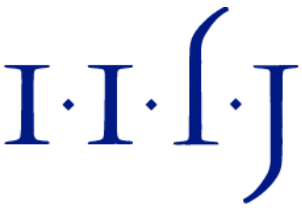

INSTITUTE FOR INTERNATIONAL LAW AND JUSTICE
NEW YORK UNIVERSITY SCHOOL OF LAW

Institute for International Law and Justice Emerging Scholars Papers

IILJ Emerging Scholars Paper 9 (2008)
(A Sub series of IILJ Working Papers)
"Financing Development" Project

IMPROVING ACCESS TO TELECOMMUNICATIONS IN RURAL AREAS OF DEVELOPING COUNTRIES: CONSUMER COOPERATIVES AND THE MILLENNIUM CHALLENGE CORPORATION

AARON J. MEYERS
New York University School of Law

ISSN: 1552-6275

New York University School of Law
New York, NY 10012
U.S.A.

Cite as:
IILJ Emerging Scholars Paper 9 (2008)
(A Sub series of IILJ Working Papers)
"Financing Development" Project
Finalized 6/17/2008

IMPROVING ACCESS TO TELECOMMUNICATIONS IN RURAL AREAS OF DEVELOPING COUNTRIES: CONSUMER COOPERATIVES AND THE MILLENNIUM CHALLENGE CORPORATION

Aaron J. Meyers

Abstract

Telecommunication services encourage economic growth and provide quality-of-life benefits such as improved health care, education, and security. Unfortunately, rural areas of developing countries remain severely underserved, due to the high cost of network expansion and rural inhabitants' low levels of income. Community-owned rural telecommunications cooperatives provide a potential solution by decreasing initial expenses and eliminating market contracting costs. Moreover, cooperatives' participatory nature improves sustainability and provides positive externalities with developmental benefits: cooperatives empower rural people, encourage grassroots initiatives, and promote democratization and political participation. Nevertheless, rural cooperatives face significant challenges. Governments tend to resist necessary legislative and regulatory changes and refuse to assist with financing; cooperatives' managers may make mistakes owing to inexperience or fail to act in the collective interest; and cooperatives' members suffer from collective action problems which limit their influence over government and ability to monitor managers. Fortunately, the Millennium Challenge Corporation (MCC), an American foreign assistance organization, is well positioned to align the interests and enhance the abilities of these groups. By proving large quantities of coordinated funding to carefully selected countries, the MCC earns substantial bargaining leverage with recipient governments, allowing it to insist on legislative and policy changes. Further, the MCC can create national organizations in recipient countries, benefiting from the expertise of the U.S. National Telecommunications Cooperative Association. Such organizations could train managers, monitor cooperatives' performance, and serve as a central point for members to lobby their governments, thereby overcoming rural inhabitants' collective action problems.

Table of Contents

I. Introduction

Despite remarkable growth in worldwide access to telecommunication services in the last decade, rural areas of developing countries continue to be severely underserved. Studies consistently demonstrate that access to telecommunications provides a springboard for economic growth, among a plethora of other benefits such as improved health care and education. Nevertheless, because of the relatively high cost of expanding telecommunications networks into rural areas and rural inhabitants' low level of disposable income, neither public nor private providers have proven willing to make the investments necessary to overcome "the digital divide."

Community-owned rural telecommunications cooperatives provide a solution which has garnered recent attention in the development literature. Community ownership allows rural inhabitants to overcome the market's failure to provide service by decreasing initial expenses, minimizing the required return on investment, and eliminating the costs of market contracting. In addition, the participatory nature of cooperatives improves long-term sustainability by accurately tailoring services to local needs. Indeed, it is for these reasons that consumer cooperatives continue to solely provide telecommunication services to many rural parts of the United States. For developing countries in particular, cooperatives' bottom-up structure provides positive externalities which market-based solutions fail to appreciate: cooperatives empower rural people, encourage additional grassroots initiatives, promote further involvement in community affairs, and provide practical experience for participation in larger political processes. These benefits enhance the developmental effect of the original investment.

Rural cooperatives face their own challenges in developing countries, however. A rural cooperative involves three distinct players: the relevant governmental authorities (national, provincial, or municipal), the cooperative's management, and the cooperative's membership (local rural inhabitants). When each player acts based on in its own interests, abilities, and incentives, the resulting political and economic environment fails to enable the cooperative's sustainability. In particular, the government will tend to resist necessary legislative and regulatory changes and refuse to provide financing as a result of self-interest, capture by existing telecommunication providers, a failure to appreciate the benefits of telecommunications development, or other defects in the political process. Management may use its position for personal rather than collective benefit, and may make mistakes owing to its inexperience with business management and the underlying technology. The members are sparsely distributed and suffer from collective action problems, both within their community in interactions with managers, and throughout their country in interactions with government. As a result, members are unable to influence the other players to act for the collective good. Combined with an inability to secure adequate financing, members may become frustrated and modify their priorities toward other necessities such as food, health care and education.

The Millennium Challenge Corporation (MCC) is particularly well positioned to align the interests, enhance the abilities, and modify the incentives of each of the players to enable rural telecommunications cooperatives to prosper. The MCC promotes sustainable economic growth and poverty reduction by administering a large bilateral development fund which finances transformative projects in developing countries. Because of the magnitude of the MCC's projects, the MCC has substantial bargaining leverage with host governments when negotiating

a compact. The MCC can therefore insist on the necessary legislative and policy changes. Moreover, the MCC can call on the National Telecommunications Cooperative Association (NTCA), an American organization that represents more than 1,000 telecommunications cooperatives nationally and runs an international program facilitating locally-owned telecommunications systems. The NTCA could offer technical expertise in rural telecommunications cooperatives and could structure a national cooperatives' organization in each recipient country. Such an organization could provide training and guidance to managers and centrally monitor cooperatives around the country to help ensure managers act in the best interests of their membership. The organization could also help members overcome their collective action problems by serving as a central point where they can unite to lobby the government when necessary. In addition, the MCC can incentivize rural inhabitants to start cooperatives by funding other projects with significant synergies with telecommunications, such as online education programs and improved financial services. Finally, the MCC's results-oriented disbursement scheme will provide strong incentives for all players to get rural telecommunications cooperatives operational within the five-year period during which the MCC provides financing.

This paper is divided into four parts. Section II describes the lack of telecommunications in rural areas of developing countries and existing solutions attempting to improve rural access. Section III presents consumer cooperatives as a possible solution offering additional developmental benefits to rural people. Section IV outlines the challenges facing rural telecommunications cooperatives because of the incentives and abilities of the key players involved. Finally, Section V proposes the Millennium Challenge Corporation as a player whose

influence and ability can help overcome the challenges facing cooperatives and enable extensions of telecommunication services into the rural parts of many developing countries.

II. The Digital Divide

In the last twenty years, information and communication technology has spread throughout the world at phenomenal rates.[1] This growth has been fastest in the developing world, where access to telecommunications has started to catch up with the developed world.[2] Less than a decade ago, many publications reported that more fixed line telephones were in operation in Manhattan than in all of sub-Saharan Africa.[3] But between 1990 and 2005, teledensity rates in developing countries rose dramatically from 27 to 393 telephones per 1,000 people.[4] The developing world is now home to 84% of the global population and more than 60% of all telephones.[5] Yet despite these improvements, rural areas of developing countries remain significantly disadvantaged.[6] This section quantifies the lack of telecommunication

---

[1] INTERNATIONAL TELECOMMUNICATION UNION, WORLD TELECOMMUNICATION DEVELOPMENT REPORT: ACCESS INDICATORS FOR THE INFORMATION SOCIETY 2 (2003).

[2] *Financing Information and Communication Infrastructure Needs in the Developing World: Public and Private Roles* 1 (Global Information and Communication Technologies Department, World Bank, Working Paper No. 65, 2005) (noting far higher telecommunications growth rates in the developing world than in OECD countries during the 1990s.)

[3] BRIDGES.ORG, SPANNING THE DIGITAL DIVIDE: UNDERSTANDING AND TACKLING THE ISSUES 13 (2001), *at* http://www.bridges.org/files/active/1/spanning_the_digital_divide.pdf (citing Gamal Nkrumah, *Digital Divide*, AL-AHRAM WEEKLY, July 27, 2000); *see also* Howard W. French, *In Africa, Reality of Technology Falls Short*, N.Y. TIMES, Jan. 26, 1998, *at* http://www.nytimes.com/library/cyber/week/012698africa.html ("At the moment, Manhattan in New York City has more telephone lines than exist in more than three dozen countries of sub-Saharan Africa."); WORLD BANK, INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT: GLOBAL TRENDS AND POLICIES 41 (2006) (declaring this fact to have been true in 1980); Trevor Manuel, *The Power of Parliament in a Multilateral World*, Second Annual Conference of the Parliamentary Network on the World Bank, Jan. 28-29, 2001, at 20, *at* http://wbln0018.worldbank.org/eurvp/web.nsf/Pages/Full+Report+London+Conference/$File/DRAFT+OF+LONDON+REPORT.PDF.

[4] INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT, *supra* note 3, at 42 (noting that while low- and middle-income countries have attained average teledensities of 393 telephones per 1,000 people, high-income countries benefit from much higher penetration rates averaging 1280 telephones per 1,000 people.)

[5] INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT, *supra* note 3, at 5.

[6] *Financing Information and Communication Infrastructure Needs in the Developing World*, *supra* note 2, at 1 (noting that "gaps remain considerable" between rural and urban areas within developing countries.)

services in rural areas, describes its causes, explains the benefits of connecting rural communities, and outlines current attempts to do so.

