

***Ecuador Case Study
Information and Communication Technologies in
Support of Local Development***

Second Report in a Series on
Investment Support to the Development of Information and Communication Technologies
(ICT's) to Combat Rural Poverty in Latin America and the Caribbean

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Ecuador Case Study

Information and Communication Technologies in Support of Local Development

Introduction

The Bank sponsored **Proyecto de Reducción de la Pobreza y Desarrollo Rural Local (PROLOCAL)** started in 2002. The project is scheduled to end late in 2006, but given a slower execution pace and a later ending date of the EC contribution, it is likely to be extended. The project's objective is to "strengthen local empowerment, improve quality of local services, and increase access to productive assets to improve the well-being of poor households in selected micro regions." The project is presently operating in five poverty stricken micro-regions.

This study reports the findings of a visit to Ecuador, from 10-15 April 2005, undertaken to identify ways in which the new information and communication technologies may be used to strengthen PROLOCAL's effectiveness and impact. It is the second in a series of case studies undertaken to inform the Technical Note under preparation by the Investment Centre for the World Bank on Investment Support to the Development of Information and Communication Technologies (ICTs) to Combat Rural Poverty in Latin America and the Caribbean. A summary of PROLOCAL components and activities is first presented. This is followed by the Mission's assessment of the main challenges faced by the project, by an analysis of access to and relevance of existing information and communication systems in Ecuador, and by recommendations for future action by PROLOCAL.

Overview of PROLOCAL

At appraisal, PROLOCAL's target group was identified as 60,000 rural poor households. The project would start work in two micro-regions and gradually add other micro-regions up to a total of 6. Presently, the project is working in the five micro-regions listed in Table 1.

Table 1. PROLOCAL Target Micro regions

Micro region	No. Cantones	No. Parroquias	Population	% Rural	% Poor
Zona Occidental de los Ríos	6	26	218,609	76	75
Cuenca Alta del Río Jubones	6	16	253,474	68	66
Sur de Manabí	5	12	107,140	78	75
Zona Oriental de Loja	5	29	99,023	84	86
Estribaciones Centrales de los Andes	4	12	51,275	100	79

Source: World Bank [2001], Annex 12.

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PROLOCAL aims to improve the capacity of local government entities, building up on timid governmental efforts, including internationally funded interventions (e.g. IADB [2001]), that in practical terms have not gone very far. Cantones (equivalent to municipalities) have been around for a while and have some institutional capabilities; but the Juntas Parroquiales, which promise to bring ordinary citizens closer to decision-making processes, were instituted only in 2000 when a first election of Junta members was held. Their budgets and ability to implement development activities is very limited. In 2004 the average annual budgets of the 26 Juntas of the Micro region Occidental de Los Rios amounted to only about US\$ 8,000 (León [2005]).

These limitations in the country's decentralization framework were recognized at appraisal (World Bank [2001]). The approach adopted was to try to build up the communities' social capital by engaging their participation in the local government process; and to complement their resources through grants to finance local community plans and subprojects.

Table 2 shows the principal components funded and expenditures to date. An estimated US\$ 4,285,731 has financed a total of 110 community subprojects; i.e. at about US\$ 39,000 each. Local Development Planning expenditures (US\$ 1,714,085) have funded the design of local development plans (LDPs) at the *Parroquia* and *Cantón* level. Local Development Services expenditures (US\$ 1,633,103) have enabled institutional strengthening of producer and social organizations and local government mainly through training, the provision of equipment and the strengthening of democratic processes. Overall project management and Local Development Planning show high levels of disbursement. Compared to planned funds at appraisal, low rates of execution are exhibited by subproject investments (17%), and Local Development Services (22%).

Table 2. PROLOCAL: Project Financing and Realized Expenditures as of 31 January 2005

Component	Financing Sources				Realized Expenditures		
	US\$ 000 000			%	31-Jan-05		as % of Total
	Bank	Other	Total		US\$ 000	%	
Local Development Planning	2.33	0.65	2.98	6.0	1,714	13.7	57.5
Local Development Services	5.89	1.54	7.43	15.1	1,633	13.0	22.0
Subprojects	13.12	12.35	25.47	51.7	4,286	34.2	16.8
Project Coordination Unit	3.61	2.22	5.83	11.8	4,141	33.1	71.0
Sub-total	24.95	16.76	41.71	85	11,774	94.1	28.2
Strength. Local Rural Finance Institutions (EC funding)		7.57	7.57	15.4	745	5.9	9.8
Total	24.95	24.33	49.28	100	12,519	100.0	25.4

Sources: World Bank [2001] and World Bank [2005].

Notes:

- Appraisal figures did not include an important complementary contribution being made by the European Commission and which is expected to total the equivalent of US\$ 14.0 million over the project's lifetime.
- Realized expenditures includes the use of about US\$ 3,411,888 of EC resources (not considered in Appraisal document) as well as beneficiary contributions estimated at US\$ 519,565. The distribution by component of these items is not available.

Challenges

PROLOCAL is contributing to increasing access to assets and economic opportunities by rural poor communities, and is helping strengthen the capacity for action and effective investment of local governments and rural civil society (i.e. Banco Mundial - EC [2005]). PROLOCAL’s impact on the organizational capability of institutions and farmers groups, is evident in a significant increase, over the past two years, in subprojects approved and under implementation. PROLOCAL has also managed to ward off politicization of its hiring and decision making processes. This is no small feat in a country ranked 112th out of 145 by Transparency International’s corruptions perceptions index (www.transparency.org).

Prolocal has realized some important achievements:

- 47,000 families have participated directly in the formulation of Development Plans (out of an overall global objective of 60.000)
- 230 subprojects are being co-financed by Prolocal and rural organizations. These involve 1.228 communities implementing productive, environmental and institucional development subprojects (inicial target number of communities were 600). An estimated 20.000 families participate and benefit from these subprojects
- An estimated 7.500 people have benefited from Prolocal’s training programs, covering a broad range of topics including: in socio-cultural promotion, leadership, agroecology, agroprocessing, administration of rural finance institutions, management, accounting, communication for development, Agroenterprise development, and project formulation and evaluation.

