Service delivery systems for natural resource stakeholders: targeting, information and communication functions and policy considerations

Sistemas para el suministro de servicios a usuarios de recursos naturales: enfoque, funciones de información y comunicación y consideraciones de política

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ABSTRACT

The emerging trend in the literature is an acknowledgment that no single approach to rural service delivery will satisfy the needs of all natural resource users. Rural resources users are grouped broadly into farm families with access to markets, rural communities with diversified livelihoods that include on-farm income, and communities that access common property resources as part of their livelihoods. Each group has very distinct needs, and in many cases privatized systems leave out those that are least able to link to markets. The potential of alternative systems is explored with a theoretical foundation based on systems thinking, knowledge systems, and the applied fields of information and communication technologies (ICTs) and communication for development. The paper projects three complementary types of service delivery levels that respond to three broad natural resource groups: farmers with access to markets, subsistence households with migrant family members, and community organizations and federations. For each of these groups, the scenarios address the level of analysis and action, service delivery levels, the nature of the information sought, and the communication functions that best respond to each groups needs. A second projection describes several ICT demand and supply issues that require clarification for each major group of stakeholders. A third projection describes the strategic planning dimension, with emphasis on the characteristics of the outcomes and outputs in terms of natural r esource and information and communication. The paper closes with a review of the principles that may help guide the design of the different targeted delivery systems.

Key words: natural resources, rural services, information and communication technology, targeting, projection

RESUMEN

Hay una creciente aceptación de que no existe un único enfoque para el suministro de servicios rurales que pueda satisfacer las necesidades de todos los usuarios de los recursos naturales. Agrupamos a los usuarios según las siguientes categorías: familias agrícolas con acceso a mercados, comunidades rurales con ingresos derivados de una variedad de actividades, y comunidades con acceso a recursos de propiedad común. Cada grupo tiene necesidades particulares y en muchos casos los sistemas privatizados dejan por fuera aquellos con menos capacidad para relacionarse con los mercados. Exploramos el potencial de sistemas alternativos basado en: el enfoque de sistemas, sistemas de conocimiento, las tecnologías de comunicación e información (TIC) y la comunicación para el desarrollo. Se proyectan tres tipos de entrega de servicios que responden a tres grupos de usuarios de recursos naturales: productores con acceso a mercados, hogares con producción de subsistencia y organizaciones comunitarias. Para cada grupo, se contempla el nivel de análisis y acción y de entrega de servicios, la naturaleza de la información buscada, y las funciones de la comunicación. Una segunda proyección describe los temas de demanda y oferta de TIC para cada grupo. Una tercera proyección aborda la dimensión de planificación estratégica, con énfasis en las características de los resultados e impacto en términos de recursos naturales y de información y comunicación. El artículo concluye con una revisión de aquellos principios que pueden ayudarnos en el diseño de los diferentes sistemas de entrega de servicios que responden a las necesidades de cada grupo de usuarios.

Palabras clave: recursos naturales, servicios rurales, tecnología de comunicación de información, suministro de servicios, proyección.

Introduction

During the last few decades a major policy thrust in rural development in both developing and industrialized countries has been the privatization and decentralization of rural service delivery (Beijer and Holtman, 2001). In developing countries, rural agricultural extension systems that were centrally staffed by governmental departments are now the responsibility of local governments. The new services are often publicly funded but privately delivered.

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The agricultural extension staff of the past are being asked to become consultants and bid for technical advice contracts tendered through local governments.

In the case of agricultural extension, privatization is subject to a wide range of service delivery options and hence of interpretations. A simple transfer of the extension programme from public to private responsibility has been found to be insufficient as the problems of the public mechanism also get passed on (Beijer and Holtman, 2001). Chapman and Tripp (2003) explore a range of cases including purely market-based extension services, extension services linked to private provision of inputs or purchase of outputs, cost-recovery schemes for public services, and public programmes that provide a partial subsidy for private extension providers. Table 1 shows the range of options for extension service financing and provision.

There are several examples of publicly-funded, privately delivered extension services using contracts and vouchers. These approaches aim to increase the efficiency and effectiveness of extension services by creating a competitive environment along with mechanisms for quality control (Rivera and Zijp, 2002). One of the key variables across the different strategies is the value of information and farmers' willingness to pay for it.