A. Quantifying the Lack of Rural Telecommunications in Developing Countries

Nearly 40% of the world population, or 2.5 billion people, live in rural parts of developing countries where access to telecommunications remains very limited.[7] Even within developing countries, access to telecommunications is several orders of magnitude lower in rural areas than in metropolitan urban areas.[8] Indeed, approximately 30% of the world's villages remain completely unconnected.[9] In many developing countries less than 10% of rural areas have access to basic telephony.[10] As a result, telecommunication services are entirely out of reach for one billion people.[11]

B. Reasons for the Failure to Provide Rural Access

The failure to provide telecommunication services to inhabitants of rural areas is generally attributed to the high costs of expanding communication networks, the sparse distribution of rural people, and their relatively low level of disposable income.[12]

---

[7] International Telecommunication Union, Global Survey on Rural Communications (2003), http://www.itu.int/itunews/manager/display.asp?lang=en&year=2004&issue=05&ipage=globalAgenda&ext=html (last visited on Mar. 22, 2007).

[8] Juan Navas-Sabater, Global Information and Communication Technologies Department, World Bank, *Universal Access & Output-Based Aid in Telecommunications and ICT* 1 (June 2005), *available at* http://lnweb18.worldbank.org/ict/resources.nsf/a693f575e01ba5f385256b500062af05/f9845b5620512a29852570310056bfba/$FILE/obaNoteFinal.pdf; *Technology in Emerging Countries: Of Internet Cafés and Power Cuts*, THE ECONOMIST, Feb. 7, 2008 ("[T]echnology use in developing countries is highly concentrated . . . Whereas half of India's city-dwellers have telephones, little more than one-twentieth of people in the countryside do.").

[9] INTERNATIONAL TELECOMMUNICATION UNION, WORLD SUMMIT ON THE INFORMATION SOCIETY, WSIS GOLDEN BOOK 11 (2006), *available at* http://www.itu.int/wsis/goldenbook/Publication/GB-final.pdf.

[10] Global Survey on Rural Communications, *supra* note 7.

[11] WSIS GOLDEN BOOK, *supra* note 9, at 11.

[12] *See, e.g.*, SEÁN Ó SIOCHRÚ & BRUCE GIRARD, UNITED NATIONS DEVELOPMENT PROGRAMME, COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES: NEW MODELS TO SERVE AND EMPOWER THE POOR 16 (2005), *available at* http://www.undp.org/poverty/docs/ictd/ICTD-Community-Nets.pdf ("The main obstacle to serving poor rural communities is quite straightforward and widely acknowledged. The cost of reaching rural and remote

Telecommunications providers, both public and private, have determined that they would be unable to earn the returns they demand in rural areas and have therefore chosen to invest elsewhere.[13]

Indeed, the costs of expansion can be significantly higher in rural areas, where enabling infrastructure such as roads or electricity is often unavailable and terrain can be particularly rugged.[14] In addition, low population densities are common in rural areas throughout the world, and especially in sub-Saharan Africa.[15] Traditional communication networks must therefore stretch greater distances to provide service to these dispersed populations, increasing supply and labor costs and preventing the achievement of economies of scale.[16] Moreover, rural incomes are significantly lower than urban incomes in developing countries,[17]

---

communities is relatively higher and the level of disposable income is lower."); Navas-Sabater, *supra* note 8, at 1 ("[T]he generally lower revenue potential of low income rural and peri-urban communities, as compared with cities, combined with the higher cost of servicing isolated locations have tended to prevent these groups from sharing equally in the gains of sector reforms."); *See also* THORSTEN SCHERF, INSTITUTE FOR COOPERATION IN DEVELOPING COUNTRIES, POLICIES FOR UNIVERSAL ACCESS TO TELECOMMUNICATIONS IN RURAL AREAS OF DEVELOPING COUNTRIES: A COMPARATIVE ANALYSIS 2 (2006) *available at* http://zeus.econ.umd.edu/cgi-bin/conference/download.cgi?db_name=IIOC2006&paper_id=544 (naming this aspect of the digital divide the "true access gap.")

[13] Seán Ó Siochrú, *Community Ownership of ICTs: New Possibilities for Poor Communities* 1 (Choike.org Briefing Paper No. 3, 2005), available *at* http://wsispapers.choike.org/community_property_icts.pdf ("There is general agreement on the main obstacle: [d]ispersed populations and low levels of income translate into higher costs and reduced per-customer returns, rendering conventional approaches economically unattractive, whether for market-driven or incumbent providers.")

[14] Farid Gasmi & Lauea Recuero Virto, *Telecommunications Technologies Deployment in Developing Countries: Role of Markets and Institutions*, Communications & Strategies, 2nd Quarter 2005, at 25, *available at* http://www.idate.fr/fic/revue_telech/395/CS58%20_GASMI_RECURO-VIRTO.pdf. *See also* COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 9.

[15] DARRELL OWEN, USAID, COMMUNITY TELECOMMUNICATIONS, PART I: A NEW TECHNICAL AND BUSINESS MODEL 1 (2006) *available at* http://www.usaid.gov/our_work/economic_growth_and_trade/info_technology/tech_series/Rural-Telecom-Tech+BusinessModel508.pdf (noting that "[i]n many locations in sub-Sahara Africa the density of population in the rural areas is extremely low.")

[16] *Financing Information and Communication Infrastructure Needs in the Developing World*, *supra* note 2, at 19.

[17] Global Survey on Rural Communications, *supra* note 7; *See also* Alf Morten Jerve, *Rural-Urban Linkages and Poverty Analysis*, *in* UNITED NATIONS DEVELOPMENT PROGRAMME, CHOICES FOR THE POOR: LESSONS FROM NATIONAL POVERTY STRATEGIES 89, 116 (Alejandro Grinspun ed., 2001), *available at* http://www.undp.org/dpa/publications/choicesforpoor/ENGLISH/CHAP04.PDF ("Without exception, the depth of

limiting the potential revenue of providers of rural telecommunication services.[18] Some authors contend, however, that rural inhabitants are willing to spend proportionally more for telecommunication services than their urban counterparts because of their high demand for telecommunication services and the special benefits rural communities reap by becoming connected.[19] This factor can make up for rural-urban income disparities, at least in part.

But the obstacles preventing telecommunications from thriving in rural areas are not solely economic.[20] Political and regulatory issues have long limited the growth of telecommunications in the developing world.[21] In particular, many developing countries operate a public telecommunication network as a monopoly, either limiting or prohibiting competition.[22] Although third-party expansion of these networks into rural areas can

---

poverty is more severe in rural than urban areas. The most extreme case [of those considered in this study] is Papua New Guinea, where urban per capita income is ten times higher than the rural level.")

[18] SCHERF, *supra* note 12, at 2 (noting the "low revenue potential [in the rural telecommunications sector] because of small and unsteadily income of rural people.")

[19] OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID 35 (1995), *available at* http://govinfo.library.unt.edu/ota/Ota_1/DATA/1995/9535.PDF ("World Bank studies show that the demand for [rural telecommunication] service is relatively inelastic; consumers have been shown to be willing to pay for basic services, even when prices exceed those found elsewhere") (citing *Investing in Development*, The Economist, June 25, 1994); *See also* COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 46 (noting that "conventional telecom service providers may significantly underestimate the revenue generation potential of rural and poorer populations" as "[s]everal studies have shows that poor people in rural areas are willing to pay significantly more for services than their comparatively low income would suggest, because of the potentially higher benefits achieved.")

[20] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 15 ("The causes of fixed line failure are . . . the result of a difficult combination of entrenched economic, political, regulatory and social factors that for many years virtually paralysed progress.") (citing ALISON GILLWALD, REAL REFORM, GOOD GOVERNANCE AND AFFORDABLE ACCESS: NATIONAL KEYS TO UNLOCKING GLOBAL PARTICIPATION AND NETWORKING (2004)).

[21] *See* SCHERF, *supra* note 12, at 2 (naming this aspect of the digital divide the "market efficiency gap.")

[22] *See* Emmanuelle Auriol, *Telecommunication Reforms in Developing Countries*, Communications & Strategies, Nov. 2005, at 31 (noting that 20% of the world's countries—mainly developing countries—have no private telecommunications industry at all and that more than 60% have a monopoly over fixed telephony.); *See also* INFODEV, OPEN ACCESS MODELS: OPTIONS FOR IMPROVING BACKBONE ACCESS IN DEVELOPING COUNTRIES 6 (2005), *available at* http://www.infodev.org/en/Document.10.aspx (noting that only three historic telecommunications operators have fully privatized in Africa, while 34 have partially privatized and 13 remain state-owned.)

financially benefit national providers,[23] they are often reluctant to permit competition of any sort.[24] Even in the many countries that have liberalized their telecommunication sector, the newly privatized operator often has exclusive rights to provide telecommunication services to the country for a lengthy period.[25] And even when such providers do not have a legal monopoly, they may have significant clout when bargaining with government authorities.[26] The likelihood of these private operators capturing government interests is therefore substantial.[27] This problem is exacerbated by rural inhabitants' inability to effectively participate in governance, due to their sparse distribution, limited education, and poverty.

C. Benefits of Access to Telecommunication Services

Despite these challenges, the importance of extending telecommunication networks into rural areas of developing countries should not be understated. Access to telecommunication services is fundamental to the promotion of economic growth and

---

[23] GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID, *supra* note 19, at 25 ("networking in underserved areas will not compete with, but instead will complement and add value to, the information networks that are presently being deployed in high-density areas.") This would be accomplished, for example, by generating revenue from new connections originating in the existing network and terminating in the new expansion, or from interconnection fees from transmissions from the new expansion destined for the existing network.

[24] GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID, *supra* note 19, at 36 (noting that the governments in developing countries "jealously guard their monopolies.")

[25] SCOTT J. WALLSTEN, TELECOMMUNICATIONS PRIVATIZATION IN DEVELOPING COUNTRIES: THE REAL EFFECTS OF EXCLUSIVITY PERIODS 2 (2000) *available at* http://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID279292_code010816500.pdf?abstractid=279292&mirid=1 ("[M]any countries grant the privatized telecom firm a multi-year exclusivity period; that is, the government allows the newly-privatized firm to operate as a monopoly for some number of years.")