PROLOCAL is nevertheless facing important challenges. Foremost is the overall limited subproject investments realized to date. For each of the three core Bank funded components of the project, some key performance indicators were defined at appraisal in reference to subproject investments (Table 3).

The importance of subprojects is subject to continuous reflection by PROLOCAL staff. The build up of local capacity for action is seen as the main objective of the project. Subprojects are regarded as experiences that facilitate the strengthening of managerial capabilities of institutions, and the technical and organizational capacities of civil society, and also serve as catalysts for forging alliances between diverse stakeholders.

Table 3. Selected Performance Indicators at Appraisal Defined in Reference to Subprojects

Local Development Planning	1.3 A total of 750 development plans at local level, identifying at least 2,250 subprojects elaborated
Local Development Services	2.1 400 local experts trained in subproject preparation and implementation.
Subprojects	3.1 A total of \$22 million disbursed as matching grants to implement 750 subprojects. 3.2 At least 70% of subprojects externally audited each year are rated satisfactory. 3.3 At least 80% of beneficiaries of subprojects express satisfaction with the process. 3.4 At least 25% of beneficiaries of subprojects are women.

Source: World Bank [2001]

In preparation for the Mid-Term Review, PROLOCAL staff prepared a new logical framework with more feasible targets. It envisages the realization of 400 subprojects. Within less than two years of project completion, this new target is still a major challenge.¹

To some extent the observed delay in the subproject implementation was to be expected. It is only now, after considerable positive social capital has been built up in the micro-regions, that PROLOCAL's efforts are beginning to pay off in terms of subproject investments. Sustaining and strengthening this effort is PROLOCAL's challenge.

Local Development Planning

Many LDPs have been prepared at the Parroquia level, and even some at the Canton level. Implementation and monitoring of the execution of LDPs (at both Parroquia and Canton Levels), is needed, to enhance the capability of local government units to establish alliances, raise funds, and invest and spend their scarce resources wisely in worthwhile initiatives. Significant advances are beginning to be made in this respect. In all of the microregions citizen participation in the auditing and monitoring of plan execution is taking place (at both parish and canton levels), in response of grass roots organizations involved in subproject and training programs, as well as of local government officials who acknowledge the need to engage the citizenry. In three of the microregions local governments are implementing communication strategies that seek to motivate participation, accountability and socialization of LDP implementation.

The challenge that remains is to maintain the momentum as these plans are translated into action, while retaining the participatory nature of the local development planning process and further strengthening local organizations' capabilities. According to the Mid-Term Review Mission (Banco Mundial - EC [2005]) participatory updating of LDPs is needed in order to identify community demands as well as the availability of resources from a wide range of institutions; i.e. project funding, as well as complementary resources available from other government agencies, other projects, NGOs, or participating rural finance institutions. The MTR also recommends an analysis of the competitiveness and feasibility of the principal production options, to avoid wasting resources in detailed studies on activities with limited development potential.

Local Development Services

The Local Development Services component seeks to strengthen consulting service providers, grass roots and second tier organizations, and local governments and democratic processes; and the establishment of an information system on prices, technologies and market opportunities. Even though it remains below expectations at appraisal, implementation of this component has picked up, achieving 67% of planned disbursements in 2004 (Banco Mundial - EC [2005]).

Institution Building Plans

Each of the 5 micro-regions has prepared an institution building strategy, and about 75 Institution Building Plans (*Planes de Fortalecimiento Institucional, PFIs*) have been prepared. An additional 45 PFIs are being formulated. The presentation and quality of these documents is not uniform, but most of the PFIs provide a useful basis for institution building.

The principal challenge is for PROLOCAL staff to sift through these PFIs to identify which it can attend with the resources at its disposal and with maximum impact (e.g. in support

of subproject implementation); and to be able to say no, diplomatically and in a participatory and transparent manner, to low-impact and low priority institution building requests.

Training

PROLOCAL's training plans have tended to be overly ambitious. More order is expected now that a training coordinator has been hired, and further integration of the project training strategy with institution building efforts in support of local development services and rural microfinance development is foreseen.

Two areas deserve priority attention:

- i. exchange of best practice experiences across micro-regional coordination units (*Unidades Técnicas Regionales, UTRs*), particularly where it concerns the development of future farmer and women leaders, especially those who will be serving as representatives in the Junta's Parroquiales; and
- ii. development of training programs and materials and exchange of experiences to strengthen the capacity and institutional culture of farmer associations engaged in economic enterprises (production, marketing, agro-processing).

Links with Subprojects

The link between institution building and subprojects can help further strengthen associative organizations.

Some of the larger second tier organizations include, for example cooperatives, which started at the time of the land reform in the 1970s, but that have gradually lost their relevance and capability for effective action on behalf of farmers. A smaller number of nimbler institutions have arisen, numbering about 20 members on average, that usually take the legal form of an association, and that work towards a very specific objective; for example, realizing a productive or marketing project, gaining access to benefits of a State sponsored program, lobbying for improvements in neighborhood facilities the construction of physical infrastructure (León [2005]).

A practical issue that often arises in the process of awarding subprojects is whether to favor second tier institutions or smaller grass roots organizations. Theoretically long term economic efficiency should be pursued; but in practice it is not always easy to identify whether efficiency and the build up of social capital over the long term is better served through implementation by smaller grass roots organizations or larger second tier institutions. In practice, Second tier and first tier organizations are increasingly appreciating the need to implement productive subprojects separately from their mainstream operations. Separate enterprises (of various sizes) are being formed and legally established to be managed on a for profit basis and independently of the social organization which nurtured them. This is a welcome development that helps prevent subproject profits from being captured by the social entity.