Alex *et al.* (2002) suggest that the diverse types of information need to be channelled through a range of services:

· Information closely associated with market goods (i.e. purchased inputs) is best left to the private sector;

· Information associated with toll goods can be effectively provided by combined public and private sector efforts;

· Information relative to management of common pool goods (water, forests, common grazing lands) is best provided by cooperative or voluntary institutions; and

· Only when market and participation failures are high should information provision be financed by the public sector, and even in these cases, the public sector might well finance private sector delivery (Alex *et al.*, 2002: 13).

The emerging trend in the literature is an acknowledgment that no single approach to rural service delivery will satisfy the needs of all natural resource users. For the purposes of this paper we broadly group rural resources users into farm families with access to markets, rural communities

TABLE 1. Mixed strategies for financing and providing extension (Kidd *et al.,* 2000).

		Providing extension	
		Public provision	Private provision
Financing extension	Public finance	Free public extension service	Subsidies to private extension, extension contracts, voucher schemes
	Private finance	Cost-recovery by government agents	Private enterprise

with diversified livelihoods that include on-farm income, and communities that access common property resources –pastures, watershed, forests– as part of their livelihoods. Each group has very distinct needs, and in many cases privatized systems leave out those that are least able to link to markets. Key variables that will need to be taken into account when considering delivery strategies in the future include the value of information and farmers' willingness to pay for it, the diverse types of information to be channelled, and the integration of delivery systems, user groups and technology into policy making and planning efforts. This is the challenge this paper addresses.

Theoretical and contextual background

We explore the potential of alternative systems using a theoretical foundation based on systems thinking and knowledge systems, as well as the applied fields of information and communication technologies (ICTs) and communication for development. In particular, we consider that communication and information are key dimensions of agricultural knowledge and information systems (AKIS), that communication is a strategic element for innovation in natural resource management (Ramírez and Quarry, 2004a) and that ICTs need to embedded in people's existing information and communication networks first and must respond to their needs, rather than create a new set of expectations driven by outside forces (Allen *et al.*, 2001, Pretty, 1994). ICTs must be demand-driven (Heeks, 2002) and appropriate to specific situations on the basis of who is involved, what information they seek and what decision-making process that information is meant to facilitate.

Information and communication in the context of pluralism and sustainable livelihoods

Communication and information are key dimensions of agricultural knowledge and information systems, especially within the AKIS perspective. In the past, information was seen as flowing from a centralized expert source in a

unidirectional fashion to information users. However, as the plurality of relevant stakeholders has received attention, their multiple information flows have become evident. The realization that all stakeholders are nodes in a network of information exchange -at times providing information and at other times demanding it- has created a new context for communication and information planning (Lawrence, 1995; O'Farrell, 2001; Ramírez, 1997; Biggs and Matsaert, 2004). The strategic use of a wide range of methods and media to support learning among stakeholders has gained prominence (Ramírez, 1999).

Major stakeholder groups will exhibit their own and unique set of information needs and communication channel preferences; no one-fits-all approach or system is expected. It is therefore not surprising that agricultural extension analysts are acknowledging that different groups will need specific advice systems that respond to their unique predicament (Alex *et al.,* 2002; Rivera, 2001). For those groups that are not able to link to markets, privatized agricultural advice systems may be of limited relevance in terms of productivity increases. In other cases they may be relevant in terms of reducing the costs of production for self-consumption. Beyond those groups that are not closely linked to markets, will also lie those whose livelihood depends on having access to forests and grasslands under open access regimes. In these cases they will be engaged in natural resource management strategies at another level of analysis (larger landscape areas), one where once again privatized agronomic services will not be of relevance. This third group will need methodologies for collaborative management and other approaches that respond specifically to their needs (Borrini-Feyerabend *et al.*, 2000; Borrini-Feyerabend, 1996).

Communication for development
Communication for Development refers to "…the use of communication processes, techniques and media to help people towards a full awareness of their situation and their options for change, to resolve conflicts, to work towards consensus, to help people plan actions for change and sustainable development, to help people acquire the knowledge and skills they need to improve their condition and that of society, and to improve the effectiveness of institutions" (Fraser and Restrepo-Estrada, 1998: 63). In other words, it is much broader than simply using media to convey information. Its role and potential respond rather well to the notion of sustaining multiple livelihoods. Communication is now perceived as a strategic element for innovation in natural resource management (Ramírez and Quarry, 2004a).

Communication for Development has several distinct functions. Fraser and Restrepo-Estrada (1998) talk about educational, institutional, and social communication to underscore its educational, policy, and empowerment dimensions. Röling (1994) in turn suggests three functions:

I. Educational communication - making things visible: this is about transferring know-how, which Röling describes as central to the transfer of technology approach (TOT) which was the hallmark of the training and visit systems (T & V).

