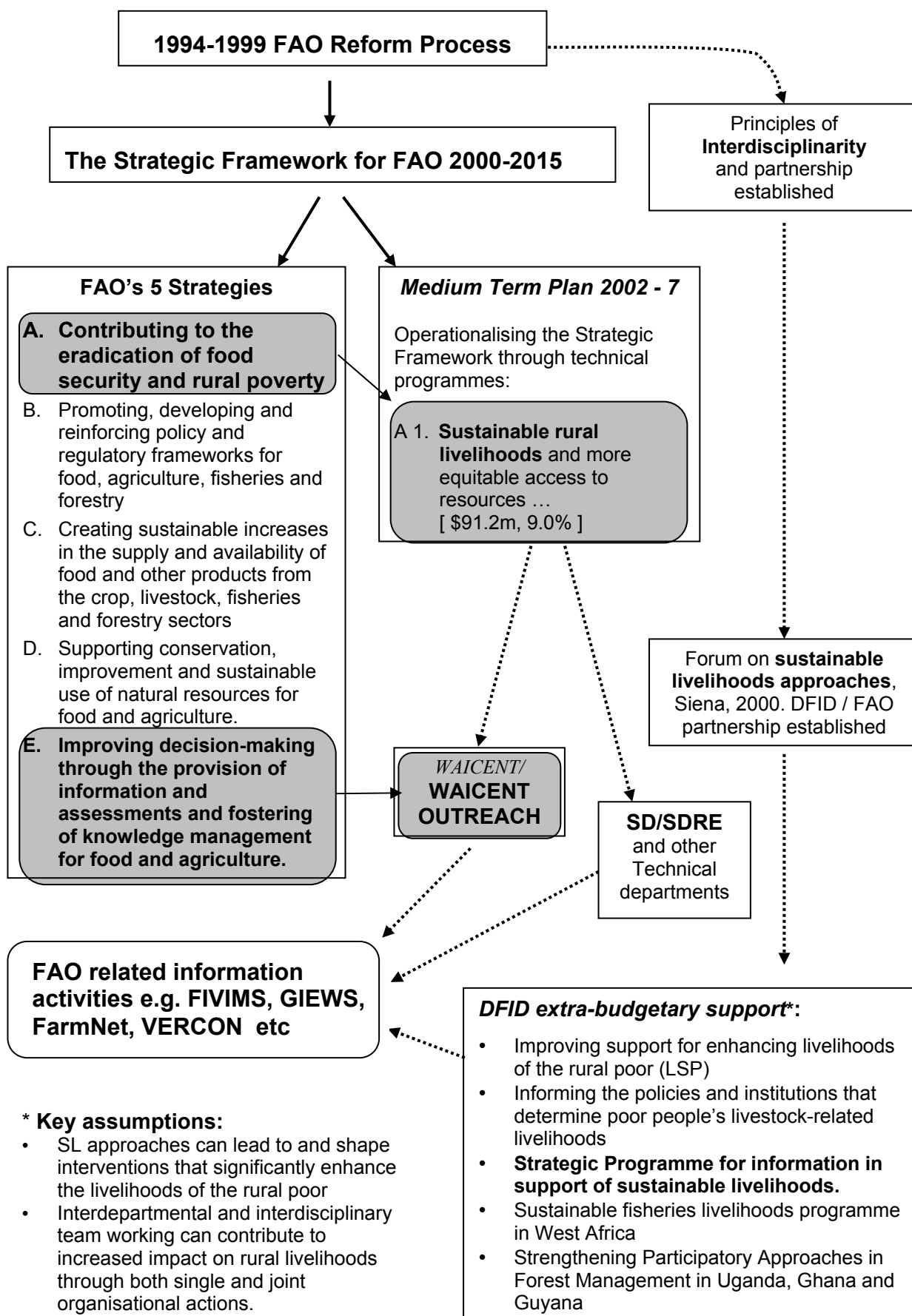## 4. Information needs and existing systems.

4.1 Information needs for farmers, their institutions, donors and governments.

A recent assessment of stakeholder participation in FAO Field Programmes (2001), identified more than 25 different stakeholder types. Primary stakeholders include farmers and other community actors in projects and programmes. Secondary stakeholders include local governance institutions and 'interface' institutions such as technical services, NGOs, and private sector organisations. Tertiary stakeholders include national-level development agencies, national NGOs, policy makers and international support agencies. Evidently these various stakeholder groups have highly differentiated food and agriculture information needs.

Farmers need up-to-date information on sources, availability and cost of agricultural inputs, also on the potential of different techniques and technologies used for production and processing of agricultural goods. However, the information that is often most relevant to improving support to livelihoods is wide-ranging information that informs options for household level strategies. This includes Information about the role and responsibilities of different institutions in the provision of key services, and where to go and who to ask for specific information. Law for example is a crucial topic for rural people, key questions concern inheritance, women's rights to land and relationships between crop-raisers and herders. Agricultural credit is another. Legal and financial disputes are common because rural people do not have access to basic legal and financial information. Farmers increasingly need information about rural off-farm activities, and about rural development projects supposedly designed to benefit them. It is important that this information is available in an appropriate format and language, and that farmers have the capacity to analyse it and act on it.

Specific situations create specific information needs and eliciting people's own views of their information priorities, opportunities and needs is key. The use and sustainability of information systems depends largely on user participation in planning stages. The FAO has been at the forefront of developing participatory approaches (FAO, 1998). Warren (2001)

Figure 1 – The Strategic Programme for Information within FAO

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│  1994-1999 FAO Reform Process    │······· │  Principles of           │
└──────────────────────────────────┘        │  Interdisciplinarity     │
            │                                │  and partnership         │
            ▼                                │  established             │
┌──────────────────────────────────┐        └──────────────────────────┘
│ The Strategic Framework for FAO  │
│           2000-2015              │
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FAO's 5 Strategies

A. Contributing to the eradication of food security and rural poverty

B. Promoting, developing and reinforcing policy and regulatory frameworks for food, agriculture, fisheries and forestry

C. Creating sustainable increases in the supply and availability of food and other products from the crop, livestock, fisheries and forestry sectors

D. Supporting conservation, improvement and sustainable use of natural resources for food and agriculture.

E. Improving decision-making through the provision of information and assessments and fostering of knowledge management for food and agriculture.