The development of practical guidelines and the identification of exemplary case studies would help UTRs and *Comités de Revisión y Aprobación de Subproyectos (CRAS)* be in a better position to identify opportunities to support the build up of positive social capital whenever considering specific subproject proposals with alternative management options.

Eculocal

PROLOCAL's information system (<http://pydlos.ucuenca.edu.ec/ecualocal.htm>) was designed and implemented in a first stage by the Population and Local Sustainable Development Program of Cuenca University. This first stage system focused on the Cuenca del Jubones microregion in Azuay Province, with training imparted to some users.

ECUALOCAL is seen as a tool for increasing the access of local stakeholders to information that enables effective decision making. Other features under consideration are: the establishment of a geographic information system that supports local government planning; and the set up of 12 infocenters as an aide to networking and institution building efforts and are expected to help feed Eculocal's online information content. It is also important that ECUALOCAL's second phase support PROLOCAL's activities and serve the needs of the rural poor, especially in the micro-regions where the project is working.

Subprojects

With less than two years remaining, PROLOCAL's planning horizon is likely to prove limiting to achieve the number of subprojects anticipated at appraisal (750). This initial estimate of the number of subprojects was probably too high. It envisaged small subprojects covering small communities; ignoring scale economies that are encountered in practice. The subprojects being implemented cover several communities simultaneously; e.g. in the 210 projects under implementation 1.228 are participating. In the Zona Occidental de los Rios, for example, the project *Manejo y aprovechamiento productivo del Humedal Abras de Mantequilla*, for example, 17 communities are involved. The project seeks to improve cocoa productivity and simultaneously reintroduce native species in order to preserve biodiversity. The subproject's impact is bound to be much higher than if only a few communities were involved.

Even the lower more recent target set for the midterm review (400) is a significant challenge. This is particularly the case for the three micro-regions that were incorporated during the second year of project implementation (Zona Occidental de los Ríos, Zona Oriental de Loja, Estribaciones Centrales de los Andes).

The subprojects are intended to finance public goods but with a strong productive and income increasing impact. A first review by the Mid Term Mission revealed many worthwhile initiatives that are in effect increasing the incomes and improving the lives of poor people's significantly, but also some others that are not performing so well or with uncertain sustainability prospects. In order to boost the subproject pipeline with more high impact sustainable initiatives PROLOCALS' subproject component work will benefit from greater integration to other components of the project.

Support to Rural Microfinance Institutions

PROLOCAL has hired a consultant to design a trust fund (*fideicomiso*) to be financed by the EC that would facilitate individualized credit to project beneficiaries. The fund would be managed by local financial institutions. The subprojects already under execution are expected to provide examples to be used to tailor financial products suitable to the specific needs of PROLOCAL's beneficiaries.

Project Coordination

A Management Information Systems (MIS) and a Project Communications Strategy are two key inputs that help steer Project Coordination activities.

PROLOCAL has outsourced the development of several computer systems that provide management with information on: i. Operational Plans and annual execution, ii. financial accounts, iii. subprojects, iv. human resources, and v. a recently added Monitoring and Evaluation component including a subsystem for the follow up of purchases, agreements and contracts. Several components – but not all - of the system are well integrated into a single application. The system is web based, and operated in a LAN at PROLOCAL headquarters in Quito. It is fed in part with information provided via email by the UTRs.

PROLOCAL’s communication strategy aims to achieve a two way flow of information: from the project to stakeholders and from stakeholders to the project, to ensure that the latter aspirations and demands are fully understood and that their participation in PROLOCAL’s decision-making processes is real and effective. The results expected at appraisal from this two-pronged strategy are given in Table 4.

Table 4. Results Expected at Appraisal from PROLOCAL’s Communications Strategy

<p>From Project to stakeholders – Organizational Communication:</p> <ul style="list-style-type: none"> - PROLOCAL’s organizational identity is known by external and internal actors; - knowledge of PROLOCAL’s organizational identity has reduced the risk of politicizing the Project and has optimized its implementation; - external actors support PROLOCAL’s management and contribute to achieving its goals; - internal actors consciously assume PROLOCAL’s action strategy.
<p>From the target group to PROLOCAL – Community communication:</p> <ul style="list-style-type: none"> - PROLOCAL’s organizational identity is known by the target population. - Knowledge of PROLOCAL allows target group to clearly identify the project’s management strategy. - Target population actively participate in the process promoted by PROLOCAL. - Target population provides feedback to PROLOCAL’s proposal during the Project’s implementation.

Source: World Bank [2001]

PROLOCAL communications strategy started out fairly centralized, but is now closer to and more dependent on stakeholders in the microregions and is now seen as an integral part of the project’s institution building efforts. Traditional media – newspaper reporters, radio and televised broadcasting - has been privileged, but complemented by community radio programs.

Annex 6 of the Mid-Term Review describes the various action lines foreseen. A prominent role is given to the promotion of local development and the documentation of experiences supported by the project. Local communication strategies designed by the stakeholders have been supported with financing from PROLOCAL’s Local Investment Fund. Subproject support has provided for the establishment of a rural radio unit to be managed by the Unión Provincial de Organizaciones Campesinas de Manabí (UPOCAM), Internet Service in San Luis de Pambil, educational communication strategies of 12 Sectional Governments and Second Degree Organizations (OSGs) located in the South of Manabí, 5 communication initiatives prepared by the Juntas Parroquiales of the Cuenca Alta del Rio Jubones and a network of popular reporters in the Estribaciones Centrales de los Andes.

Another objective of PROLOCAL’s updated communications strategy is to strengthen links and alliances between social organizations and local government entities with their base membership and the citizenry at large, as well as with other local, regional and national

stakeholders. These efforts seek to encourage and facilitate an active participation of all stakeholders in decision making processes that affect the development of the territory.