II. Making policies known: broadcasting norms and regulations, a function that governmental organizations and institutions readily embrace.

III. Facilitative communication: establishing platforms for stakeholder interaction, learning, and negotiation. This is a function associated with facilitated group interaction and learning processes, sometimes at the grassroots, other times across different levels of analysis (Lightfoot *et al.*, 2001).

Additional functions can be added that address time-sensitive communication (prices, weather, etc.) and organizational learning. Table 2 provides further analysis of major communication functions with attention to their purpose, who initiates the effort and on what ground success may be gauged.

The fifth function – communication for development, is based on active interaction between experiences in the field and adjustment within the extension process. Where electronic communication was first a one-way information provider, then a two-way discussion medium with the Internet, it can now progress to the Hypernet with smart communicating devices everywhere linking to the Internet (Tapscott, 2004, 1995). Examples include climatic information collected from a network of meteorological stations that can be downloaded onto an operator-less platform that analyzes the data for subsequent use by farmers (examples of such networks can be found in Spain in the horticultural sector of Murcia and Almería, and in Colombia, in the sugar cane and coffee sectors).

Qualifying the power of information
The type of barriers organizations and individuals face are not just about access to information and technology; they often also involve mental barriers (Weber, 2001) as well as

TABLE 2. Communication functions and their attributes (adapted from Ramírez and Quarry, 2004b).

Communication function	Purposes	Initiator	Evidence of success
Policy communication: Managing the external environment	Making policies, programmes, and the evolving procedures known	Governmental agency	Stakeholders demonstrate awareness by applying procedures or suggesting modifications to them
Educational communication: Making things known, sharing knowledge	Making technical know-how accessible to increase knowledge about the production, transformation, organization and marketing dimensions of agriculture; including price information. Worldwide there is a trend towards a closer engagement by farmers in the technology development and adaptation process in contrast with the conventional role of passive receiver of extension messages	Service providers and farmers (with training on accessing content and transforming it)	Service providers are able to seek and find information sources and repackage materials for farmer learning. Farmers adopt practices or reject them knowledgeably; farmers utilize communication methods and media to enhance farmer-to-farmer linkages
Social or facilitative communication: Platforms for participation and debate	Providing platforms for stakeholders to exchange perspectives, explore new ideas and programmes, appreciate differences of opinions, negotiate common goals, develop partnerships, propose changes to programmes and become confident participants able to articulate needs and opinions	Farmer groups, district authorities, service providers, and local groups/organizations	Stakeholders participate, become empowered, take action, and take ownership over the programme
Time sensitive communication	Keeping in touch with family, prices and weather[3]	Anybody, especially those with access to a public pay phone or cellular phone	The private sector expands infrastructure to respond to growing rural demand; rural projects and the private sector finds ways to provide agricultural, health and educational content that is time-sensitive in a cost-effective manner
Communication for learning	Listening actively; inviting feedback for course correction	Government organization; sector-based research centre	The organization adjusts procedures on the basis of field experiences and keeps stakeholders informed about the changes and process for future evolution

finding applications that actually reduce costs or improve their negotiating power. The digital divide is not only about having access to a computer and an affordable phone line (Van Dijk, 2001). Whether and how the technology is used depends on a series of factors and constraints linked to the farmers' socio-cultural and economical context and the interaction with the new information received. A better understanding of the factors that determine the use of information, and how risk is perceived on the basis of those factors, will improve both farmers' and facilitators' ability to create new or build on existing learning platforms. Research about telecentres has shown that information and communication technology investments need to be developed as part of an integrated rural development strategy; otherwise they are likely to offer services that are not relevant nor affordable to local users (Parkinson and Ramírez, 2006; Parkinson, 2005).

In order for farmers to be able to make informed decisions and weigh the associated risk, appropriate information must be available, they must have access to it, and be motivated to access it. The information must provide the means to design systems that work, are appropriate, and that are acceptable at the same time to the farmers (Lee, 2002). The system must be in line with or be supported by national and/or international policy. Let us look at these points more closely, as we are moving beyond a focus solely on the characteristics of agricultural information provided, to appreciate the predicament of those that are on the demand side of information.