Medium Term Plan 2002 - 7

Operationalising the Strategic Framework through technical programmes:

A 1. **Sustainable rural livelihoods** and more equitable access to resources …
[$91.2m, 9.0%]

WAICENT/
WAICENT OUTREACH

Forum on **sustainable livelihoods approaches**, Siena, 2000. DFID / FAO partnership established

SD/SDRE and other Technical departments

FAO related information activities e.g. FIVIMS, GIEWS, FarmNet, VERCON etc

* Key assumptions:
- SL approaches can lead to and shape interventions that significantly enhance the livelihoods of the rural poor
- Interdepartmental and interdisciplinary team working can contribute to increased impact on rural livelihoods through both single and joint organisational actions.

DFID extra-budgetary support*:
- Improving support for enhancing livelihoods of the rural poor (LSP)
- Informing the policies and institutions that determine poor people's livestock-related livelihoods
- **Strategic Programme for information in support of sustainable livelihoods.**
- Sustainable fisheries livelihoods programme in West Africa
- Strengthening Participatory Approaches in Forest Management in Uganda, Ghana and Guyana

noted fourteen different methods/means used to facilitate stakeholder participation in FAO field programmes. Rather than a single standardised method, a particular *site-specific blend* of different methods is usually developed (sometimes in a very creative manner) to fit the particular social and institutional setting and the political context within which the participatory process takes place. A combination of quantitative, qualitative and participatory action-research concepts and methods is used to monitor and evaluate stakeholder participation. The lessons from Farmer Field Schools(FFS) are now being integrated into other sectors such as community forestry and are a good example of how many of the principles of SL are already being applied by the FAO.

A particular strength of the SL approach is its emphasis on multi-level, multi-sectoral collaboration and co-ordination. As such it encourages innovative partnerships between government departments, public and private sector, civil society and international development agencies. Enhancing information and communication processes within and between agencies is a key area of concern. FAO's role as a neutral forum to discuss and resolve issues related to the management and dissemination of agricultural information gives it considerable comparative advantage in this area. There is much debate about information needs for policy makers and this is discussed further in terms of FAO's information systems and its role in providing policy assistance in Background Paper 4.1 Information needs for farmers, their institutions, donors and governments, and in relation to linking micro level information into different levels of decision-making in Background Paper 5.3 - Appropriate content and context*.*

Conclusions for the Strategic Programme for Information in Support of Sustainable Livelihoods include:

➢ The starting point for a strategic programme on information in support of sustainable livelihoods should be a differentiated assessment of information needs.

➢ FAO should assess its comparative advantage in supporting the information needs of different stakeholders.

➢ FAO' s expertise in using participatory approaches should be developed to improve information needs assessments in its programmes and more widely.

For more information see Background Paper 4.1.- Information needs for farmers, their institutions, donors and governments.

4.2 Existing and emerging systems

Rural communities, their institutions, government and other agencies all have well developed information networks for local information dissemination, and many people still trust word-of-mouth information, and what they can see with their own eyes above other information. A study of farmers in Uganda and Ghana found that farmers trusted endogenous sources, such as word-of-mouth, experience and observation more than exogenous sources such as extension agents and radio (Hunke, 1993 In Carter, 1999) although 46% of farmers in Ghana and 31% of farmers in Uganda used exogenous information.

Traditional media such as television and radio can reach a wider audience. Radio is more widespread than television in Africa, and the numbers have grown rapidly over the last 40 years to over 120 million in 1995 with over 45 million television sets. Television use in Africa has not grown at the same rate as other developing countries such as India where deregulated satellite television has enabled cheap access to a wide range of cable television services (Mytton, 2000).

Although access to the internet is growing throughout the developing world, North America and Europe still account for 89% of all Internet hosts whereas Africa has only 0.25%, and the

"Digital Divide" is widening. While the number of internet hosts per thousand inhabitants in North America grew from 46 to 167 between 1997 and 2001, the number in Africa only grew from 0.17 to 0.31. Much of rural Africa still doesn't have a telephone service, so despite an increasing quantity of agricultural information available on the internet there is very little access to it in most rural communities.

It is wrong though to assume that these 'have-nots' are 'have-nothings' and do not have existing information systems of any substance. This can lead an overly optimistic technologically deterministic approach (Heeks, 1999) to the conclusion that the problem will only be solved if the existing information networks are replaced with 'modern' systems. Furthermore, this runs the risk of losing farmers' rich, vital, experiential knowledge of agriculture, much of which circulates in local informal networks.

Many organisations are incorporating this information within the new information systems. The Centre for Agriculture and Biotechnology International (CABI) manages a wide range of information resources of existing agricultural information, through publications, CD ROMs and research studies. A recent CD ROM and Internet-based database contains farmer-based information on 200 crops and 150 countries including images and descriptions of over 1800 pests, diseases and weeds. This is also happening in developing countries. The National Innovations Foundation (NIF) in India has been established to "build linkages between excellence in formal scientific systems and informal knowledge systems".

FAO's WAICENT has developed a number of *Specialised Information Systems* for the supply of information needs on all aspects of agricultural development and food security. These global information systems (e.g. GIEWS, FIVIMS and FAOSTAT) are extremely valuable for providing a global picture, and for the purposes of inter-country and inter-continental comparisons but are of limited value for sub-national policy making and planning, and many developing countries lack the capacity to manage and use this information effectively.

FAO's current strategy is to establish the capacity to collect, analyse, use and disseminate information within member countries. WAICENT is also developing a number of tools to enhance the capacity of member countries to manage and analyse information, for example the Key Indicators Mapping System (KIMS) and Key Indicators Database System (KIDS). The WAICENT Outreach programme is designed specifically to help with this, as is the establishment of national FIVIMS.