[26] MARTIN MINOGUE & LEDIVINA CARIÑO, REGULATORY GOVERNANCE IN DEVELOPING COUNTRIES 9, 11 (2006), *available at* http://www.competition-regulation.org.uk/publications/crc_books/chapter1mmlc.pdf (noting that firms sometimes take advantage of regulators in developing countries by supplying their own equipment and training and contriving the appointment of industry insiders as regulators, such that "capture may be so entrenched in the surrounding legislative and contractual arrangements that the regulators are either part of the system of capture, or are powerless to resist it.")

[27] Colin Kirkpatrick, David Parker & Yin-Fang Zhang, *Foreign Direct Investment in Infrastructure in Developing Countries: Does Regulation Make a Difference?*, 15 Transnational Corporations 143, 153 (Apr. 2006), available at http://www.unctad.org/en/docs/iteiit20061a6_en.pdf ("Regulatory regimes [in developing countries] are . . . prone to 'regulatory capture', by which the regulatory process becomes biased in favour of particular interest groups, notably the regulated companies.")

sustainable poverty reduction.[28] In fact, telecommunications can play a part in each of the World Bank's three strategies to reduce poverty: promoting opportunity, enhancing security, and facilitating empowerment.[29]

Access to telecommunications promotes opportunity for rural people by encouraging economic growth.[30] Telecommunications access has been correlated with higher incomes for urban dwellers: as urban areas of developing countries became connected during the 1990s and rural areas were left behind, urban incomes grew disproportionately quickly and rural-urban income disparities increased.[31] Yet many of the benefits reaped by urban communities are also available to rural populations empowered with telecommunication tools.[32] Specifically, telecommunication access reduces transaction costs,[33] broadens national and

---

[28] INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT, *supra* note 3, at 4-5 ("[Information and Communication Technology] plays a vital role in advancing economic growth and … is also crucial to sustainable poverty reduction.")

[29] WORLD BANK, WORLD DEVELOPMENT REPORT 2000/2001: ATTACKING POVERTY 6-7 (2001) *available at* http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/0,,contentMDK:20195989~pagePK:148956~piPK:216618~theSitePK:336992,00.html.

[30] *The Limits of Leapfrogging*, THE ECONOMIST, Feb. 7, 2008. ("In places with bad roads, few trains and parlous land lines, mobile phones substitute for travel, allow price data to be distributed more quickly and easily, enable traders to reach wider markets and generally make it easier to do business.")

[31] Emmanuel Forestier, Jeremy Grace & Charles Kenny, *Can Information and Communication Technologies be Pro-Poor?*, 26 Telecommunications Policy 623, 623 (Dec. 1, 2002), *available at* http://charleskenny.blogs.com/weblog/files/telpolfinal.pdf.

[32] INTERNATIONAL TELECOMMUNICATION UNION, POTENTIAL BENEFITS FOR RURAL TELECOMMUNICATIONS 1 (Mar. 2006), *available at* http://www.itu.int/dms_pub/itu-d/opb/stg/D-STG-SG02.10.1.2-2006-PDF-E.pdf ("[I]t is widely accepted that the promotion of ICT services can act as a catalyser for the improvement of quality of life for people in the rural and remote areas"); Forestier, *supra* note 31, at 1 (observing "some evidence that provision of telephony has a dramatic effect on the income and quality of life of the rural poor.")

[33] For example, a rural business person with access to a telephone can avoid costly and time-consuming trips out of her community in order to conduct simple transactions with parties outside her community. GRAMEEN FOUNDATION USA, VILLAGE PHONE REPLICATION MANUAL 5 (2005) *available at* http://www.infodev.org/files/2868_file_VillagePhoneReplicationManual.pdf ("In many rural villages there are no telecommunication services, no public phone booths, no private subscriber fixed lines, and no individual who owns a mobile handset. People have no option but to physically travel to communicate. Studies have shown that there can be a cost to *not* making a phone call – up to eight times more expensive than the cost of the actual phone call. The rural poor cannot make telephone calls simply because there is no access, not because they cannot afford to or don't wish to.")

international trade networks,[34] and stimulates local, domestic and foreign investment.[35] Improved communication abilities also facilitate trade by reducing information asymmetries.[36] For example, telecommunication services enable rural farmers to avoid exploitation by checking the price of their produce at all markets in the state before transferring it to middlemen who will transport and sell it on their behalf.[37] More generally, access to telecommunications builds local competence in basic technologies.[38] Increased competence earns rural inhabitants new opportunities for upward mobility, given that many careers increasingly demand at least rudimentary knowledge of technology.[39]

But the benefits to rural peoples are not purely economic. Communication technologies increase access to health care and education[40] and provide opportunities for new "e-health" and "e-education" services.[41] Telecommunication also plays a pivotal role in enhancing

---

[34] INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT, *supra* note 3, at 47 (noting the "dramatic" economic impact of mobile networks in low- and middle-income countries "especially in terms of reducing transaction costs, broadening trade networks, and facilitating the search for work.") (citing Leonard Waverman, Meloria Meschi & Melvyn Fuss, *The Impact of Telecoms on Economic Growth in Developing Countries*, *in* AFRICA: THE IMPACT OF MOBILE PHONES 10, The Vodafone Public Policy Papers Series, No. 2, 2005, *available at* http://www.vodafone.com/assets/files/en/AIMP_17032005.pdf)

[35] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 9.

[36] UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT, USING ICTS TO ACHIEVE GROWTH AND DEVELOPMENT 8 (Dec. 2006), *available at* http://www.unctad.org/en/docs/c3em29d2_en.pdf.

[37] INTERNATIONAL INSTITUTE FOR COMMUNICATION AND DEVELOPMENT, THE TICBOLIVIA COUNTRY PROGRAMME: THE IMPACT OF IICD SUPPORT FOR POVERTY REDUCTION AND DEVELOPMENT USING ICTS 12, 15 (2005), *available at* http://www.ftpiicd.org/files/publications/countries/TICBoliviaImpact2005.pdf (noting that "[l]ack of access to price information results in high transaction costs and farmers who have little room to negotiate in selling their products to middlemen" and that access to such information through telecommunication technology "improved their negotiating position" and "increase[d] the efficiency of their production methods."); *see also* SABINE ISABEL MICHIELS & L. VAN CROWDER, FAO SUSTAINABLE DEVELOPMENT DEPARTMENT, DISCOVERING THE 'MAGIC BOX': LOCAL APPROPRIATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (2001) ("Shankarlal does not know how the system works, or what it is called. But he knows the power of the 'Magic Box'. Every morning, together with his fellow farmers, he talks to the Magic Box, as they check the price for potatoes at all major markets in the state. Accordingly, they decide where to take their produce. No more cheating middlemen, no more high prices.").

[38] GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID, *supra* note 19, at 30.

[39] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 6.

[40] USING ICTS TO ACHIEVE GROWTH AND DEVELOPMENT, *supra* note 36, at 6.

[41] INTERNATIONAL TELECOMMUNICATION UNION, ANALYSIS OF CASE STUDIES ON SUCCESSFUL PRACTICES IN TELECOMMUNICATIONS FOR RURAL AND REMOTE AREAS 14, ITU-D Study Group 2, 3rd Study Period, 2002-2006, *available at*

security. Communication is crucial to effective emergency warning and disaster relief processes, as became painfully clear during the numerous natural disasters in developing countries in recent years.[42] Even outside the context of major emergencies, the ability of individuals or an entire community to reach out to others for help increases public safety.[43] Finally, telecommunications can empower rural inhabitants by improving their ability to participate in political processes, thereby promoting greater political accountability and reinforcing democracy at the local level.[44] Although the market has proven unwilling to overcome the digital divide because of a perceived deficiency in available returns, a wealth of evidence suggests that the benefits of providing telecommunication services in rural areas of developing countries outweigh its costs.

D. Existing Solutions

Given the widespread acceptance that telecommunications offer important and necessary benefits to those living in rural areas, many theories have been suggested on how (and by whom) networks should be expanded. These suggestions can be divided into two categories: the technology used to connect rural communities, and the financing and corporate

---

http://www.itu.int/dms_pub/itu-d/opb/stg/D-STG-SG02.10.1-2006-PDF-E.pdf (quantifying popularity of e-education and e-health programs in ITU-Development members states.)

[42] Press Release, International Telecommunication Union, Stepping Up Communications for Disaster Mitigation and Relief (July 10, 2006), *available at* http://www.reliefweb.int/rw/RWB.NSF/db900SID/KHII-6RL3EN (quoting ITU Secretary-General Yoshio Utsumi to have said that "[t]he tsunami that wreaked havoc in south East Asia, the Kashmir earthquake, the Suriname floods, and the Indonesia earthquake have demonstrated the power of emergency telecommunications in saving lives and coordinating efforts during rescue operations.")

[43] Forestier, *supra* note 31, at 630.

[44] INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT, *supra* note 3, at 5; GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID, *supra* note 19, at 30; KERRY S. MCNAMARA, INFODEV, INFORMATION AND COMMUNICATION TECHNOLOGIES, POVERTY AND DEVELOPMENT: LEARNING FROM EXPERIENCE 62-63 (2003) (noting that telecommunications "play an important role in informing and empowering citizens, . . . increasing the demand for good governance[,] . . . strengthening the voice of citizens in government policy[,] . . . and empower[ing] groups to address common concerns and interests without necessarily relying on government intervention.")

structure of the extensions. The former is not contentious, thanks to recent breakthroughs in wireless technologies. The latter, however, leaves room for debate.

1. Technological Breakthroughs

Communication technology has traditionally limited rural telecommunication networks in two ways:[45] by imposing high costs on physical expansion[46] and by requiring customers to use prohibitively expensive communication devices.[47] Thanks to recent technological advances, each of these obstacles has been largely overcome.