1. Availability of appropriate information. As Hansen points out, "information must address a need that is both real and perceived", provide "viable decision options" and be "relevant to viable decisions" (2002). More and better information is needed, as well as building the capacity to

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3 The business case for many telecentres and for all private telephone operators is based on the willingness to pay by all people for phone calls and services. It is the demand for phone services that drives the expansion of rural and remote telecommunications infrastructure.

innovate based on increasing knowledge, as suggested by Staver (2002). He describes the case of Central American agriculture, in which research institutions gradually moved from recommending varieties and inputs packages, to recommendations based on integrated pest management (IPM) strategies targeting specific pests, and finally to using local resources to substitute imported inputs. As a result, the farmers have turned to working with ecological processes based on their abilities "for observation, experimentation and decision-making" (Staver, 2002).

2. Access to information. Due to geographical, educational, social, cultural or other circumstances, farmers have varying degrees of access to information. In isolated areas, information exchange will no doubt be restricted to informal networks among the locals. As distance to large centres decreases and education level increases, farmers tend to demand more of information distribution channels such as extension systems and seek access to projects that may help to develop interchange and learning among the different actors of the agroecosystem. Public extension systems may play a role of 'levelling the field' of opportunities to access knowledge and information" (Berdegué and Escobar, 2002). One such example is provided by the Colombian National Federation of Coffee Growers which provides different levels of attention through their extension and transfer programme: on-farm individual or personalized attention mainly for medium and large sized growers, group training for small and medium sized growers, and mass communication using radio, television and the newspapers for large campaigns (Federation Nacional de Cafeteros de Colombia, 2007). This method has allowed the Federation to reach and effect change in the most distant areas of the country.

3. Motivation to access it. A first step in projecting the relevance of information for rural development is the acceptance that current values, beliefs and ensuing practices are possibly not the most appropriate, and that learning is necessary in order to remedy that situation even if that puts at risk one's societal acceptance (Michael, 1995). Furthermore, each person in these human subsystems has built up their own vision of reality, based on their culture and their life experiences. Therefore, new information will be integrated into each person's knowledge framework differently and be interpreted differently (Pretty, 1994; Allen *et al.*, 2001). Acceptance of new information requires the weighing of the risk implied in the resulting change. Risk, or the

perception of risk, is also very subjective. Weber (2001) mentions that factors with an effect on perception of risk include the range of possible outcomes of the new option, the probability and/or magnitude of loss, dread (perceived lack of control) and risk of the unknown. In fact, gender can also have an effect (Blais and Weber, 2001), as can cultural background (Weber and Hsee, 1998). In summary, motivation to access is influenced by a number of factors including decision-making and risk-taking, which are context specific.

4. Knowing what information to access. The ability to access useful information, which is typically fragmented, and maintain it updated, is another challenge (Allen, 2001). How to then analyse the information and integrate knowledge so that it is useful for decision-making requires additional skills. In many countries, appropriate use of knowledge to improve processes, rather than increased investment, has helped farmers to increase productivity. Info-mediaries or brokers are therefore increasingly referred to; they can develop the expertise to match information needs and supply, and they may be in a better position -relative to rural groups- to invest in information and communication services and technologies to access global sources.

The above four points focus on farmer's information needs, and similar requirements would be applicable to the other natural resource user groups described in this paper.

Organizational and planning challenges

As suggested above, making the link between rural needs and demands on the one hand, and a private sector that responds to global markets within an urban, commercial logic on the other, requires some sort of intermediary. The role of intermediate organizations that can work as brokers and 'mediate' between the needs of the grassroots, the regulatory context, the grants and projects and the private sector is becoming centrally important (O'Farrell, 2001; Ramírez, 2001a). These intermediary organizations have thus far received little attention, and yet from the point of view of the communication functions described above, could fulfill a combination of educational, facilitative and time sensitive communication that few provide today. A European example underlined the role of professional organizations as spaces for decision-making about software purchases by members of the organizations. When faced with multiple vendors of software, the professional gatherings constitute a safe place in which to ask questions and make decisions with peers. The organizations effectively help the members mediate between their

individual decisions and the market (Swan *et al*., 1999). In the Canadian rural development context, community based organizations play a comparable role by representing the needs of the community in discussions with government programmes. They mediate decisions by providing a space for discussion and analysis (Lotz, 1977). In Colombia, an innovative model for information exchange and research prioritization is provided by the flower sector. The members of the Colombian Flower Exporters Association implemented a "virtual" research and innovation center based entirely on digital communication through the Internet to articulate between the growers (who demand innovation) and the researchers (providers of solutions) as well as to acquire research funds and share information (Fonseca *et al*., 2004; Lee, 2006).