Information and Communication Technologies (ICTs) in Ecuador

Ecuador's National Connectivity Commission was established in August 2001 by Executive Decree No. 1781, to guide the national connectivity agenda and develop strategic planning for the development of information and communication technologies in the country. Five different subprograms are envisaged: e-education, e-health, e-government, e-commerce, and universal access to infrastructure (IADB [2003]). No documentation describing the program is available, but occasional news reports of progress with the Agenda appear in CONATEL's web page. A URL that originally hosted the Connectivity Agenda (www.conectividad.gov.ec) presently leads to the site of a private firm (even though the "gov" extension is reserved for government sites). An extensive list of government sponsored ICT development projects is given in UNESCO [2005].

Access

Contrary to most other Latin American countries, Ecuador did not subscribe to pro-competition prescriptions in the WTO Reference Paper on telecommunications; and only agreed to promote competition in cellular telephony. It did not sign agreement to open up the markets in several important telecommunication services, including VoIP and data (USTR [2004]). In preparation for privatization, Government owned EMETEL was split into two companies, Andinatel (servicing Quito and 11 surrounding provinces) and Pacifictel (servicing the country's other 10 provinces including Guayaquil), but efforts to sell these companies have not been successful. Telecommunications regulation in Ecuador is encumbered by a complex array of institutions that includes CONATEL (responsible for regulation), the *Superintendencia de Comunicaciones* (responsible for sector policy), and the National Council of Radio, Broadcasting and television (with control over licensing).²

Access to telecommunications infrastructure and ICT services in Ecuador is very limited (Table 5), especially in the countryside. Conatel [2003] estimates that 87% of the country's fixed telephone lines serve urban communities in Quito and Guayaquil; and only the remaining 13% serve rural communities. According to FODETEL [2004] there are 38,000 localities with no telecommunication services of any kind. In the 940 rural and periurban marginal *parroquias*, there are only about 4 fixed telephone lines per 100 inhabitants and one public telephone per 10,000 people. Nearly 40% of Ecuador's population (4,811,729 people) live in communities with extremely limited access to basic telecommunication services. Competition in mobile telephony has resulted in a rapid increase in cellular telephones and presently there are more mobiles than fixed lines in the country; but rural coverage of cellular service is restricted.

Cybercafes are commonplace in Quito and Guayaquil, and provide a low cost means for low-income people to access the Internet. Vinueza and Rodríguez [2004] estimated there were 166 formally registered cybercafes in Quito. The main use is communications. Nearly 50% of users interviewed indicated that keeping contact with family and friends was their main reason for using the cybercafes. VoIP an important service used by 17.5% of users surveyed in 2003. Regulations instituted 25 January 2005 permit Cybercafes to offer Voice over Internet telephony for international but not for national calls. (CONATEL [2005]).

Table 5. ICT Infrastructure Indicators - 2002/2003 - LAC and Selected Countries

	Internet Users	PCs*	Main Lines	Cellular subs.		Internet Users	PCs*	Main Lines	Cellular subs.
per 100 inhabitants					per 100 inhabitants				
South America					Central America and Mexico				
Argentina	11.2	8.2	21.9	17.8	Belize	10.9	35.0	11.3	20.5
Bolivia	3.2	2.3	7.2	15.2	Costa Rica	28.8	21.8	27.8	18.1
Brazil	8.2	7.5	22.3	26.4	El Salvador	8.3	3.3	11.3	17.3
Chile	27.2	11.9	22.1	51.1	Guatemala	3.3	1.4	7.1	13.2
Colombia	5.3	21.3	17.9	14.1	Honduras	4.0	1.5	4.9	5.5
Ecuador	4.6	3.2	12.2	18.9	Nicaragua	1.7	2.9	3.7	8.5
Guyana	14.2	2.7	9.2	9.9	Panamá	6.2	3.8	12.2	26.8
Paraguay	2.0	3.5	4.6	29.9	México	12.0	8.3	16.0	29.5
Perú	10.4	4.3	6.7	31.4	Caribbean				
Suriname	4.4	4.6	15.2	32.0	Cuba	0.9	2.4	6.4	0.3
Uruguay	11.9	11.0	28.0	19.3	Grenada	16.9	13.2	29.0	37.6
Venezuela	6.0	6.1	11.1	27.3	Haití	18.0	1.4	1.7	3.8
OECD and other high ICT countries					Jamaica	22.8	5.4	16.9	68.0
U.K.	42.3	40.6	59.1	91.2	Rep. Dom.	10.2	n.a.	11.5	27.2
U.S.A.	55.6	66.0	62.4	54.6	Trinidad & T.	10.6	8.0	25.0	39.9
Australia	56.7	60.2	54.2	72.0	Germany	47.3	48.5	65.7	78.5
Ireland	31.7	42.1	49.1	88.0	Norway	34.6	52.8	71.4	90.9
France	36.6	34.7	56.6	69.6	Finland	53.4	44.2	49.2	91.0
Canada	48.4	48.7	65.1	41.9	Japan	48.3	38.2	47.2	67.9
Spain	23.9	19.6	42.9	91.6	Rep. Korea	61.0	55.8	53.8	70.1
Italy	33.7	23.1	48.4	101.8	Estonia	44.4	44.0	34.1	77.7
					Portugal	19.4	13.4	41.1	89.9
					Czech Rep.	30.8	17.7	36.0	96.5

Source: ITU Indicators, 2003. (www.itu.int/ITU-D/ict/statistics/).