There is great scope for integrating existing informal communication systems and networks in developing countries into new information systems. Various widely recommended changes to agricultural extension could facilitate this (Neuchatel, 2000 Roling,1995 Rivera,2000, Berdegue and Escobar, 2001). One approach, the Agricultural Knowledge and Information System (AKIS) is designed to facilitate both vertical and horizontal information transfer (Roling, 1986). FAO and the World Bank have expanded the approach as a dynamic framework for information integration and exchange to support rural development (AKIS/RD). In this system, agricultural researchers, extension providers and educators form a knowledge triangle to interact with, share information with and support farmers as shown in Figure 2 (FAO/WB, 2000).

Figure 2: The Knowledge Triangle of an AKIS/RD
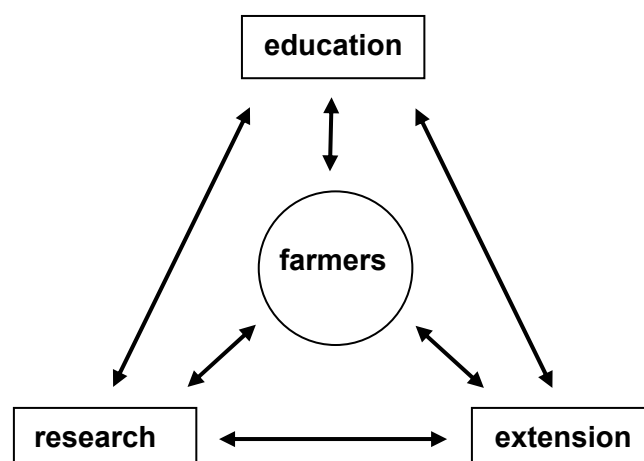
For this to work, extension workers must: abandon their traditional *linear* or top-down mode of technology transfer; adopt a *facilitation* role to help farmers, researchers and themselves to learn together, and help farmers to make their own decisions; and then an *advisory* role in which information is provided as requested by the farmers.

Agricultural research and extension has undoubtedly contributed profoundly to development as demonstrated by the Green Revolution, but the combination of a reduction in public research budgets, a globalising market and the information explosion has created a more complex knowledge landscape. The role of international development institutions is increasingly to act as intermediaries in the transfer of knowledge and to manage knowledge as an international or global public good (World Bank, 1998). This role is particularly important to ensure that good information is available to poor rural farmers and developing countries with limited public sector information management capabilities (Berdegue and Escobar, 2001). Information systems will need to combine the benefits of the new information technologies with the benefits of traditional networks to do this.

Opportunities for the Strategic Programme for Information in Support of Sustainable Livelihoods to address these issues include:

➢ Identify the existing systems for information and communication which support decision-making at various different levels in the proposed programme areas.

➢ SPISSL should develop methods for making FAO information compatible with the requirements of existing systems rather than the other way around.

➢ FAO needs to support the information systems that farmers currently rely on especially endogenous information through continued efforts to shift the extension process towards a more facilitation and advisory focus.

For more information see Background Paper 4.2 - Existing and emerging systems.

5. Key issues - improving information systems

5.1 Information costs, value and financial sustainability.

Underlying FAO's mandate, is the assumption that information for agricultural and rural development is a global public good and should be made available to all. But as the absolute value of aid to agriculture continues to decline, and donors and governments shift towards the private sector provision of agricultural extension services, the question of who

should pay for information services, especially for poorer farmers, becomes increasingly critical.

The basic human, physical and organisational resources for information and communication services can be very expensive, but are relatively easy to estimate. Adopting participatory approaches adds additional costs, many of which are difficult to calculate. Some of these 'costs' are a necessary part of processes of democratisation, others may be unintended such as the exposure of village affairs to external groups leading to a loss of local autonomy and market share (Warren, 2001). A clearer estimate of the total cost of participatory information systems is needed.

Nor is enough understood about either the positive, or negative impact of information systems and services. A recent review of community-based ICT initiatives, stressed the need for improved monitoring and evaluation and impact assessment (Michiels & Van Crowder, 2001). The review also noted that participatory needs assessments are rarely performed prior to ICT applications. The emphasis tends to be more often on providing "access" to information rather than assessing the actual specific information needs of communities and local groups. Despite a growing literature on how to assess the impact of information and communication initiatives (for example IDRC's ACACIA program and Menou 1999), it remains difficult and 'until relevant methodologies and adequate tools are developed to effectively assess the social impact of the application of ICTs for sustainable development from the user's perspective, efforts to demonstrate how people are empowered by knowledge will lack credibility' (Gomez et al 1999:1). Impact Assessment for Information System Development was the subject of one of three workshops at the FAO's first Consultation on Agricultural Information Management (COAIM, June 2000) where it was recommended that FAO, CTA, and other organisations develop and promote impact assessment for agricultural information programmes and projects with the aim of ensuring that impact assessment becomes an integral part of the planning and implementation cycle.

Recent information service success stories (CTA 2001) include the use of mobile phones in Uganda and Bangladesh and fixed-line telecentres in Senegal. Although requiring a sizeable initial investment, once up and running these have proved quite profitable. Rural newspapers and radio can cover their costs through advertising, sponsorship, and payments for basic services such as public announcements. This is not yet common in government publications and information services. Extension bulletins, for example are normally distributed free but it has been argued that they should be sold in order to generate revenue and also as a means of deriving feedback as to the actual value of the product. New and innovative partnerships between government agencies and the private sector are now emerging, albeit slowly, and in order to be sustainable, information services must find new ways of communicating important information using innovative formats and combining different information types. Kenya's Tembea na Majira radk or 'Soap opera for development' radio programme, for example, covers a wide range of topics and issues ranging from family relations to agriculture (CTA 2001) (the importance of local content and context is discussed further in Section 5.3).