Emerging service delivery systems

In the next ten years, the policy environment will need to embrace a range of service delivery systems that respond to the different types of natural resource users. Whether in industrialized or in developing countries, we expect to see a division between privatized extension systems that serve farmers who can link to markets, and small public extension systems for those who cannot. A third type of service will emerge that addresses environmental stewardship and collaborative resource management, possibly with other ministries and donors involved. The first will address farm challenges; the second community challenges; the third watershed/ecosystem challenges. There will be farmers and farmer groups that do not exactly fit into a particular category or who shift from one to another; there will also be systems that offer services that cover more than one natural resource user group or level of analysis.

Overall, the privatized system will work along a demand-driven and contractual approach focusing on production, processing and marketing. The public system may work more along a Sustainable Livelihoods approach looking at how to support existing multiple survival strategies, not just production oriented ones. The third will embrace collaborative management approaches. They will all be dependent on supportive national agricultural, rural development, environmental, research and economic policy. The water crisis will be central to this challenge. Global agricultural subsidy policies and trade agreements will influence the first group most immediately in that their behaviour will be more closely linked to commodity prices.

While the above scenarios are generic, there will be variations. Some systems will attempt to work with both farmers that can link to markets while also catering to the needs of other groups. The Village Extension System in Lao is one such example. The 'generalist' extension workers are expected to adapt the approach to the needs of each particular village; in fact the extension workers are selected from within the village and will be the key persons ensuring the system is driven by local demands (Scheuermeier, 2004).

Each type of service and natural resource user will display unique information needs and communication requirements. Each service will harness information and communication technologies (ICTs) and communication for development strategies differently due to the specific accessibility and e-readiness levels of each group. The second system may benefit from the lessons from some telecentre experiences as mediators of information across different sectors, although such access may be limited or non-existent in remote areas. The demand and supply of telecommunications and group media will influence the roles and delivery considerations by the service providers. Increasingly more stakeholders will gain power to demand

TABLE 3. Natural resource user groups, levels of analysis, service delivery and info-com requirements (bold text suggest communication functions of primary major importance).

Natural Resource user groups	Level of analysis and action	Type of service and content	Type of information sought	Communication function
Farmers with access to markets	Farm, farming system, access to market	1. Private, demand based extension with a focus on production and marketing	Input and output prices, commodity production / protection and processing, technology, marketing advice	**I. TOT** II. Policy **III. Time-sensitive**
Subsistence households (with migrant family members)	Household/ Communities in weakly integrated areas	2. Public, with attention to multiple livelihoods strategies	Some of the above plus off farm opportunities (jobs, safety net projects, health, education)	I. TOT II. Policy **III. Facilitative** IV.Time-sensitive
Community organizations, federations	Watershed / ecozone	3. Public, with attention to collaborative and adaptive management strategies	Regulations and opportunities for negotiation and capacity building	II. Policy **III. Facilitative** IV. Time-sensitive

services; however, in some cases, infrastructural upgrades will first be required to increase the access of potential users. The three types of services will have little choice but to deal with an increasing number and variety of demands.

Projecting scenarios

In Table 3, we project three complementary types of service delivery levels that would respond to three broad natural resource groups. This is a rough generalization of stakeholder groups and it is expected that there will be many situations where stakeholder groups may lie in between the categories. We draw attention to the continuum in service delivery levels, to the tentative listing of types of information sought, and to the relative importance that each communication function will have for the respective service delivery level.

An example of the first service is the cell-phone-based market information system available today in Uganda. A partnership between FOODNET, a regional agricultural development network, and MTN, a private mobile phone operator, allows farmers to use text messaging to obtain district specific market information on major commodities (Ferris, 2004). An example of the second is the work advanced by Scott Robinson in Mexico with rural communities and migrant workers to reduce the cost incurred by migrant workers when they send remittances home. In many countries, migration is part of rural livelihoods, and the use of information and communication technology offers the potential to reduce transaction costs (Robinson, 2001). Robinson argues that in the Central American context, the combined effect of migrant workers and remittances is quantitatively and qualitatively a more significant rural

development effort relative to any development project (Robinson, 2001).

The third case can be exemplified with NGOs that are involved in facilitating collaborative management of protected areas by convening the different stakeholders, providing mediation structures between government agencies and local people, and enabling a sharing of information for all stakeholders to negotiate use and access to resources within existing legal frameworks. In this case the basis of the service is not just information provision, but facilitation of the coming together of different parties to negotiate under structured conditions (Fisher, 1995).