* Most of the data is for 2003; except for PCs for which most of the indicators are for

The Fund for the Development of Telecommunications in Rural and Marginal Urban Areas, FODETEL, was established in 2001 to implement Government's Universal Access program (www.conatel.gov.ec/espanol/fodetel/contenidofodetel.htm). FODETEL's main project is the World Bank's [2001b] Power and Communications Sector Modernization and Rural Services Project (PROMECC), which is expected to expand access to rural communities through an estimated 400-600 telecenters. FODETEL has specified a subsidy grant to be awarded to the bidder that agrees to keep these telecenters running over a period of 10 years. According to FODETEL authorities, the concession to be granted to the winning operator will include the possibility of providing VoIP services from the telecenters. Only 4 companies have given formal indication of interest in bidding for the PROMECC contract. Given political uncertainties in Ecuador, and the extensive and long term service commitment to low profit areas expected from bidders, it is not clear that the tender process will succeed.

Private firms and NGOs have been establishing separate networks, using both VSAT and WiFi technology. Chasquinet, for example, has set up a WiFi network in Chaco, a small rural community about 2 hours away from Quito, to serve a broad range of community needs: school, health center, traders and local government (Stoll [2005]).

The *Bolsa de Internet de Servicios Básicos de Iniciativa Local para la Amazonía Ecuatoriana (SILAE)*, sponsored by @lis (the Alliance for the Information Society; http://europa.eu.int/comm/europeaid/projects/alis/index_en.htm), is following a more guarded approach, but perhaps in tune with the particular infrastructural deficits prevalent in Ecuador's Amazon region. The project is giving priority to what it regards as the most fundamental need in the project area, i.e. energy supply, helping communities set up their own small self-sustaining energy enterprise. Internet connectivity to these enterprises and to the community at large may not yet be feasible and SILAE has no plans for the moment to extend connectivity. Instead, it wants to use selected NGOs which already have Internet connectivity, to serve communities within their Canton but

located farther away from existing Internet access points. Since it does not engage in providing connectivity services, the project's contribution to stimulate this expansion in service is very limited, and consists only of a computer or two to enable service to the public (about US\$ 1,000 each point).

Ecuador has a fairly liberal law that enables community radios to operate throughout the country under conditions similar to those that apply to commercial radio stations. Although radio does not enable the same interactivity that the Internet and telephony do, radios are widespread everywhere in the country. Where connectivity is not feasible community radios can help fill some of the communications gaps, especially when used creatively. The *Coordinadora de Radios Populares y Educativos* (CORAPE; www.corape.org/) has more than doubled its membership, and presently serves about 44 affiliate radio stations, most of which serve rural communities.

Content

According to the UN [2004], in April-May 2004 four Latin American countries ranked among the top 25th countries in terms of willingness and ability of their governments to provide services to citizens using ICTs. Chile, ranked 6th, received a higher mark than Canada, Australia, Finland, Germany, Sweden, Belgium, the Netherlands and Israel. The other high ranking Latin American countries were Mexico (11), Colombia (23) and Brazil (24). Ecuador's ranking (88) is the lowest for Andean countries (Table 6). Table 7 gives a summary of what the UN's Global e-Government Readiness Report [2004] considers to be five stages of development of government offering of public services online.

Table 6. Web Measure Index 2004 - LAC and Selected Countries

	Index	Rank		Index	Rank
South America			Central America and Mexico		
Argentina	0.643	22	Belize	0.216	99
Bolivia	0.255	84	Costa Rica	0.174	114
Brazil	0.637	24	El Salvador	0.394	56
Chile	0.884	6	Guatemala	0.317	72
Colombia	0.641	23	Honduras	0.243	87
Ecuador	0.243	88	Nicaragua	0.274	80
Guyana	0.208	104	Panamá	0.523	40
Paraguay	0.108	139	México	0.784	11
Perú	0.517	42	Caribbean		
Suriname	0.050	163	Cuba	0.093	144
Uruguay	0.483	48	Grenada	0.035	169
Venezuela	0.517	41	Haití	0.000	None
			Jamaica	0.409	52
			Dominican Rep.	0.355	64
			Trinidad & T.	0.328	68
OECD and other high ICT countries					
U.K.	0.973	3	Germany	0.795	10
U.S.A.	1.000	1	Norway	0.687	20
Australia	0.830	6	Finland	0.807	9
Ireland	0.656	19	Japan	0.629	25
France	0.541	24	Rep. Korea	0.946	4
Canada	0.873	7	Estonia	0.699	17
Spain	0.390	34	Portugal	0.394	59
Italy	0.552	33.000	Czech Rep.	0.548	34

Ranking number is within a total of 168 countries with a Web presence.

Source: UN [2004]

Table 7. Five Stages of e-Government Presence

Stage	Summary Description
I. Emerging -	A few government sites with links and elementary information.
II. Enhanced	Expanded offer of information on government policy, but the basic approach is unidirectional, from Government to the citizen;
III. Interactive	Government begins to provide more conveniences to citizens, e.g. downloadable forms for tax and license renewal. Government officials can be contacted via email and the sites are updated regularly. Audio and video capability is provided for some services.
IV. Transactional	Two way interaction between citizens and government becomes commonplace. Forms may be downloaded (ID cards, licenses), purchases of goods and services from government may be made. Entrepreneurs can bid for goods and services online using secure links.
V. Networked	Sophisticated forms of e-government services are available. Government encourages participatory decisionmaking. Databases across different government agencies are linked.

Source: Based on UN [2004].

Tables 8 and 9 summarize the content and services offered by two Ecuadorean websites with content useful to PROLOCAL's activities:

- i. the SICA website (www.sica.gov.ec), established under World Bank sponsorship by the Agricultural Census and Information System Technical Assistance Project, and
- ii. Eculocal (<http://pydlos.ucuenca.edu.ec/ecualocal.htm>), the site established by PROLOCAL to support its own work.

Applying the UN criteria in Table 7 to these two websites, both may be said to be in the second or Enhanced stage of development. The SICA site offers some interactivity, in terms of forms that entrepreneurs may fill out to make offers to buy or sell products, or to be a part of the site's directory of enterprises. It is not known just how effective SICA's online market offers are. Similar systems in Nicaragua [Nicaragua Case Study - Proenza 2004] and Indonesia [Shetty *et al*, 2005] are having very little impact on the completion of business transactions.