Profitability or cost-recovery is not however the only measure of sustainability. Experience with telecentres (Gomez et al 1999 & McConnell et al 2001) has identified a wide range of factors, many of which also apply to other information and communication activities. They include:

- *technical issues* – basic infrastructural requirements and systems development (telephones, electricity, telecoms service providers), also availability and responsiveness of technical support and expertise;

- *institutional issues* – locating a telecentre within the existing institutional framework and building on existing knowledge networks (formal and informal) i.e. in partnership with local government schools, libraries, universities etc. and civil society organisations;

- *economic issues* – income generation, cost recovery, ability to pay, participatory market demand assessments to identify optimal location of information services;

- *social and cultural issues* – information content and format appropriate to the context of users, capacity of managers/operators of information services to identify and supply the information needs of users and human capacity (literacy, numeracy) of beneficiaries to make use of information; and

- *political issues* – participation in planning and implementation, political networks, local power relations and access, discrimination and exclusion.

Other factors that contribute to longer-term sustainability are local ownership and the development of services that respond to local demands including training. The specific types of information and communication activities undertaken and the technologies and techniques applied must be context specific and focus upon aims and objectives based on clearly defined goals. These are discussed in more detail in subsequent sections.

Opportunities for the Strategic Programme for Information in Support of Sustainable Livelihoods to address these issues include:

➢ Developing consensus on who should pay for information provision for poorer farmers. Financial costs are important but cannot simply adopt the 'willingness to pay' principle to determine the price of information. There are often absolute limits on farmers' capacity to pay and the FAO has a role in providing free information as a public good.

➢ Developing tools to gather empirical evidence to ascertain the benefit of improved information, especially for poorer farmers.

➢ Developing tools to assess the social and political costs of more participatory information systems, and approaches to overcoming them.

➢ Promote information components of agricultural programmes as being essential for their long-term sustainability.

➢ Promoting impact assessments for agricultural information programmes and information components in all rural development projects with the aim of ensuring that they become an integral part of the planning and implementation cycle.

➢ Exploring options for and promoting new partnerships between government agricultural information services and the private sector which can benefit poor farmers.

For more information see Background Paper 5.1 - *Information costs, and financial sustainability.*

5.2 Access, empowerment and democratisation

The technological capacity to transfer information and communicate across large distances has increased rapidly in recent years. But this information must be available to all if the benefits are to empower individuals to improve their livelihoods, rather than perpetuate existing social, economic and political disparities between the 'information haves and have nots'. The challenge is to harness this new capacity in order to enable rural communities, and their governments, in developing countries to manage information more effectively and develop communication strategies that promote the transfer of information that is more relevant to people's livelihood needs.

Although some agricultural information in developed countries is only accessible to farmers who are prepared to pay for it, there is far more 'public information' that is freely available that developing country farmers are excluded from simply due to lack of access. There are numerous organisations from the FAO to local NGOs that are trying to improve the dissemination of information relevant to rural livelihoods in developing countries.

Many new initiatives seek to facilitate access by farmers to internet-based information networks, computer databases and multimedia tools:

- The IDRC Pan Asia Networking programme (www.panasia.org) aims to connect institutions such as Universities and education and research centres in regional networks.

- A pilot project in the Philippines in barangays in Mindanao is bringing together internet access, computers and practical training resources in Multipurpose Community Telecentres (MCTs). The MCTs, a partnership between government, private sector, community and academic organisations, provide Philippine-related information on a wide range of subjects from health and education to rural enterprise development and agriculture.

- The Farmknow website established by the China Agricultural University has been established to allow farmers around Beijing to diagnose problems with their vegetable crop from a database of over 70 locally occurring agricultural diseases and 30 insect pests. Farming specialists are available to provide assistance and respond to e-mail questions.

Traditional media such as television and radio continue to have a considerable head start when it comes to 'universal access' to information, especially in Africa. Rural and community radio initiatives such as those promoted by the FAO enable the target audience to be more clearly defined and crucially allow for community participation in the development of more locally appropriate programmes to be 'broadcast' or 'narrowcast'. The potential for interactive community radio to answer specific questions and respond to identified needs can be greatly enhanced by linking local radio stations to the Internet. The FAO has been pioneering work in this area in West Africa, and initiatives under the Global Knowledge Partnership such as the Kothmale radio station in Sri Lanka have received wide acclaim.

Early experience identifies the capacity of projects to use available knowledge effectively to reach the poor as a key consideration in the design of information programmes. This requires a shift in emphasis from simple "knowledge management", to "knowledge for empowerment" which recognises that local power structures can influence local knowledge dissemination, and specifically targets the most marginalised. The empowerment of any group centres on its capacity to generate and use knowledge and to share it on an equal basis with other groups (Siochru, 2001).

Some local initiatives in India are seeking to empower the disadvantaged by increasing opportunities for rural communities to access information relevant of their livelihoods. Semi-literate women manage community-level information centres in M.S.Swaminathan's e-villages to provide for the specific information needs of particular user groups, such as wave height and weather forecast information for the fishermen in the village of Veerampattinam. In Bangladesh, Grameen phone has established a rural mobile telephone network in Bangladesh run by women who rent them out to other villagers to earn extra income for their families. Choosing women to manage these initiatives, aims to address the unequal power relations that exist between men and women in these communities, helps to erode the existing hierarchies, and promotes development goals that are based on more broad based and bottom-up knowledge strategies.

Information that flows between groups that can be accessed and used by any group for its own purposes is likely to be democratising. National Agricultural Research Systems (NARS) however tend to focus on technologies and solutions for the commercial farming sector, ignoring the needs of smaller-scale farmers for information on which to base their livelihood decision-making. This simultaneously helps wealthy farmers to enhance their competitiveness in the market, and makes it more difficult for small farmers to make effective livelihood decisions. The West African Rice Development Agency (WARDA) however used a participatory varietal selection process where farmers interacted directly with rice breeders to share information to decide which new rice varieties should be developed. Processes like this, where farmer-level information is used directly by decision-makers, can help make decisions more effective, and make the development process more democratic.