Table 4 describes several ICT demand and supply issues that require clarification. We are referring here to demand and supply of ICT infrastructure (the hardware), though the drivers for these are the services (applications). As mentioned before, communication services are often a major driver for infrastructure. On the demand side, those farmers with market access will 'go at it alone' and buy the information and communication equipment and services that they can afford, initially cell phones. For the telecommunication carriers these customers are the easiest to grab- what is known in the industry as "cherry picking", though in rural areas they are often only a fraction of the public with a measurable willingness to pay. The other user groups will have strength in numbers, with an individual spending capacity limited to about 3% of their total monthly expenditures (Kayani and Dymond, 1997; Song and Bertolini, 2002). When aggregated, this population of users can become a substantial driver for rural phone expansion, especially in high density areas; Bangladesh being one well documented example (Richardson *et al.,* 2000). The business case to attract infrastructure

TABLE 4. The nature of ICT demand and supply and implications for service delivery.

Natural Resource user groups	Type of information sought	ICT demand considerations	ICT supply considerations	Service delivery considerations
Farmers with access to markets	Private, demand based extension with a focus on production and marketing	Go at it alone	Cherry picking	Limited role for mediating organizations; TOT communication training for service providers
Subsistence family	Public, with attention to multiple livelihoods strategies	Aggregation though intermediating organizations	Public–subsidy/anchor tenant[4]	Role for mediating organizations such as telecentres
Community	Public, with attention to collaborative and adaptive management strategies	Aggregation though intermediating organizations	Public–subsidy/anchor tenant	Role for mediating organizations such as telecentres

[4] An anchor tenant is a client that provides a large part of the business: government programmes are often anchor tenants that ensure the financial viability of independently owned and operated telecommunications businesses.

investments will depend both on an aggregated demand by institutional clients and on public access phone shops or telecentres. Some telecentres are good examples of mediating organizations that aggregate demand and provide training and orientation services that are most relevant for the second two user groups (Legris *et al.*, 2003; Parkinson, 2005; Warren, 2007).

Discussion and implications

We expect that development projects will tend to use the narrative for service levels 2 or 3 (participation, empowerment, poverty alleviation) but will be under pressure to shift towards a delivery mode that fits more along the Service Level 1 for a number of reasons. Legislators and donors need to show hard results, the type of service providers and technology that can be offered on a private basis is predominantly commodity-based, the bulk of service providers will have training in the hard sciences and will be more likely to engage with user groups that are more sophisticated, accessible and able to engage in contractual arrangements. This will be the challenge of programmes the combine the goal of improving productivity (which focuses attention on farmers that can access the market) with reducing poverty (which shifts the focus to a wider set of commodities used to mitigate risk, often closely linked to women's priorities).

From a policy perspective it will be important to note that programmes working in level 2 will be under pressure to shift towards quick production results, in other words level 1.

Collaborative management and collaborative learning are approaches that come from the fields of conservation and protected area management and forestry. They tend to look at larger landscape units. The organizations that take on these level 2 and 3 services will attract personnel with more skills in the third communication function (facilitative communication).

For the second and third groups of users, the importance of intermediary organizations will grow beyond the provision of the first three communication functions (a tall order in itself) and in some cases it will also include orientation and training to help people take advantage of the fourth function (time-sensitive communication) described in Table 2. Innovative approaches will include the blending of media to overcome barriers, such as providing rural radio stations with Internet access. For those mediating organizations that seek to aggregate demand, a study by FAO, ODI and DFID suggests a number of principles that will be important to follow (FAO *et al.*, 2002):

- Defining who pays for the service
- Seeking universal access
- Promoting local content
- Strengthening existing policies and systems
- Building capacity
- Using realistic accessible technologies
- Building partnerships

The scope of each item above lies beyond the focus of this paper, but the thrust is part of a growing number of experiences that advocate a compatible set of balanced principles (see the "eight good habits" of www.bridges.org, the seven proposals by Gómez and Casadiego (2002) and the five principles by Gómez *et al.* (2004)).

Safe to say that inter-departmental and indeed inter-ministerial coordination will be necessary to avoid duplication of efforts. FAO's experience developing national communication policies in West African countries may be an inspiring place to start (FAO, 2002). What is clear from this article is that there will be a continuum of services, with distinct target user groups, and that the communication functions of each service and the manner in which they generate demands and provide responses will need to become more strategic and informed on the basis of existing communication and information strategy and experiences.

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