Physical expansion was originally so costly because of the "last mile" problem: connecting a community required physical wires to be laid out between each user and the local telecommunication provider, and between the local provider and the national network. The supply, labor and maintenance expenses were remarkably high and could not be justified for small markets.[48] Fortunately, wireless technologies have dramatically reduced these costs. Connections between the local provider and the national network can now be established using

[45] A third obstacle, access to a reliable source of electricity, is not considered here. Solar power can now be harnessed to provide power to many parts of telecommunication networks, such as the wireless transmitters and receivers. *See* AL HAMMOND & JOHN PAUL, A NEW MODEL FOR RURAL CONNECTIVITY 3 (May 2006), *available at* http://www.nextbillion.net/files/A_New_Model_for_Rural_Connectivity.pdf; *Information Communications Technology for Development*, 5 ESSENTIALS 10 (Sept. 2001), *available at* http://www.undp.org/eo/documents/essentials_5.PDF (describing extremely isolated Honduran village powering school computers using solar energy.)

[46] The physical expansion is made up of two distinct parts: the portion from the national backbone to the community, and the portion from a central location in the community to each individual user.

[47] *See, e.g.,* KEN BANKS & RICHARD BURGE, FAUNA AND FLORA INTERNATIONAL, MOBILE PHONES: AN APPROPRIATE TOOL FOR CONSERVATION AND DEVELOPMENT? 12 (2004) *available at* http://www.kiwanja.net/ICT_Report.pdf (noting that while "Cameroonians are keen to be part of the world by using cellular telephones," "[t]he growth of the cell phone industry in Cameroon is being choked by expensive cell phone handsets, with a motorbike being cheaper than a cellular telephone.")

[48] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 35 (estimating a cost of $20,000 to $40,000 per kilometer to lay wires, resulting in per subscriber costs of $1,000 even in urban areas, where subscribers are much more densely located.)

a series solar-powered antennae each capable of covering tens of kilometers.[49] Alternatively, the provider can use satellite technology such as VSAT[50] to connect directly to international networks.[51] Between the provider and its customers, low-cost cellular technology such as GSM[52] or wireless standards such as WiMAX[53] or Wi-Fi[54] can provide both voice and data connectivity to an entire community without laying any wires.[55] By minimizing the required physical infrastructure, wireless technology has provided new opportunities for local telecommunication networks in rural areas.

Although end-user telecommunication devices have traditionally been too expensive for rural communities in developing countries, recent initiatives to develop low-cost devices have been fruitful. Cellular phones are now being sold through the Ultra-Low Cost Handset (ULCH) program to low-income groups in developing countries for less than $40, and prices are expected to drop to less than $30.[56] Similarly, the One Laptop per Child (OLPC) program is preparing rugged laptops designed for use in developing countries, costing approximately

[49] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 33, 39; *see also* AL HAMMOND & JOHN PAUL, A NEW MODEL FOR RURAL CONNECTIVITY 2 (May 2006), *available at* http://www.nextbillion.net/files/A_New_Model_for_Rural_Connectivity.pdf (describing the use of WiMAX antennae to extend a network in 40 kilometer hops.)

[50] Very Small Aperture Terminal.

[51] A NEW MODEL FOR RURAL CONNECTIVITY, *supra* note 45, at 2.

[52] Global System for Mobile Communications, or Groupe Spécial Mobile.

[53] Worldwide Interoperability for Microwave Access, or IEEE 802.16.

[54] Wireless Fidelity, or IEEE 802.11.

[55] GSM is a telephony standard, but it can provide data transmissions using supplementary standards such as EDGE (Enhanced Data Rates for GSM Evolution). *See generally* ANDERS ENGVALL & OLOF HESSELMARK, SWEDISH INTERNATIONAL DEVELOPMENT AGENCY, PROFITABLE UNIVERSAL ACCESS PROVIDERS (2004), *available at* http://www.scanbi-invest.com/download/Rural_Access.pdf (describing the viability of GSM networks in rural, low-income areas of developing countries.) WiMAX and Wi-Fi are data standards, but can provide telephone service using Voice over Internet Protocol (VoIP) technology. *See* COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 32-33.

[56] Press Release, GSM Association, GSM Association Defines New 'Ultra-Low Cost' Handset Segment to Connect the Unconnected (Feb. 14, 2005), *available at* http://www.gsmworld.com/news/press_2005/press05_08.shtml.

$150[57], while Intel markets a similar notebook for $285.[58] By distributing these costs among a community through shared facilities such as public phones and telecenters,[59] the devices have become increasingly affordable.

2. Financing and Structuring Options

For many years, the international development community has advocated that market-based solutions are the most likely to overcome "the digital divide." The World Trade Organization (WTO), World Bank, and International Telecommunication Union (ITU) in particular have pressured developing countries to privatize national telecommunications providers and to liberalize the telecommunications industry. These efforts are crystallized in the Fourth Protocol to the General Agreement on Trade and Services (GATS), in which signatories committed to liberalizing their telecommunications industries over varying periods. Yet even in developing countries with liberalized telecommunication sectors, the market generally fails to provide service to rural communities. Since private providers expect to earn insufficient returns in rural markets, additional incentives are necessary to entice private network extensions, in order to reap the important social benefits of rural telecommunications.

The most common incentives are Universal Access Obligations (UAOs) and Universal Access Funds (UAFs). UAOs require a telecommunications operator to provide a particular set of communication services to a specific market, generally requiring unprofitable extensions of

---

[57] John Markoff, *For $150, Third-World Laptop Stirs a Big Debate*, N.Y. TIMES, Nov. 30, 2006, at A1.
[58] *The Laptop Wars: Will Charity or Profit End the Digital Divide?*, THE ECONOMIST, Jan. 8, 2008.
[59] INTERNATIONAL DEVELOPMENT RESEARCH CENTRE, CONNECTIVITY AFRICA INFOBOOK: CONNECTING AFRICANS TO OPPORTUNITY THROUGH INFORMATION AND COMMUNICATION TECHNOLOGIES 4 (noting Africa's "thriving sector that offers community-oriented access through cyber-cafes, telecentres and shared public access telephones."); *but see* COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 9 (noting that while attempts to "pool[] demand in telecentres, cybercafés and small phone-shops have had success in some regions . . . [the] overall results to date are uneven. ")

the telecommunication network.[60] In exchange, the operator is granted the right to serve a lucrative market in order to achieve a net profit.[61] For example, in Uganda a UAO required 89,000 communication lines to be built over a five year period in exchange for a license to provide all telecommunication services across the country.[62] UAFs are subsidies offered to telecommunications operators who commit to providing particular unprofitable services.[63] The subsidy can be collected from a country's general taxation revenue, from specific taxes on telecommunications operators or users in profitable markets,[64] or from donors.[65]

Although promising, UAOs and UAFs have mixed track records.[66] One fundamental problem with their approach is its top-down nature: the obligations imposed on the subsidized private operators are selected by the central government, but apply broadly over large areas.[67] It is therefore highly unlikely that the obligations will account for the diversity in needs and desires among various rural communities. Services deployed in a one-size-fits-all fashion are less likely to prove valuable to local communities, and therefore less likely to sustain

[60] *See* SCHERF, *supra* note 12, at 4.
[61] *See* SCHERF, *supra* note 12, at 4.
[62] *See* SCHERF, *supra* note 12, at 5.
[63] *See* SCHERF, *supra* note 12, at 5.
[64] ERIC LIE, INTERNATIONAL TELECOMMUNICATION UNION, NEXT GENERATION NETWORKS AND UNIVERSAL ACCESS: THE CHALLENGES AHEAD 19-20 (2007), *available at* http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR07/discussion_papers/Eric_Lie_universal_service.pdf; *see also* INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT, *supra* note 3, at 49 ("From the viewpoint of overall economic efficiency and equity, subsidies should be financed from general revenues . . . [but] are often financed by levies on telecommunications revenues."); Navas-Sabater, *supra* note 8, at 2 (noting that UAGs are "generally financed from contributions of one to two percent of the turnover of all licensed telecommunications operators.")
[65] *Financing Information and Communication Infrastructure Needs in the Developing World*, *supra* note 2, at 26 (suggesting that donor financing might be necessary in poorer and more population-sparse countries, and noting that a recent World Bank project in Nicaragua included seed financing for a rural development fund.)
[66] INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT, *supra* note 3, at 50; COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 9.
[67] JOËLLE CARRON, INTERNATIONAL DEVELOPMENT RESEARCH CENTRE, FINANCING UNIVERSAL ACCESS 4, *available at* http://wsispapers.choike.org/briefings/eng/joelle_universal_access.pdf (observing a lower rate of failure in projects initiated by local communities, and a lesser demand of profitability by project stakeholders than private providers.)

themselves.[68] It is for this reason that recent trends in the development literature have pointed toward community-driven, bottom-up projects. This trend suggests the viability of a new model for rural telecommunications: community-owned cooperatives.[69]

III. Rural Telecommunications Cooperatives

In 1997, Zimbabwean poet and developmental communication specialist Titus Moetsabi shifted the mindset of those working in developmental telecommunications by rephrasing the problem facing rural communities as the "*first* mile" problem.[70] Instead of thinking of rural connectivity as a challenge for which national governments and international organizations needed to reach out and craft solutions, a new paradigm emerged emphasizing the active participation of rural communities in strategizing, planning, implementing, and evaluating their own solutions.[71] The simplest suggestions involve appending participatory processes to the traditional solutions, granting rural people the opportunity to express their opinions on

---

[68] Peter Ballantyne, *Ownership and Partnership: Keys to Sustaining ICT-enabled Development Activities* 3 (International Institute for Communication and Development, Research Brief No. 8, 2003), *available at* http://www.ftpiicd.org/files/research/briefs/Brief8.pdf ("Trying to design activities for someone else to take charge of, especially without their involvement, is unlikely to have sustainable results . . . . Since most development projects still originate among donors and the agencies that work with them, they still tend to be the primary owners of such activities. This is not the best path to sustainability."); *See also* Lie, *supra* note 64, at 21 (noting the "a number of recent studies show that projects which originate from the communities that will be benefiting from the services . . . rather than those designed by bureaucrats have shown more promise" and that the economies of scale which justified a top-down approach to telecommunications in the past have been substantially reduced with the advent of modern wireless communications.)