Information systems can contribute to democratisation if they provide:

- equal access to information for all;

- information for decision-making that is relevant to all groups

- opportunities to participate in wider decision-making such as through the transparency of government processes and information relating to rights and entitlements.

- accountability of those institutions responsible for information management and transfer to all their constituents or stakeholders.

The capacity of government agencies to provide this degree of participation however is very limited. A recent study of extension systems as part of the Neuchatel initiative (Farrington et al, 2001) concluded that many of the problems associated with service delivery in the extension systems in developing countries result from the over ambitious nature of their design. Alternative methods of information transfer and service delivery at the local level, be it through NGOs as suggested by Bebbington in Latin America, or other means could relieve the state of unrealistic resource allocations resulting in wasted expenditure. One suggestion is to consolidate efforts at the rural-urban interface such as the district town level, and ensure that within that spatial context at least, broad-based access to information and services are available, and rely on word of mouth and other traditional systems to reach remote areas.

Opportunities for the Strategic Programme for Information in Support of Sustainable Livelihoods to address these issues include:

➢ Democratisation through an information programme must start by identifying and targeting the most marginalised groups to ensure equal access to existing information.

➢ Promote more reasonable time-scales in project design – most communication and information programmes have a very short time-frame. Time is needed, especially in Africa to develop the necessary infrastructure and capacity. The IDRC Acacia Initiative is a 25 year programme.

➢ The FAO can use its own information systems to demonstrate how new technologies and approaches can be used to make public information more accessible (e.g. bridging internet-based and traditional media in rural radio).

➢ Current experiences of sharing agricultural information need to be harnessed through improved networking and partnerships.

➢ Farmers need to be empowered to ask for the information they need and therefore FAO needs to support the provision of 'Question and Answer' material and services.

For more information, see Background Paper 5.2 - Access, empowerment and democratisation.

5.3 Appropriate content and context

Information can provide a *catalyst* for people identifying and setting their own goals and priorities. Once established, often with the help of external actors, information systems should be self-sustaining, dynamic and evolutionary. They should also be adapted to local needs, providing people with reliable locally-relevant information and contributing to local decision-making (Michiels and Van Crowder, 2001). This will help support immediate livelihoods needs and longer-term experimentation, training and planning.

As discussed in Background Paper 4.2 - Existing and emerging systems farmers trust endogenous and local information more than exogenous information. So although issues and problems can be raised through examples from elsewhere farmers are unlikely to believe solutions, and be motivated to adopt them without substantial discussion of locally-specific examples. For example, a programme on rural law, broadcast through a network of 48 local rural radio stations in West Africa, which brought together lawyers from six West African countries to discuss topics ranging from identity cards, marriage and birth certificates to women's rights in marriage and to land, sparked such interest in each country that they formed the starting point for a series of broadcasts on related issues in each station (www.radios-rurales.net).

In this context information on food and agriculture should be particularly focused on local agro-ecological conditions, weather and topography as well as local cultural and economic aspects of production, marketing and processing. The information needs to be transparent and up to date with change related information supported by local cases of successful implementation and adoption of new approaches.

In fact, supporting communication between relevant local institutions may be more important than providing content from the Internet at local level. The linked local learning (LLL) process promoted by CTA in East Africa for example has been developed to assist the institutions at every level, from farmers to government departments and NGOs to donors, deal with the social changes at the district and village level that are occurring due to decentralisation policies. A pilot study to investigate the use of ICTs to enhance this process in Tanzania, Uganda and Kenya recommended a combination of an IT network linking national and district levels with high frequency radio connections at village level. The Communication Planning Workshops held in each country also highlighted the importance of using all communication channels available and not relying solely on new technologies right down to the village level (TDG/ISG,2000).

The FAO's Special Programme for food security (SPFS) applies an extension of the linked learning concept, encouraging South-South sharing of expertise to enhance their communal knowledge. One example is the linking of Egyptian irrigation experts with farmers in Tanzania to promote learning about irrigation, plant nutrition and soil fertility among other issues. The benefit of promoting international linked learning is in the combined experience of relating specialist expertise to the constraints identified by local farmers in their own context.

Integrating local knowledge and context into national and international information systems requires both a detailed understanding of the local context and a sophisticated capacity to tailor information appropriately for both local and national or international audiences. Micro-level information managers and linked learning facilitators should therefore be integrated into the inter-institutional information flow processes and the agricultural policy cycle to improve knowledge and information sharing.

Opportunities for the Strategic Programme for Information in Support of Sustainable Livelihoods to address these issues include:

➢ Micro and macro level information needs to be linked to enable better information flows between policy makers and farmers, resulting in the availability of more appropriate information sources for decision-makers at different levels.

➢ Promote information as a catalyst for initiatives and adoption of technologies within decentralised and locally owned processes.

➢ Capacity-building programmes for micro-level information managers designed to be flexible and responsive to the local context in which information is used and generated.

➢ Developing new systems to manage the combination of external and local information.

➢ Developing new mechanisms to link ICTs with traditional face-to-face communication.

For more information see Background Paper 5.3 - Appropriate content and context.

5.4 Building on existing systems

New initiatives should aim to build on the strengths of existing systems of information exchange. The potential for enhancing these systems depends on identifying the most appropriate institutions to work with, and through, and their existing infrastructure constraints. The focus on rural systems for improved information exchange will also depend on a better understanding of the relevant national and international systems.

A study of knowledge management systems within development initiatives identified a number of key lessons and principles for building effective knowledge management systems (Richardson 2001), many of which apply more generally to information systems. The study found that many donor-driven systems are overly-ambitious, overly-complex, and over-designed. They tend to overlook the fundamental organisational processes and institutional incentives that drive information use and ignore potential 'losers' who may subsequently resist implementation. On the other hand, effective systems:

▪ have specific users who demand specific information to inform decisions for which they are held accountable;

▪ have sustained commitment of 'champions' among the ministry leadership;

▪ build in clear rewards to individuals for contributing information;

▪ are simple and modest in scope;

▪ focus on information that directly informs priority decisions;

▪ build on existing databases, taking advantage of existing data collection routines.