Table 8. Outline of Content Offered at www.sia.net.nj – 28 April 2005

Section	Present Status
Agriculture in the Economy	<ul style="list-style-type: none"> - Macroeconomic statistics (GDP, External Sector, Interest Rates, Salaries, Exchange Rate) - Up to date (daily or weekly depending on market) wholesale price information for the main agricultural products. - Out of date statistical series for producer (1999), seed (2002) or urban prices (2001). - Climatic reports (monthly and analytic reports) - Analytical Studies (varied topics; e.g. Agriculture in the Economy, Rural Education, etc.)
External Trade	<ul style="list-style-type: none"> - List of treatises of various preferential trade systems, and pertinent legislation. - Business Opportunities: 30 opportunities appear on the site but date of posting is not given.
Agroindustrial Clusters	<ul style="list-style-type: none"> - The following agribusiness clusters are covered: Cotton and Textiles, Rice, Sugar and confections, Banana, Cocoa, Coffee, Meat, Beans, Milk, Maize and poultry, Potatoes, Soy, Oils, and Wheat. - Basic information is given for each of these clusters. For example, for the cotton and textile cluster the following information is presented: Cluster overview, Situation and Prospects, Organizations and directory of firms participating in the cluster, Ad hoc group on cotton of the General Secretariat of the Andean Community, Special reports (e.g medicinal uses of cotton, seeds, sanitary requirements, weights and measures), Basic Statistics, Trade information on cotton products, and national institutions involved. - The site also provides a form where commercial offers to buy and sell may be filled out. It is not clear where these offers are subsequently posted – perhaps in the External Trade Section.
Agribusiness	<p>Market access (e.g. US Law Against Bioterrorism, a proposal by the Federación de Cámaras de Agricultura in Ecuador on ALCA treaty)</p> <p>New Agro-exportables - useful documents on promising products (e.g. horticulture), how to do business in Ecuador, how to export from Ecuador, how to prepare a business plan, etc.</p> <p>Investing in Ecuador: Analytical documents, laws, and description of financing programs.</p> <p>Investment products: biocommerce, shells, species, natural fibers, flowers, fruits, grains and cereals, leguminous species, horticulture, forestry, nuts, organic products, roots, tilapia, medicinal plants.”</p> <p>Business Opportunities: Large listing of offers to buy and sell a large variety of goods and services. The extent to which these postings are effective is unknown.</p> <p>Virtual Library, Councils, and Listing of Events</p>
Ag. Census	Principal findings and methodology of the Census of Agriculture is presented.
Legal	Major laws and commentaries on agriculture and agribusiness trade is presented.
Note:	The site map gives an excellent overview of content.

Table 9. Outline of Content Offered at <http://pydlos.uceuena.edu.ec/ecualocal.htm> – 28 April 2005

Section	Present Status
About us	overview of Eculocal
Comunicaciones	pictures are shown; but there is no content.
Planes Estratégicos	<ul style="list-style-type: none"> - Development Plans are presented; using as example those for Azuay Province's <i>parroquias</i> (Abdón Calderón, Carmen de Pijilí, Girón, Nabón, Pucará Zona Alta, Pucará Zona Baja, Santa Isabel, San Gerardo, Shaglli). - Provincial Information System, using Azuay Province as example. At present only a few data is given. Once fully functional, it would apparently provide information on Population, Economic Development and Production, Environment and Risks, Health, Education, Identity and Culture, at various levels: Provincial, Canton, Parroquia and Census units.
Tables and Graphs	Statistical tables generated at various local levels for the following subject headings: Health, Employment, Population, Production, Social and Inter-institutional Relations, Social Structure, Environment
Internet Indicators	<p>Human Development, (population, housing, health, education, employment, migration),</p> <p>Economic Development (marketing, production, income and expenditures, Financial System)</p> <p>Natural Resources (Use of Soils, Soil classes, slopes, watersheds, Forestry areas, Isoyets by <i>parroquia</i>, Isotherms by <i>parroquias</i>, Ecological Stability).</p> <p>Environmental processes in Parroquias</p>
Methodological notes	No content at present.
Documentation Center	No content at present.
Note:	System is well designed, but demands too much bandwidth. Downloads are very slow, even from FAO's system at headquarters.

Both sites, SICA's and *Ecualocal's*, are very demanding in terms of maintenance. The SICA site is not presently receiving maintenance and will soon be outdated, except perhaps if support from another donor sponsored project materializes. The *Ecualocal* site depends on regular feeding of materials from local government units. Given the weaknesses observed in local government, it is doubtful that without donor funding the required level of coordination and human effort required for updating the site will materialize.

The target audiences of both of these websites consist primarily government planning officials and decision-makers. Services directly addressed to citizens is limited; except for the wholesale price information in the SICA site which appears to be updated regularly and should prove useful as more farmers gain regular access to the Internet.

Recommendations

Strengthening Local Investment Capacities

R1. The adoption by PROLOCAL of a comprehensive **operational** strategy that provides incentives and motivation to staff, supporting institutions (e.g. local governments, second tier organizations, service providers) and target beneficiaries, to focus on:

- i. increasing the pipeline of high impact, sustainable, and financially and economically feasible subprojects, and**
- ii. enhancing the local capacity of the target communities to manage and execute subprojects effectively.**

Expanding the Role of ICTs in Support of Local Development

Rural people rely on a complex web of neighbors, public officials, associates, and friends, to obtain valuable and reliable information about income earning opportunities and better technology. Personalized attention, personal knowledge, confidence, and frequent interaction are fundamental to the sustainability and success of these networks in bringing about technology transfer and social and economic change. (Barrett [2004], Conley and Udry [2004], and Udry and Conley [2004])

Information gathered by farmers through interaction with peers can be of enormous practical value. Much of the information obtained is idiosyncratic, such as, for example, regarding the trustworthiness and reliability of a particular input provider, the credit worthiness of a potential buyer, the price paid for potatoes at farm gate in a neighboring town, the cost of transporting produce from the village to a nearby market, present conditions of a tertiary road linking two villages, weather in the vicinity of the village, the returns achieved by a trusted neighbor from a crop grown under local conditions.