[69] *See* GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID, *supra* note 19, at 29 ("The need for an integrated, community-based approach to rural development problems has been reiterated by many international development experts and emphasized in the 1992 Rio Declaration on Environment and Development, which was adopted by the United Nations."); *see also* JOHNSTON BIRCHALL, INTERNATIONAL LABOUR OFFICE, REDISCOVERING THE COOPERATIVE ADVANTAGE: POVERTY REDUCTION THROUGH SELF-HELP 12-13 (2003) (noting that the United Nations now "sees cooperatives as an important means of creating employment, overcoming poverty, achieving social integration, and mobilizing resources effectively" under a "new development paradigm that emphasises a bottom-up approach.")

[70] Paul J. Kolodzy, *Wireless Telecommunications*, *in* TECHNOLOGY FOR HUMANITARIAN ACTION 41, 44 (Kevin M. Cahill ed., 2005).

[71] Lynnita Paisley & Don Richardson, *Why the* First *Mile and not the Last?*, *in* THE FIRST MILE OF CONNECTIVITY: ADVANCING TELECOMMUNICATIONS FOR RURAL DEVELOPMENT THROUGH A PARTICIPATORY APPROACH (Lynnita Paisley & Don Richardson eds., 1998), *available at* http://www.fao.org/docrep/x0295e/x0295e03.htm.

development plans in their communities.[72] A more groundbreaking suggestion calls for communities to have full or majority legal ownership over telecommunications initiatives, for example in the form of a cooperative.[73] This paper focuses on the latter suggestion, since cooperatives have the potential to offer the greatest developmental benefits.

A. Justifying the Cooperative Structure

1. Cooperatives Defined

The International Labour Organization (ILO) defines a cooperative as "an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise."[74] Seven principles distinguish cooperatives from other ownership structures:

- voluntary and open membership;
- democratic member control;
- member economic participation;
- autonomy and independence;
- education, training and information;
- cooperation among cooperatives; and
- concern for community.[75]

These principles are meant to emphasize cooperatives' fundamental values, including "self-help, self-responsibility, democracy, equality, equity and solidarity; as well as ethical values of

[72] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 19.
[73] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 19.
[74] International Labour Organization, Recommendation 193, *Promotion of Cooperatives* (June 3, 2002), *available at* http://www.ilo.org/ilolex/cgi-lex/convde.pl?R193.
[75] International Co-operative Alliance, Statement on the Co-operative Identity, http://www.ica.coop/coop/principles.html (last visited March 24, 2007).

honesty, openness, social responsibility and caring for others."[76] The owners of a cooperative, called "members," are almost always *patrons*: purchasers of the cooperative's products or sellers to the cooperative of supplies or labor.[77] In the context of rural telecommunications, the bottom-up development theory calls on consumers, i.e. rural people, to constitute the membership of the cooperative.[78] To determine the viability of rural telecommunications cooperatives, it is therefore necessary to assess whether consumers are appropriate owners, in light of existing theories on enterprise ownership.

2. Efficiency of Consumer Ownership

Henry Hansmann suggests a means to determine the lowest-cost assignment of ownership of an enterprise, i.e. "the assignment of ownership that minimizes the total costs of transactions between the firm and all of its patrons." [79] In theory, an enterprise could be owned by a "pure" entrepreneur—one who satisfied all capital needs either from internal funds or by issuing debt and purchased its inputs and sold its products on the market, while controlling the enterprise and collecting its residual earnings.[80] Such arrangements may be inefficient, however, because of the costs of contracting on the market.[81] These costs can be reduced or eliminated by having a seller own the purchaser of its products, or vice versa.[82] One may therefore speculate that ownership should be assigned to the class of patrons with whom

[76] Recommendation 193, *supra* note 74.
[77] HENRY HANSMANN, THE OWNERSHIP OF ENTERPRISE 12 (1996). Hansmann also notes that even a standard business corporation can be viewed as a special form of producer cooperative, since it is owned by patrons too—those who lend capital to the firm, generally at no interest. HANSMANN, *supra*, at 12-14.
[78] The cooperative could actually be owned either by the local *consumers* of telecommunication services or the entire *community* where the services are offered. This paper does not distinguish between these two possibilities.
[79] HANSMANN, *supra* note 77, at 21.
[80] HANSMANN, *supra* note 77, at 18.
[81] HANSMANN, *supra* note 77, at 20.
[82] HANSMANN, *supra* note 77, at 20.

the enterprise's market contracting would otherwise be most costly. However, ownership itself carries certain costs, notably the costs of collective decision-making and monitoring managers.[83] To determine whether assigning ownership of a rural telecommunication provider to its customers is efficient, one must therefore determine the net effect of such an assignment on the enterprise's costs.

a. Market Contracting Costs

Assigning ownership of a local telecommunications provider to its rural customers significantly reduces market contracting costs relative to alternative ownership assignments, such as ownership by subsidized private investors.[84] These savings result from the alignment of interests which corrects the provider's market power, the information asymmetries between the parties, the customers' inability to communicate their preferences, and the tension of the adversarial process.[85]

Market contracting is especially costly in the context of market failures, for example where the provider's market power leads to extortionate pricing.[86] If rural telecommunication services are provided by non-consumers, the providers would have a monopoly over the market since high initial costs and limited potential revenues eliminate opportunities for competition in rural areas. Consumer-ownership therefore avoids monopoly pricing and thereby prevents underconsumption because of excessive pricing.[87] Although the

[83] HANSMANN, *supra* note 77, at 21.
[84] JOHNSTON BIRCHALL, INTERNATIONAL LABOUR OFFICE, COOPERATIVES AND THE MILLENNIUM DEVELOPMENT GOALS 37 (2004), *available at* http://www.ilo.org/dyn/empent/docs/F2006568587/BirchallMDGs_book.pdf (noting that the United Nations Millennium Project recognizes that cooperatives "can potentially reduce the transactional costs of accessing input and output markets.")
[85] *See* HANSMANN, *supra* note 77, at 24-32.
[86] HANSMANN, *supra* note 77, at 20.
[87] HANSMANN, *supra* note 77, at 25.

telecommunications industry generally deals with monopolies by regulating prices,[88] regulation imposes its own costs. In particular, imperfect regulation can lead to over- or underinvestment, and can reduce the incentives for cost reduction.[89] Consumer ownership avoids these regulation costs by aligning the interests of the enterprise with those of its customers.[90]

Consumer ownership also makes up for information asymmetries in rural telecommunications.[91] Since rural inhabitants are limited in their ability to assess the relative quality of the services they purchase (such as the quality of voice transmissions, or the achievable data rates), providers have an incentive to provide the lowest quality service possible without losing users (e.g. by limiting the bandwidth provided or the wireless signal power transmitted). Meanwhile, the inflexible obligations imposed by national governments on UAO/UAF private providers make it more difficult for them to act on customers' specific demands—for example, a decrease in service quality in exchange for reduced prices. To rectify the problem, customers must attempt to influence the government imposing the obligations, a costly and time-consuming endeavor with uncertain prospects. By allocating ownership to the customers, these information asymmetries and communication obstacles are eliminated, along with their relevant marketing costs.

[88] In the United States, for example, the Federal Communication Commission (FCC) is charged with "regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nationwide, and world-wide wire and radio communication service with adequate facilities at reasonable charges." Communications Act of 1934, 47 U.S.C. § 151 (1996).
[89] HANSMANN, *supra* note 77, at 169.
[90] HANSMANN, *supra* note 77, at 170.
[91] HANSMANN, *supra* note 77, at 27-28.

Finally, consumer ownership reduces a less tangible cost by allowing consumers to avoid the adversarial nature of market transactions.[92] Many consumers place great value on cooperative, trusting transactions which require less consumer vigilance to protect oneself from exploitation.[93] The adversarial nature may be particularly offensive to rural consumers being offered services by large corporations who do not identify with the particularities of the local community. Consumer ownership is therefore particularly beneficial in rural communities.

b. Ownership Costs

Ownership involves two main costs: controlling managers and bearing risk.[94] While consumer ownership increases some ownership costs, it decreases others and brings additional non-pecuniary benefits to the community.

Generally speaking, in order to control managers, owners must inform themselves of the enterprise's operations, come to collective decisions, and impose them.[95] *Consumer* ownership imposes additional decision-making costs. First, the decision-making *process* tends to be more costly, as consumers are sparsely distributed and have less experience controlling an enterprise. Fortunately, telecommunication services will alleviate the burden of geographic distribution, and over time the community can develop experience as members of a cooperative. Moreover, the decision-making process itself provides important benefits which offset its costs: collective decision-making unites the community and reinforces democracy and participation at the local level. Second, the actual *decisions* made by majority-voting consumers may be less efficient, as they will favor the median member's preferences to those

[92] HANSMANN, *supra* note 77, at 31-32.
[93] HANSMANN, *supra* note 77, at 31-32.
[94] *See* HANSMANN, *supra* note 77, at 35-45.
[95] HANSMANN, *supra* note 77, at 36.

of the average member.[96] This inefficiency, however, is only significant when a substantial difference exists between the median and the average. This is unlikely to pose a significant problem in a rural telecommunications cooperative since demand for a homogeneous commodity like telecommunication service is unlikely to vary significantly among members.[97]

Moreover, compared to a subsidized private investor, rural consumers are at an advantage when it comes to informing themselves about the enterprise and imposing their decisions on managers. Their closer physical proximity to managers, the frequency of transactions with the enterprise, and their strong demand for telecommunication services provide consumers the opportunity and incentive to effectively control managers. In addition, managers living in rural communities are likely to feel more accountable to members of their own community than to foreign investors, further aligning management's incentives with those of the cooperative's members.