Access to the internet in rural areas is extremely limited in most developing countries, and more or less absent in rural Africa. This 'Digital Divide' is discussed in Background Paper 4.2 - Existing and emerging systems. Although urgent to address, there is a danger of making this the focus of information system development in developing countries. Many people in rural areas are poorly educated and illiterate, and despite this already have rich and effective information networks. Innovative mechanisms to bridge the gap between the internet and rural areas through rural radio, high frequency radio links or village internet booths have been described in Background Paper 5.2 - Access, Empowerment and Democratisation. At least as important as improving access to, and the content of, agricultural information systems is integration at the national level through a multi-disciplinary and cross-sectoral approach. This will both create opportunities for maximising resource efficiencies and knowledge sharing, and allow the development of improved inter-sectoral information for

policy makers and better coordination of international and national agencies. Although a major challenge, this is an essential pre-requisite for PRSP processes (See Background Paper 5.4 - Building on Existing Systems. Some countries, notably Ghana and Mali, are developing national IT and communications policies and strategies with FAO assistance.

Integration of sectoral information initiatives at the district and local levels such as those using ICTs mentioned above should also *"provide a supplement, not substitute, to existing information systems (Heeks, 1999)",* and it is important to avoid the tendency for government institutions to seek to control information. The Internet was designed as a decentralised network (Berners-Lee, 1999), and allows users to access information from a wide range of sources, to use it for their own purposes and manage it for others to use in a more specific context. Other systems provide less flexibility.

The World Bank and FAO's new more decentralised and participatory approaches for extension systems seek to capitalise on similar pluralistic approaches, where farmers are encouraged to use a range of public, private and non-governmental extension services to meet their information needs. The principles are to improve farmer's choice, transform current public services into more demand-led services and promote new *pluralistic partnerships.* The extent to which partnerships that are essentially promoted by public sector funding can actually be pluralistic is not certain but at least the promotion of greater institutional pluralism is likely to make extension services more participatory and effective (Rivera, 2001). In this context the public sector will be increasingly expected to monitor the quality of information that is being made available to farmers rather than attempting to manage and control all the information itself.

The emergence of new modes of knowledge production and exchange has profound implications because it creates problems and tensions for existing institutions. Developing countries may find that they are 'locked in' to a mode of knowledge production that is increasingly less relevant to their specific developmental needs. Organisational change and flexibility go hand-in-hand with the adoption of new modes and methods of learning. However, historical practices and routines and social, economic and political events make these processes of institutional innovation and change highly unpredictable (Richardson 2001).

Opportunities for the Strategic Programme for Information in Support of Sustainable Livelihoods to address these issues include:

➢ Identify existing information system infrastructure, institutions and resources to work with and build upon.

➢ Encourage multi-disciplinary knowledge sharing and information exchange to develop agricultural information systems that correspond with cross-sectoral rural development strategies.

➢ Build on existing systems to develop more decentralised information management and exchange.

➢ Exploring new mechanisms to increase availability of the different types of information in rural areas, through partnerships with government and private sector companies.

➢ Developing new ways of building on existing agricultural information systems rather then building new ones.

➢ Promoting the integration of internet, ICT and traditional information systems within the new pluralistic approaches to agricultural extension.

➢ Developing approaches to smooth the process of introducing and integrating new information systems in government.

(For more detail see Background Paper 5.4 Building on existing systems)

5.5 Building capacity

A government's capacity to use, manage and disseminate information is determined by the political system, the financial resources available, the strength of the state, and the motivation and capacity of the decision-makers. Many governments, such as in Brazil, are themselves working to improve information management and dissemination but there is a need for international organisations to assist in the process of capacity building due to the limited resources available for government capacity building programmes in many countries. The Digital Opportunities Taskforce (Dotforce), was established by the G8 at Okinawa in 2000 to engage the public sector, private sector and civil society in a wide-ranging consultation to identify mechanisms for bridging the digital divide. The World Bank Institute (WBI) also provides a forum for policy-makers in developing countries to create appropriate communication strategies and compare their experiences.

Local capacity in information collection, storage and dissemination will also need to be enhanced in order to bridge the gap between information providers and users. Education leading to basic literacy and numeracy, especially for marginalised groups, is a priority for improving local capacity to use and generate information, and local government and non-government institutions need to be encouraged and strengthened to provide more information locally, for local dissemination, and to contribute to national systems.

The FAO has been involved in a number of projects, that support training of local level animators and information specialists who are able to both capture and disseminate information that is focussed on the local context for example the Audio-Visual Production Services Centre (CESPA) project in Mali. The training not only provided new skills in specific communication technologies (which are discussed in later sections) but also helped build the confidence of local individuals and groups to recognise the value of their knowledge, and the importance of the simplest methods of communication such as face-to-face meetings and discussion. The farmer field school approach, developed by the FAO, is a good example that could be promoted in a wider context alongside more formal training for literacy or specific information techniques. The integration of targeted training with processes that encourage local ownership and self-learning and the sharing of information and skills amongst local groups would help to promote grassroots capacity building that responds more directly to local needs. Information that is then generated and disseminated locally is more likely to be sustainable.

New information technologies to improve the way that information is managed and disseminated require new standards and skills. One hundred and sixty one representatives from all 91 Member countries attended FAO's first Consultation on Agricultural Information Management (COAIM) in June 2000. Capacity building was identified as a key issue, and it was recommended that the FAO, through WAICENT, continues to focus on this by providing training in member countries and developing international standards. The COAIM conference recognised the importance of developing standards and ensuring appropriate use of ICTs. The need for standards will increase as more information is generated, and new technologies and information networks emerge. Many standards such as the AGROVOC vocabulary already have wide support, but more capacity is needed at national and regional levels if it is to be applied. The FAO is currently developing the Standard Generalised and Extensible Mark-up Languages (SGML and XML) for document management and technical capacity will be required to implement these, particularly at the national level. Close collaboration with other international and intergovernmental capacity building initiatives could ensure both the efficient use of resources and the development of training packages.