Traditional media (fliers, newspapers, radio and television) are suitable for disseminating information, but less useful for personal interaction. The Internet and the telephone may be used to broadcast extension information, but when used this way the richness of information and understanding that can be achieved through interactive exchange is lost. The Internet and the mobile phone are no substitute for face to face communications, but they can empower farmers and rural communities, by enabling expanding and strengthening networks and allowing greater continuity of human interaction.

Mindful of the power of the Internet, PROLOCAL has made provision for the establishment of a total of 12 telecenters, and for expanding content directed at local decision-makers and farmers through ECUALOCAL. The recommendations that follow

seek to help orient and strengthen the interventions being planned, and to help strengthen the subproject investment impact in the micro-regions of PROLOCAL.

Expanding Access

If properly designed, PROLOCAL sponsored telecenters will be supportive of the project's strategic initiatives, including the operational strategy focused on increasing subprojects outlined in Recommendation 1 above. Nevertheless, it is important to recognize that people use the Internet for many different legitimate purposes, many of which will bear no direct relationship to local planning or productive activities. To try to narrowly define the kinds of use of these telecenters would undermine their prospects for financial sustainability and, more importantly, could restrain seemingly superficial forms of use that are in fact the kinds of human interaction that build trust between potential partners and is the foundation of business relationships and better local governance.³

ICTs are subject to powerful network effects. If only a few rural dwellers know how to use the Internet, its value is limited for these users. The value in using the Internet nevertheless increases exponentially as more rural people join the network. The inexperience of most Ecuadorians with ICTs hinders technology adoption. Adults with no prior experience with computers or the Internet find it difficult to understand how it may be of practical use. This is not just a matter of awareness; explaining the power of ICTs is not easy unless people actually use them. At times it even requires overcoming computer anxiety, a common phenomenon among mature adults. This is why some of the most successful cases of fast ICT development – e.g. Chile and Korea – include government sponsored mass digital literacy campaigns.⁴

Scale economies in infrastructure development are not significant for the number of centers that PROLOCAL is considering (12), but telecenter operation and maintenance and sustainability is a complicated task in rural settings and often requires specialized support from a central headquarters office. Nicaragua's SIA telecenter program, has done well through a centralized 2-person backstopping unit and careful selection of sites, partner institutions and telecenter managers (see Nicaragua Case Study – Proenza 2004).

R2 The approach recommended for PROLOCAL telecenter support program should be driven by demand and take into account scale economies and network effects.

Telecenters could be established in each of twelve predetermined localities, as presently planned, following an approach similar to the one that has been used by Nicaragua's *Sistema de Información Agrícola* (SIA) program to set up a network of 10 telecenters (as of December 2004).

Site selection should be made on the basis of technical (energy availability, towns of at least 3,000 people) as well as institutional considerations (a private NGO, academic institution or firm willing to manage the center; a supportive local government that is willing to help but not exercise control over the center; existence of a local champion keen on doing everything necessary to ensure the success of the initiative). Potential operators should be subjected to competition for telecenter establishment support grants, for example by requiring them to fill an application that addresses basic sustainability requirements.

Other telecenter initiatives could be supported by PROLOCAL through subproject financing under the FIL, but only provided that these are based in larger towns with access to existing telecommunications infrastructure and do not require the build up of connectivity.

If this recommendation is accepted, it would be useful for a delegation of two or three of PROLOCAL staff to visit the SIA program in Nicaragua, to get a better understanding of how that program has worked, the technical expertise and obstacles that have been encountered and how these have been managed. This PROLOCAL delegation should include a management specialist to review issues related to telecenter governance, sustainability and operator selection; and a network specialist to review connectivity and technological options.

R3 A parallel digital literacy program is also recommended. This basic computer-Internet skills training and practice support, should target on a priority basis local government officials, school teachers, small entrepreneurs, and organized groups of farmers and community leaders that have the possibility of becoming regular users of the technology (e.g. live or work within 2 km of a connectivity access point), and the potential to exert significant socioeconomic impact in the micro-regions. Gender balance should be pursued, not just as a matter of fairness, but because women play a key role in promoting family use of computers and the Internet. This parallel digital literacy program need not be exclusively centered on telecenters sponsored by PROLOCAL, but should also make use of other connectivity public access points (e.g. cybercafés). To illustrate the kind of training involved, Annex E of the main report (Proenza 2005) presents the curriculum of the 14 hour basic digital literacy training course imparted in Chile by Biblioredes (www.biblioredes.cl).

R4 As digital literacy expands in the micro-regions, a follow up training course should be instituted, aimed at developing the capacity of local government and community leaders and subproject managers to identify, appraise, execute and monitor the performance of investment subprojects and to fully profit from content offered by *Eculocal* and other sources.

Eculocal

To date *Eculocal* has focused on expanding content in support of local development planning through the development of *Eculocal*. With the establishment of 12 telecenters in the micro-regions and increased digital literacy among local actors, services directly addressed to rural people and leaders can begin to make a direct impact empowering people and improving their lives.

Presently *Eculocal* maintenance scheme is very demanding as it depends on regular feeding of materials from local government units. It is doubtful that such a scheme will be sustainable after donor funding has ended.

R5 The shift from a centrally managed content development system to a more participatory system of local content production is recommended. What this means in practical terms is that the opportunity should be provided as part of system design, so that local governments and local organizations can directly create their own web pages fed locally with content and information of their own interests and reflecting their own identity. Overall technical platform or portal managed and technically would continue to be supported by *Eculocal*.