Ownership also involves the bearing of risks associated with the enterprise, which is a common justification for investor-ownership.[98] However, rural customers are able to bear the risks of a small telecommunication venture nearly as well as investors, mainly because the risks are relatively low. First, the upfront costs are largely spent on standard communication devices that can serve as collateral for loans funding their purchase, as they provide a service for which demand is unlikely to subside, in a market free of competition.[99] Second, any increase in costs

[96] HANSMANN, *supra* note 77, at 40.
[97] HANSMANN, *supra* note 77, at 170 (noting that "[e]lectricity and telephone service are highly homogeneous commodities with few important quality variables that affect different users differently.") Although differences may exist between the demands of commercial and personal cooperative members, the relevant telecommunication services (in particular wireless telephony and internet access) are sufficiently homogenous to limit the gap between the median and average users' preferences.
[98] HANSMANN, *supra* note 77, at 45.
[99] HANSMANN, *supra* note 77, at 171.

to the enterprise, such as a rise in the cost of electricity, would likely have been passed on to consumers by an investor-owned enterprise anyway.[100] Finally, as previously mentioned, the demand for the service is unlikely to decrease, meaning revenues are unlikely to drop significantly.[101] Moreover, rural telecommunications cooperatives are unlikely to overinvest, since the technologies underlying their projects are designed to facilitate incremental growth and scalability.[102] Given the benefits of consumer ownership in terms of market contracting and ownership costs, we may conclude that allocating ownership of a rural telecommunications provider to its customers is certainly reasonable and possibly optimal.

3. Benefits and Positive Externalities of Community-Ownership

Beyond the calculus of market contracting and ownership costs, consumer ownership of rural telecommunications providers offers a number of additional benefits. These come in two forms: financial benefits to the enterprise and developmental benefits to rural communities.

A cooperative's costs are decreased by mobilizing community resources generally unavailable to private investors, such as access to rights of way and use of community facilities, for example to position antennae for the communication network.[103] Similarly, cooperatives can make use of their membership to obtain volunteer labor, which is particularly important

---

[100] HANSMANN, *supra* note 77, at 172.

[101] HANSMANN, *supra* note 77, at 172. Nevertheless, an overly optimistic estimation of demand may result in overinvestment. The cooperative should therefore estimate demand cautiously and make use of new technologies allowing wireless networks to be expanded cost-effectively in small increments.

[102] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 11, 34. Such scalability allows the projects to start small and grow incrementally with the membership's demand.

[103] Bruce Girard, *Innovative Models of Financing, Ownership and Management*, April 18, 2005, http://www.regulateonline.org/content/view/365/31/. It seems clear that a community forming a telecommunications cooperative would generally be willing to provide the cooperative with access to community facilities, just as we would expect any municipality to assist its public utilities providers. But it is also reasonable to expect some *individual* members to provide access to their *private* property for such purposes, either out of altruism (because of the benefit provided to their local community) or because of the personal benefits they will reap (for example, the strong signal strength received when an antenna is located close to their home.)

during the setup of a communication network,[104] but also useful in maintenance since the newest devices require less technical expertise.[105] In addition, consumer cooperatives do not demand the same return on investment as investor-owned organizations since the members' goal is to maximize community benefits, not earnings.[106] As a result, surpluses are generally reinvested into the enterprise as cooperatives grow, and into the community once they have matured.[107]

Consumer ownership also offers developmental benefits to the community. The participatory nature of cooperatives reduces social exclusion and fosters community cohesion,[108] allowing communities to develop strong regional identities.[109] Combined with cooperatives' local competence building (in terms of technical know-how, organization

---

[104] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 29-30 ("There is strong evidence that community-owned ICT initiatives have the capacity to mobilise resources at low or no cost, through voluntary labour, access to rights of way and the use of public commons, shared use of community facilities, or in-kind payment for services."). Individuals living in communities considering forming cooperatives will generally have significant unsatisfied demand for telecommunication services; knowing that the community is pulling together to provide the desired services for its members at cost (and not for profit), one may reasonably expect some able individuals to volunteer to assist. This is particularly true given that the communities implementing such plans will generally be small, such that the individual will reap a significant portion of the benefit of the volunteer labor, both in terms of the telecommunication services eventually provided and the appreciation of his or her neighbors.

[105] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 36, 34; *See also* Girard, supra note 103 (noting that community-owned infrastructure projects tend to be "more highly valued" and "better maintained.")

[106] This results from the organizations' consumer ownership: increased earnings come from higher prices, which the members must themselves bear. Instead of artificially inflating prices to achieve higher earnings, members will prefer to set prices so their cooperatives break even. Meanwhile, the members will demand that their cooperatives provide the maximum benefits achievable given the investment made, since the members are the ultimate benefactors of the telecommunication services.

[107] Avishay Braverman, J. Luis Guasch, Monika Huppi & Lorenz Pohlmeier, *Promoting Rural Cooperatives in Developing Countries: The Case of Sub-Saharan Africa* 12-13 (World Bank Discussion Papers, No. 121, 1991), *available at* http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/01/06/000178830_98101903544524/Rendered/PDF/multi_page.pdf ("In the early phase of cooperative development, most members will opt for expanding business rather than for social activities" but later "many coops . . . invest [profits] in social services.")

[108] UNITED NATIONS, COOPERATIVES AT WORK 2, *available at* http://www.un.org/issues/calendar/cache/Cooperatives.pdf.

[109] REDISCOVERING THE COOPERATIVE ADVANTAGE, *supra* note 69, at 45 (noting the "strong regional identity" which developed in an isolated Bolivian town after inhabitants started a water cooperative.)

management, and collective decision-making), communities become better able to assert themselves politically[110] and oppose authoritarian governments attempting to limit social and economic change.[111] In addition, the grassroots nature of cooperatives tends to inspire its members to take on new entrepreneurial initiatives, contributing to the communities' development.[112] Cooperatives therefore offer important benefits to poor rural communities unavailable in traditional organizational structures.[113]

B. Existing Rural Telecommunications Cooperatives

Given the theoretical support for the viability of rural telecommunications cooperatives, it should come as no surprise that real-world examples have popped up, both in developed and developing countries.[114] Most informative are those in the United States, Poland, and Laos.

1. United States

Rural telephone service emerged in the United States at the turn of the twentieth century, when the original Bell patents expired and farmers began to implement their own

[110] HANSMANN, *supra* note 77, at 43; *see also* NATIONAL TELECOMMUNICATIONS COOPERATIVE ASSOCIATION, COOPERATIVE DEVELOPMENT CASE STUDIES: WIST AND TYCZYN TELECOMMUNICATIONS COOPERATIVES, POLAND 39 (2003), *available at* http://www.ntca.org/content_documents/NTCA.Poland%20Case%20Study.pdf (noting 50% higher voter turnout in community with cooperative relative to national average.)

[111] GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID, *supra* note 19, at 35.

[112] Cooperative Development Case Studies, *supra* note 110, at 15, 35 (noting that telecommunications cooperatives in rural Poland "were the first successful community owned enterprises in their villages, and generated momentum for other community-based services," including wastewater treatment facilities, a drinking water organization, a credit union and large dairy cooperative.) *available at* http://www.ntca.org/content_documents/NTCA.Poland%20Case%20Study.pdf; *See also* GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID, *supra* note 19, at 35 (noting that bottom-up telecommunication networks "foster entrepreneurship.")

[113] REDISCOVERING THE COOPERATIVE ADVANTAGE, *supra* note 69, at 62 (concluding that "[w]here there are . . . for-profit alternatives the cases demonstrate that the cooperative form is – for the aim of poverty reduction – superior" and that "[w]here there are no alternatives . . . even a relatively weak form of cooperation is better than nothing.")

[114] GLOBAL COMMUNICATIONS: OPPORTUNITIES FOR TRADE AND AID, *supra* note 19, at 32 ("Bottom-up approaches to technology deployment are not without considerable precedent.")

systems using local capital and labor.[115] The farmers organized themselves in a variety of organizations, some purely private and others consumer-owned.[116] Although originally very successful,[117] many of these organizations failed during the Great Depression.[118] Since the market proved incapable of providing adequate telecommunication service to rural areas, and given the Communications Act of 1934's demand for universal telephone access, [119] the United States government took action. In 1949, the Rural Electrification Administration (REA) was authorized to provide long-term, low-interest loans[120] to providers of telephone service, with a preference for rural cooperatives.[121] In 1954, the National Telecommunications Cooperative Association (NTCA) was formed to represent telecommunications cooperatives nationally.[122] Cooperatives proved very successful at offering "high-quality, state-of-the-art telephone service": [123] by 1967, 80% of American farms were served, and by 1981 the number had increased to 95%.[124]

---

[115] DALE HATFIELD, THE ANNENBERG WASHINGTON PROGRAM, SPEEDING TELEPHONE SERVICE TO RURAL AREAS: LESSONS FROM THE EXPERIENCE IN THE UNITED STATES (1994), *available at* http://www.annenberg.northwestern.edu/pubs/speed/.

[116] D. Linda Garcia & Neal R. Gorenflo, *Rural Networking Cooperatives: Lessons for International Development and Aid Strategies*, *in* THE FIRST MILE OF CONNECTIVITY: ADVANCING TELECOMMUNICATIONS FOR RURAL DEVELOPMENT THROUGH A PARTICIPATORY APPROACH (Lynnita Paisley & Don Richardson eds., 1998), *available at* http://www.fao.org/docrep/x0295e/x0295e21.htm.

[117] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 23 ("At its highpoint, in 1927, there were 6,000 rural telephone cooperatives across the country.")

[118] Garcia, *supra* note 116.