The use of other more generalised information and communication technologies (ICTs) will also require significant capacity building. In many remote rural areas the use of ICTs will be dependent as much on technical capacity building for local institutions to use them effectively as on the infrastructure itself. Training programmes need to address the institutional demands for capacity building at different levels that is relevant to the actual technologies that are available to those groups. The FAO has a role to assist in the coordination of capacity building and training activities to ensure that institutions are receiving appropriate training to suit their information management needs in the context of the rural development information that is available to them. This may involve building partnerships with other organisations that are involved in training at the national, regional and local level to ensure the best use of existing agricultural information and the integration of standards into capacity building.

In the face of all the new technology however, the importance of face-to-face and other 'low-tech' methods of communication should not be under estimated and the links between technical capacity building initiatives and the more traditional information users still need to be developed (Munyua, 2000).

Opportunities for the Strategic Programme for Information in Support of Sustainable Livelihoods to address these issues include:

➢ Support national government capacity building through the provision of training packages and information management resources.

➢ Promote standards for information management within international policy processes and share the experience of information strategy making between governments.

➢ Developing standards for information systems that promote SL approaches.

➢ Promote local capacity in information collection, storage and dissemination including using innovative formats for the target audience based on the local cultural context.

➢ Developing appropriate training materials for field-level, national and regional organisations.

➢ Improve local institutional capacity to choose from a range of information sources.

For more information see Background Paper 5.5 - Building capacity.

5.6 Realistic approaches to technologies to support information and communication

Information and communication initiatives for development are expanding exponentially, and attempts to monitor new initiatives and their impact are increasingly heroic. A report by Bridges identifies over a hundred, mostly large scale international programmes ranging in scope from the private sector to NGOs, Volunteer programs, healthcare and the digital divide. Coordination is impossible, and instead of trying to control development, the emphasis is now on developing a realistic set of compatible approaches that avoid technocratic determinism because "it is not about the technology, it is about the people who use it" (Bridges.org, 2001). Heeks (1998) identifies a number of reasons why technology is not used properly in public sector reform in India. This is mainly due to inadequate understanding of both the technology and its potential, so that some public sector officials simply ignore it, or isolate it within the computer department, or idolise it and promote unsustainable schemes. Very few successfully integrate information technology within realistic information strategies. These reactions are not confined to developing countries, but can be observed in managers and organisations throughout the world.

It is therefore important for organisations to monitor and learn from the experience of others. The Commonwealth of Learning (COL) aims to do this by building collaboration between and

working with a wide range of organisations. The COL works with a number of CGIAR centres and with the National Academy of Agricultural Research Management (NAARM) in Hyderabad to develop technology-enhanced distance learning courses on agricultural research management. The COL produces a wide range of training materials and a recent report on telecentres documents experiences from practitioners around the world. The Rockefeller Foundation has also recently published a comprehensive review of over 50 case studies, which found that the evaluation process within projects is often less participatory and people-centred than the projects themselves, mainly due to the lack of new participatory approaches to evaluation appropriate for the new technologies, making it more difficult to even identify the key lessons.[1] The World Bank, amongst other organisations, has attempted to identify the wide range of information technologies available and their potential application to information for agricultural development, with particular emphasis on their own projects.

Given the breadth of available technologies including CD- ROM, Computer networks, Desktop publishing, Geographic Information Systems, Interactive video, packet radio, mobile and satellite communications etc, it is difficult to assess, and even more difficult to predict the real advantages of each for people's livelihoods. With increasing availability, reduced costs, better, and easier to use computers information technologies are increasingly applicable to tackle rural development needs (Zijp, 1994), and are being introduced even in the most remote circumstances, e.g. ITU pilot projects from South Africa to Bhutan and Mongolia. However this belies the reality that the vast majority of the rural poor, that remain the target beneficiaries of most development programmes, only use information that communicated face-to–face and by word of mouth. The scale of technological and infrastructural requirements is the starting point for a realistic approach to using technology for development. It is therefore essential to analyse the full extent of telecommunications and IT infrastructure deficiencies in order that realistic measures can be implemented and effectively monitored against targets.

Technical capacity is one key factor, and the UNDP (2001) has developed an innovative approach to mapping the scale of technology development of countries using a Technology Achievement Index (TAI). This index assesses a country's:

- ability to create new technologies - focussing on the ability to innovate;

- use of recent innovations - based on the use of the Internet and technology exports;

- basic communications infrastructure - focussing on telephones and electricity

- level of human skills, amongst both creators and users of technology.

Nations have been ranked according to their index value into four categories namely leaders (TAI above 0.5), potential leaders (0.49-0.35), dynamic adopters (0.20-0.34) and marginalized (below 0.2). India for example is categorised as a dynamic adopter which is lower than might be expected due to the poor diffusion rate for old technologies and Ghana is ranked as marginalized for the same reason although it does not have the dynamic approaches to new technologies and exports that helps to elevate India's ranking[2]. The mapping of the technology context should help design realistic approaches to technologies for information and communication that assist in the diffusion of both old and new technologies.

Another key factor is a country's ability to identify the information needs of the poor. Although much is known about living standards, employment, health and education through household and community surveys, few assess access to information services. For

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[1] Dagron, A. (2001) Making Waves: Stories of Participatory Communication for Social Change. Rockefeller Foundation.

[2] Uganda does not yet have a ranking due to insufficient data.

information service planning it is also important to know a range of factors relating to the use and availability of information at the household level.