R6 *Eculocal* content offer could also include specific tools to help PROLOCAL invigorate its subproject investment portfolio. This could include:

- i. Selection and presentation online of best practices in subprojects and Local Development Plans. Such comparisons would stimulate inter-regional and inter-community competition and a valuable exchange of ideas and benchmarking.
- ii. The requirement by PROLOCAL that some forms that need to be filled as part of the local planning and the subprojects identification and appraisal process, would

push staff and local actors who participate in the preparation of LDPs and subprojects to ask the more critical questions, and would facilitate uniform presentation of plans and subproject documents.

iii. Posting of training materials, case studies, examples of best practices and of bad practices. Development of basic training modules.

iv. Posting of every PDL by each local government unit, in its own webpage but easily catalogued so that the viewer can see them all within a list and compare them; and posting of all approved subproject profiles.

v. Posting of the Terms at which the different Rural Finance institutions are providing credit and remunerating savings, especially those working in the micro regions. This could be a very powerful tool to stimulate competition among firms and help farmers get better credit and savings terms that are more suited to their particular situation. Financial institutions might resist public display of their terms, but this should perhaps be made a condition to receiving support from PROLOCAL.

vi. The inclusion of training materials and interactive auto diagnostic tools (e.g. to see if a subproject meets the minimum requirements, or in support of the training program) should also be considered.

vii. Eculocal should also provide a window to the regularly updated crop price information system currently included in www.sica.gov.ec. The feasibility of expanding that system to send this information to cellular phones in the micro regions, and the country at large, should also be explored.

viii. *Eculocal* may also include a link to www.dgroups.org/groups/fao/prolocal, which may be used by staff and other stakeholders to exchange documents and messages and announce events.

R7. Eculocal could also provide for direct interaction between farmers, agribusiness people, local government stakeholders and civil society leaders through an **online advisory service**. The system is based on the successful system implemented in Chile by the country's micro enterprise technical assistance service, Sercotec (see Annex C of Main Report – Proenza 2005), which has also been adopted by other countries (e.g. the United Arab Emirates). Some key features of the system are:

i. Some questions submitted by users will be channeled to institutions but, for the most part, queries will be answered by individuals. Participating advisors would be identified by name, institutional affiliation, and work location. The picture and curriculum of each advisor would be on display.

ii. All queries would be responded within 48 hours. *Eculocal's* Systems Manager will make sure that this response time is achieved, and will redirect any query in the event of illness or vacation of an advisor to whom a question is directed.

iii. The site would be organized by topic groupings, e.g. credit, pest management, crop production, marketing, etc. Topical grouping of advisors would enable a user to compare and choose between advisors the one that best fits her needs. The site should be built up gradually, to incorporate advisors in a broad range of fields from a variety of academic governmental institutions across the country.

vi. A key to the Advice Online system's success will be the qualifications and competence of the advisors and the quality of the advice given. The system can expand gradually, starting from a basic cadre of Eculocal and PROLOCAL staff, and grow steadily based on demand and on agreements with other institutions,

public and private. Because it relies on individual responsibility, commitment and prestige, the issue of interagency coordination is not much of a constraint.

iv. The questions directed to each advisor and the responses he or she gives will be posted next in the website next to his name. Where the same question is repeated, the advisor will be able to post a standardized answer, in a special section of "frequently asked questions" within his section of the site.

v. The system will allow users to rate the advice they receive, immediately upon receiving the response from the advisor. This will increase transparency, give *Ecualocal* immediate feedback on the quality of its online advice, and help monitor the individual competence of advisors.

RS. As *Ecualocal* expands its offers of content, it is relatively easy and very important to monitor the number of visitors to the various parts of the site, to identify what is popular and found to be useful by visitors and what is not.

Notes

1. Subprojects were at the core of PROLOCAL's original appraisal design. If the Bank's appraisal report is used as a guide, PROLOCAL's economic impact will be assessed primarily – albeit not exclusively - on the basis of benefits generated by the subprojects. The build up of positive social capital, on its own, is difficult to measure (Stone [2001], Productivity Commission [2003]). Subprojects and their impact, on the other hand, are easier to quantify.

2. A review of the institutional structure of the telecommunications sector is available in Oleas [2005]. See also Romel [2004].

3. Reminiscent of the early development of snail mail and the telephone, social interaction through e-mail and chatting is often underestimated. Yet these interactions form the basis for socialization, the development of trust and economic integration.

“Only a tiny fraction of the information passing through communications systems has ever been high quality scholarly knowledge. ... sociability was frequently dismissed as idle gossip, and especially in the early days of the telephone, was actively discouraged. ... a 1909 study of telephone service commissioned by the city of Chicago advocated measured rate service as a way to reduce ‘useless calls’. Yet the most successful communication technologies, the mail and the telephone, reached their full potential only when they embraced sociability and those ‘useless calls’ as their goal. That seemingly idle chit-chat not only provided direct revenues, but it encouraged the diffusion of the corresponding technology, and made it more useful for commercial and other applications. Such social interaction frequently functions to grease the wheels of commerce.(Odlyzko [2000, page 29]. See also Odlyzko [2001].)

4. As of end-2004 an estimated 300,000 people had received digital literacy training in Chile by a variety of institutions (Sence [2005]).

Korea's Government has also sponsored massive e-literacy training campaigns focused on key target groups: the elderly, farmers, government staff, the military, housewives, low-income groups and prison inmates. According to Yun, Lee and Lim [2002] 3.4 3.4 million people—including one million housewives—learned basic Internet skills in 2000.

5. BiblioRedes has a regional laboratory in each of the 12 regional capitals plus an additional one in Regions V (Los Andes), VIII (Chillán) and X (Valdivia). There are also 2 regional laboratories serving the Metropolitan Region (Recoleta and San Bernardo). Each regional supervisor is entrusted with a maximum of 26 libraries.

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