[119] Communications Act of 1934, 47 U.S.C. § 151 (1996).

[120] National Telecommunications Cooperative Association, History of Rural Telecommunications, http://www.ntca.org/ka/ka-3.cfm?content_item_id=63&folder_id=44 (last visited March 24, 2007).

[121] Rural Electrification Act of 1936, ch. 776, §201, 63 Stat. 948, 949 (repealed 1994).

[122] History of Rural Telecommunications, *supra* note 120. The NTCA now offers "a wide array of member services, including a highly effective government affairs program; expert legal and industry representation; a broad range of educational services; a comprehensive assortment of regular and special publications and public relations programs; and a well-rounded complement of national and regional meetings." National Telecommunications Cooperative Association, Who We Are, http://www.ntca.org/ka/ka-3.cfm?content_item_id=60&folder_id=44 (last visited March 24, 2007).

[123] Garcia, *supra* note 116.

[124] UNITED STATES DEPARTMENT OF AGRICULTURE, A BRIEF HISTORY OF THE RURAL ELECTRIC AND TELEPHONE PROGRAM C-2, *available at* http://www.rurdev.usda.gov/rd/70th/rea-history.pdf.

In 1981, Congress eliminated the special low interest rate on loans to telephone service providers.[125] However, rural telecommunications cooperatives in the United States continue to benefit from other protections.[126] Most significantly, the Federal Communications Commission maintains a Universal Service Fund which subsidizes eligible service providers in high-cost areas with contributions from all telecommunications carriers providing interstate service.[127] Today there are more than 1,000 telecommunications cooperatives in the US, offering basic telephony and advanced services such as broadband internet access and cellular telephony.[128] Thanks to the success of telecommunications cooperatives in the United States, the NTCA now runs an international program with the mission of improving the quality of life in rural communities of developing and newly-democratized countries by facilitating locally-owned telecommunications systems.[129] The program is funded by the United States Agency for International Development (USAID).[130]

2. Poland

In 1990, Poland's rural teledensity was very low (approximately 2.4 telephones per 100 people) and rural telephones were generally only available to mayors and priests.[131] Concurrent with the liberalization of Poland's telecommunications industry in 1990, the NTCA

---

[125] A BRIEF HISTORY OF THE RURAL ELECTRIC AND TELEPHONE PROGRAM, *supra* note 124, at A-2.
[126] *See* JILL CANFIELD, USA TELECOM COOPERATIVES LEGISLATION & REGULATION 12 (2004), *available at* http://www.ntca.org/content_documents/Jill%20presentation.ppt.
[127] Telecommunications Act of 1996, 47 U.S.C. § 254; *see also* FEDERAL COMMUNICATIONS COMMISSION, THE FCC'S UNIVERSAL SERVICE SUPPORT MECHANISMS 1 (2006), *available at* http://www.fcc.gov/cgb/consumerfacts/universalservice.pdf.
[128] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 23.
[129] NTCA International, Connecting Rural Communities around the World, *at* http://www.ntca.org/ka/ka-2.cfm?Folder_ID=60 (last visited March 24, 2007).
[130] United States Agency for International Development, Cooperative Development Program Grantees FY04 - FY09, *at* http://www.usaid.gov/our_work/cross-cutting_programs/private_voluntary_cooperation/cdpgrantees04.html (last visited March 24, 2007).
[131] Cooperative Development Case Studies, *supra* note 110, at 1.

undertook to assist two rural Polish villages to set up telephony cooperatives.[132] The villages covered 70% of the costs in cash and in kind, while donor funding made up the balance.[133] The enterprises were successful[134] and have now expanded their services to include internet access.[135] Moreover, the cooperatives "generated momentum for other community-based services" including wastewater treatment facilities, a drinking water organization, a credit union and large dairy cooperative.[136]

The cooperatives benefited from an environment that facilitated their success. Poland has a long history of member-controlled cooperatives,[137] so rural people were familiar with the concept and a suitable legal structure existed.[138] The recent liberalization of the telecommunications sector allowed one telecommunications carrier to compete with the former national monopoly in each local market.[139] The community members, though poor, had the capacity and willingness to pay for the services.[140] And the NCTA and USAID offered ongoing technical, managerial, and legal support for the project.[141] Legal expertise proved particularly important in the interconnection negotiations;[142] the most recent interconnection

[132] Cooperative Development Case Studies, *supra* note 110, at 2.
[133] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 61.
[134] Cooperative Development Case Studies, *supra* note 110, at 3 (noting that the endeavors "continue to thrive today as cooperatives.")
[135] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 23, 61.
[136] Cooperative Development Case Studies, *supra* note 110, at 15, 35.
[137] Cooperative Development Case Studies, *supra* note 110, at 2.
[138] Cooperative Development Case Studies, *supra* note 110, at 13.
[139] Cooperative Development Case Studies, *supra* note 110, at 2.
[140] Cooperative Development Case Studies, *supra* note 110, at 37 (contrasting the Polish situation with those in Bulgaria and Ukraine where communities were unable to raise sufficient capital to undertake similar projects.)
[141] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 23, 68; *See also* Cooperative Development Case Studies, *supra* note 110, at 12 (noting the importance of NTCA assistance as the "NTCA had to convince policy makers of the benefits of a multi provider system and reassure them that the co-ops would not be a competitive threat.")
[142] Cooperative Development Case Studies, *supra* note 110, at 39 ("[C]ooperative leaders had no idea how to draw up an interconnection and revenue sharing arrangement with [the former national telecommunication provider] – yet, this agreement was critical to their profitability and was made possible through NTCA technical help.")

agreement is financially supportive of the cooperative model.[143] It is therefore clear that the Polish communities were well situated to organize successful cooperatives. However, the environment was not perfect: the government failed to provide tax incentives for the cooperatives,[144] which the NTCA believes will hinder the growth of the cooperative model in Poland.[145]

3. Laos

In rural Laos, a community-owned telecommunications network now connects five nearby villages, with a total population of 450, to the internet using wireless technology developed by the project's sponsor, the Jhai Foundation.[146] Although initial costs were funded by the Jhai Foundation through international donations, the expected revenues will cover the operation, maintenance, and replacement of the system.[147] One defining characteristic of the project is that it is truly community-driven: in response to other development activity in the area, demand for internet and telephony increased.[148] To meet this demand, villagers expressed their ambitions to the Jhai Foundation[149] and prepared a detailed business plan calling for volunteer labor, the use of community facilities, and affordable tariffs.[150] The small size of the community and close proximity of its residents likely facilitated the group effort during the project's initial stages, and will continue to benefit the enterprise by facilitating

[143] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 76-77.
[144] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 23, 63 (noting that the cooperatives were required to pay the standard 19% income tax.)
[145] Cooperative Development Case Studies, *supra* note 110, at 20 (noting that "the lack of tax incentives for cooperatives may hinder the growth of the cooperative model in Poland.")
[146] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 27.
[147] JHAI FOUNDATION, PROPOSAL TO THE SWEDISH INTERNATIONAL DEVELOPMENT AGENCY: REMOTE IT VILLAGE PROJECT 6 (2002) *available at* http://www.jhai.org/jhai_RemoteIT_SIDA.pdf.
[148] Cluster Four Assessment Report 17-18 (World Group on Internet Governance, Draft Working Paper, Apr. 25, 2005) *available at* http://www.wgig.org/docs/WGIGPaper-Cluster4-development.pdf.
[149] *Making the Web World-Wide*, THE ECONOMIST, Sept. 26, 2002.
[150] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 27.

decision-making and controlling management. Apart from the tight community bond, the project also benefited tremendously from the technical efforts of the Jhai Foundation, which specially designed rugged computers powered by bicycle-generated electricity.[151]

IV. Challenges Facing Cooperatives

Although rural telecommunications cooperatives are theoretically desirable and have been successful in practice, they nevertheless face their own challenges in many developing countries. These challenges arise from the varying interests of the three major players in a rural telecommunications cooperative: the government, the cooperative's management, and the cooperative's membership. When each player acts in its own self-interest, a suboptimal solution results for the players collectively—namely that the cooperative fails to develop and telecommunication service is not extended to rural areas. This section analyzes the interests driving each of the three players and the specific changes necessary to enable the potential cooperative to become sustainable.

A. Government Interests

Although one might expect the governments of developing countries to encourage the wide dissemination of telecommunications technologies throughout their country, this has not been the case in practice.[152] Instead, these governments often present a number of obstacles

[151] Lee Gomes, *High-tech Devices for World's Poorest*, THE WALL STREET JOURNAL, Aug. 1, 2005.
[152] Francisco J. Proenza, Food and Agriculture Organization of the United Nations, *The Road to Broadband Development in Developing Countries Is through Competition Driven by Wireless and Internet Telephony*, 3 Information Technologies and International Development 27 (Winter 2006), *available at* http://www.mitpressjournals.org/doi/pdf/10.1162/itid.2007.3.2.21 ("Given their importance for low-income communities, it would be sensible to expect developing countries to pursue an aggressive policy of enabling widespread use of VoIP and wireless technologies. This is hardly the norm. Widespread adoption of these technologies is often blocked, particularly in countries where incumbent telecom monopolies or cartels capture regulation and policy.")

to the successful creation and operation of rural telecommunications cooperatives. This section describes the reasons for these obstacles and the specific changes which governments should undertake to facilitate telecommunications cooperatives.

1. Reasons for Resisting Rural Telecommunications Cooperatives

The governments' unwillingness to make the changes necessary to enable cooperatives may derive from four possible sources: economic self-interest, capture by industry, opposition to citizen activism, or inertia.