In developing countries the most realistic approach is often to use a combination of, and link the old and the new technologies. Mass media such as radio and television can reach large audiences and the potential exists for digital broadcasting via cable and satellite to continue to reach wider audiences at ever-lower costs. Shared access to the internet through telecentres enable some rural people to access information which they can then share with their neighbours. Networked rural radio stations (e.g. in Senegal as described in Background Document 5.3 – Appropriate Content and Context), or radio stations with internet connections for example the Kothmale radio station, provide mechanisms to transfer information from the internet to a much wider audience. There are already a number of examples of realistic approaches seeking to combine existing and new information systems (See Background Document 5.6 – Realistic Approaches).

Many communities live very close to existing infrastructure and the cost of connecting them up would be relatively small. Fibre optic cables and telecommunications infrastructure passes along roads and railways en route to the target market in many countries and existing satellites also provide huge potential for more widespread access.

Opportunities for the Strategic Programme for Information in Support of Sustainable Livelihoods to address these issues include:

➢ Develop models for realistic approaches to information technology that can be used more widely according to the scale of the infrastructure and resources available.

➢ Provide a forum for discussing and evaluating international experiences that contributes to lesson-learning within FAO and other institutions.

➢ Advocate the use of realistic approaches based on a full understanding of the extent of telecommunications and IT infrastructure deficiencies.

➢ Use innovative project experience such as linking old and new media to develop rural development strategies that integrate technologies with development objectives.

➢ Develop tools for participatory evaluation of SL-focused information approaches and projects.

➢ Further research and an information bank on realistic approaches for provision of information for SL.

For more information see Background Paper 5.6 - Realistic approaches to technologies to support information and communication.

5.7 Strengthening partnerships

Information systems for SL are needed at different levels, and information needs to be transferred vertically between the levels and horizontally within the levels. Figures illustrating the hierarchical and pluralistic 'horizontal' model show some of these levels and systems.

In the hierarchical model, information flows between the organisations and individuals within the respective levels tend to be vertical between certain points or individuals in one level that have established links with the level 'above or below' in the hierarchical structure. Each level can develop information systems providing the specific information needed at that level, and it is possible to aggregate, summarise and synthesise information at each level. However the efficiency of transfer between levels is determined by the number of linkages or contacts that exist between the adjoining levels in the hierarchy, gaps can cause the

complete breakdown of flow of information, and it is possible for one level to dominate the process.

In the horizontal model, transfer can take place between any organisation at any level. This reduces the likelihood of information breakdown, and for any one group to dominate the others, but also makes it more difficult for organisations at each level to develop specific systems, and for the aggregation and synthesis of information for level to level. Horizontal networks need clear strategic objectives and a committed core group of active members to function effectively.

Farrington and Nelson (1994) identify two types of networks - information exchange networks (IEN), and organisations with a networking function (ONF). Information exchange networks tend to share information through a participatory two-way process, increasingly via the internet, whereas organisations with a networking function are more often involved in more centralised, unidirectional information service such as the CD ROMs and databases of organisations such CAB International, CTA and the FAO. Easy access to the Internet favours the development of information exchange networks, and these may predominate in the future.

The UNDP (2001) describes the combination of current technology driven social transformations with the broader economic transformation driven by globalisation as a new paradigm termed 'the network age.' An important element of the network age is the opportunity to increase participation at every level. This can result in sharing information management responsibilities, more efficient use of the information and resources available, and facilitate greatly improved knowledge transfer.

The network age, the information society, and the decentralisation of knowledge networks are creating a plethora of opportunities for developing new partnerships. In Brazil, the Information Society Program (Programa Sociedade da informacao – SocInfo) has a budgeted US$1.33bn to promote information projects through partnerships between government, private sector organisations, civil society and the academic sector.

In the *partnerships* model information and knowledge sharing effectively take place within one 'global ' information system within which individual partnerships are established to serve the knowledge and information needs of the partners through a flexible and participatory process of knowledge transfer. Partnerships can be established between individuals and organisations at any level and the boundaries between the levels effectively disappear. The partnership becomes a dynamic and flexible relationship for information exchange and knowledge sharing that supports the needs and objectives of the partners involved. Partnerships can be long or short term resulting in permanent or infrequent interactions and the communication capacity within the whole information system is enhanced by *each* partnership helping to develop large-scale knowledge transfer.

To directly benefit poor people, these partnerships will have to find mechanisms to deal with the problems of connectivity and information literacy and will need to incorporate local knowledge and information systems. *Community knowledge partnerships* between individuals and groups at community level that generate and hold locally relevant information and external partners that can share other information, can benefit poor people.   The partnerships need to be established in such a way that members can process external information within their local context to produce locally useful information that can then be shared with other local partners.

In the context of information management and delivery, this approach could help to reduce the process of a 'one-way' flow of information from a scientific, information rich core to a remote information poor community. In its place dynamic information sharing partnerships

can be developed through a constant 'two-way' flow of information between knowledge systems at every level. Every knowledge system is then seen as information rich and through participation in knowledge partnerships communities can decide for themselves what information is relevant to their context and needs. The choices that communities make may themselves be of interest to other partners such as researchers, and this information forms part of the 'two-way' flow.

To work well, community knowledge partnerships must be flexible and inclusive, focus on local community needs and use locally appropriate information systems and media for local networking activities such as newsletters, information bulletins for notice boards and local radio, agricultural fairs, group discussions and workshops. Appropriate knowledge sharing venues and intermediaries need to be identified to help develop community knowledge sharing through the process of building new partnerships.

Opportunities for the Strategic Programme for Information in Support Sustainable Livelihoods to address these issues include:

➢ Ensure that existing vertical and centralised networks are serving multiple-levels and target beneficiaries as intended by addressing gaps and constraints.

➢ Encourage more pluralistic and decentralised networking that involves greater participation and two-way information transfer.

➢ Develop innovative partnerships where possible to encourage decentralised information management and knowledge transfer building on new technologies.

➢ Promote community knowledge partnerships by assisting communities to share information with a range of partners through targeted knowledge sharing venues and trained intermediaries.

For more information see Background Paper 5.7 - *Strengthening partnerships*.