Despite the recent trend of telecommunications liberalization, many developing countries' governments retain control over at least part of their telecommunications industry.[153] In such situations, the government may view any alternative provider of telecommunication services as a threat to its continuing dominance.[154] This is true even where the new provider offers only to extend the network into an area which the national operator has chosen not to serve.[155] These national operators should actually welcome network extensions since they produce additional revenue. This is accomplished in two ways: by generating new traffic originating in the existing network destined for the network extension, and through interconnection fees from traffic originating in the extended network.[156]

---

[153] INTERNATIONAL TELECOMMUNICATION UNION, TRENDS IN TELECOMMUNICATION REFORM 2006: REGULATING IN THE BROADBAND WORLD 15 (2006), *available at* http://www.itu.int/dms_pub/itu-d/opb/reg/D-REG-TTR.8-2006-SUM-PDF-E.pdf (noting that 60% of countries around the world have competitive telecommunications sectors, but that "Africa is nearly evenly split between monopoly and competitive conditions.")

[154] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 41-42.

[155] William H. Melody, *Telecom Reform: Progress and Prospects*, 23 Telecommunications Policy 7, 15 (1999) (noting that public telecommunications operators have traditionally considered network extensions to new geographic areas "as a threat to their monopoly" despite being "beneficial in virtually all circumstances.")

[156] Andrew Dymond, *Telecommunications Challenges in Developing Countries: Asymmetric Interconnection Charges for Rural Areas* 9 (World Bank, Working Paper No. 27, Feb. 2004), *available at* http://iris37.worldbank.org/domdoc/PRD/Other/PRDDContainer.nsf/WB_ViewAttachments?ReadForm&ID=85256D2400766CC7852572580079622C&.

Nevertheless, many developing countries prefer to protect their national provider from potential competition and therefore refuse to facilitate new ventures in rural areas.[157]

Even in countries which have privatized their telecommunications network, the resulting private operator often has significant clout with the regulatory agencies and the government.[158] Just like national operators in other countries, these large private operators prefer to deter competition to the extent possible. By flexing their muscles, they may incentivize the government to neglect the changes necessary to make telecommunications cooperatives possible.

The government may also have misgivings about encouraging the cooperative structure of ownership *because* of the additional developmental benefits it offers. Corrupt governments may be wary of grassroots organizations and prefer that the rural population remain excluded from the political process such that rural people cannot advocate for change. Yet cooperatives have been shown to unite isolated communities, empower their members, and encourage subsequent bottom-up organization and activism.[159] Although such changes are objectively beneficial to the country, members of the government may believe it to be in their personal interest to suppress such activity by discouraging cooperatives.

---

[157] Eric M.K Osiakwan, *Africa in Internet Governance and Financing the Information Society* (Association of African Internet Service Provider Associations, 2005) ("The alternative, which is currently prevailing in nearly all developing countries, is for the government to cling to yesterday's technology and do everything in its power to prop up the monopoly telecom."); COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 41-42 ("[T]he mere *prospect* of liberalisation could compound the problem in that incumbent public telecommunication operators, and governments supporting them, have often regarded any new start-ups, at local or other level, as a threat.").

[158] MARTIN MINOGUE & LEDIVINA CARIÑO, REGULATORY GOVERNANCE IN DEVELOPING COUNTRIES 11 (2006), *available at* http://www.competition-regulation.org.uk/publications/crc_books/chapter1mmlc.pdf; Kirkpatrick, *supra* note 27, at 153.

[159] *See generally* Section III(A)(3), *supra*.

Finally, the government may genuinely believe that rural telecommunications are not a priority for the country's development relative to other items on its agenda. Rural communities often suffer from a variety of problems which the government may reasonably choose to tackle first, such as improving the access to and quality of health care or education. However, as has been demonstrated, telecommunications themselves can help solve many of these problems, while fueling economic growth and promoting sustainable poverty reduction. Nevertheless, nearsightedness and inertia may prevent the government from taking an active role in the support of cooperatives.

2. Recommended Changes to Enable Rural Telecommunications Cooperatives

Were the government to overcome its misgivings and choose to facilitate rural telecommunications cooperatives, the changes it could undertake would fall into four major categories: legislative, regulatory, financial and instructional.

The primary legislative change would be the creation of a legal structure for cooperatives, if one does not already exist. The structure should limit the liability of the cooperative as it would for a traditional corporation[160] and impose requirements similar to those for non-profit entities,[161] yet be flexible enough to cover different types of ownership (e.g. consumer ownership or community ownership).

The regulatory changes required are more numerous. First, the government should liberalize the telecommunications industry, at least in those parts of the country where the public telecommunications operator fails to provide service. Second, the government should

[160] Unlimited liability deters the formation of cooperatives, since it requires all of a cooperative's members to risk being held personally liable for the cooperative's debt and liabilities. Since many members may have little or no involvement in the operation of the cooperative, they will be reluctant to accept such an obligation.
[161] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 48.

enable the use of wireless technologies by providing access to spectrum. Around the world, two commonly-used frequency bands (2.4 GHz and 5 GHz) are exempt from licensing and can therefore be freely used in small unlicensed networks, for example using Wi-Fi technology.[162] However, each country licenses spectrum within its borders as it pleases,[163] and many developing countries have not kept these bands license-exempt.[164] The regulations should be changed to permit communities to freely use these frequency bands. Similarly, the spectrum necessary to operate cellular networks should be made available to rural communities for free or at low cost; there should be no concern for interference with existing cellular networks, as the communities are organizing telecommunications cooperatives precisely *because* they are beyond the reach of existing networks.[165] Third, the regulations should provide for asymmetric interconnection fees, whereby traffic into the rural network generates greater revenue for the rural cooperative than traffic into the national network costs the cooperative.[166] This can be justified as a form of subsidy to help support the emergence of rural telecommunications; alternatively, it can be viewed as a technique to force the national operator to acknowledge the savings it reaped by not extending the network itself.[167] Finally, the government should facilitate "open access" to the national backbone whereby the network is treated as a public good, accessible by all with transparent pricing on a technology-neutral basis.[168]

---

[162] *See, e.g.,* 47 C.F.R. § 15.247 (FCC rule describing license-exempt use of 2.4 GHz and 5 GHz frequency bands).
[163] Maria Isabel A. S. Neto, Wireless Networks for the Developing World: The Regulation and Use of License-Exempt Radio Bands in Africa 67 (May 7, 2004) (unpublished M.S. thesis, Massachusetts Institute of Technology), *available at* http://itc.mit.edu/itel/students/papers/neto_thesis.pdf.
[164] Neto, *supra* note 163, at 68-74.
[165] Of course, it may be necessary to resolve disputes between competing proposals to provide service, since communication networks in close proximity are likely to interfere with one another.
[166] *See generally* Dymond, *supra* note 156.
[167] COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 50.
[168] OPEN ACCESS MODELS, *supra* note 21, at 15.

In order to be successful, rural cooperatives will initially require financial assistance. The costs to purchase and install the communication technology will generally require financing beyond what the communities will be able to generate locally. The government could facilitate rural telecommunications by providing long-term low-interest loans which the cooperative will pay back over time through its members' usage fees. This funding could be supplemented by UAFs, recognizing the cooperative's efforts towards achieving universal access. Although the ability of developing countries to finance such projects will be limited, the government can also reach out for international support from donors, aid agencies, and specialized developmental infrastructure organizations such as the Private Infrastructure Development Group (PIDG), the Infrastructure Development Company (InfraCo) and the Mini-Infrastructure Apex Programme (MIAP).[169] In addition to providing funding and reaching out for assistance from others, the government should exempt the cooperative from taxation, since it will operate as a not-for-profit enterprise and will need to minimize its cost in order to become sustainable.

Finally, the government should set up a national cooperatives' organization which would provide guidance and expertise to communities attempting to create new cooperatives. Rather than taking a top-down approach and dictating to communities how to run their cooperatives, such an organization should operate as a collection of "best practices," uniting communities around the country as they seek to achieve common goals. The organization could eventually resemble the United States' NTCA, which now provides a wide array of services to its 1,150 member organizations.[170]

[169] *See* COMMUNITY-BASED NETWORKS AND INNOVATIVE TECHNOLOGIES, *supra* note 12, at 51.
[170] History of Rural Telecommunications, *supra* note 120.

B. Management Interests

If a cooperative were to form despite the government's reluctance, its management may create internal obstacles to its success. Major problems are likely to develop as a result of management's inexperience running telecommunications cooperatives,[171] and because management will be tempted to act in its own interests rather than those of the cooperative.[172]

To maximize the developmental benefits of the bottom-up nature of the cooperative, it is important that management consist of local community members to the extent possible. However, in many rural communities lacking telecommunications access, no member of the local population will have experience managing cooperatives, let alone a telecommunications cooperative. Such inexperience will increase the likelihood that management will make poor decisions while operating the cooperative on behalf of its members. This problem could be alleviated by the creation of a national organization of telecommunications cooperatives, similar to the United States' NTCA, to provide leadership and guidance to individual cooperatives based on best practices around the country, such that cooperatives need not repeat the mistakes made by those before them.

Yet even if the managers are skilled, there remains the risk that they will use their control to benefit their personal interests rather than those of the collective membership. Managers need to make many decisions on the membership's behalf because of the difficulty of having members make all decisions collectively; indeed, this is one of the main justifications for hiring managers. But managers aware of the membership's challenges in monitoring their

[171] REDISCOVERING THE COOPERATIVE ADVANTAGE, *supra* note 69, at 31 (noting that "[t]here is no point in discussing a cooperative that is too complex and beyond the skills and experience of those who are going to oversee and manage it.")
[172] HANSMANN, *supra* note 77 at 37.

behavior can take advantage of their position of authority. For example, they could hire individuals who pay bribes rather than the best qualified applicants, or could suggest network layouts which provide their family and friends with preferential service rather than those layouts which would maximize the collective quality of service. Managers would be discouraged from taking such action if the membership were better able to monitor management's behavior. Managers could be further discouraged if corporate laws required them to comply with fiduciary duties of care and loyalty toward their membership, and these laws were effectively enforced.

C. Membership Interests

Despite the members' strong desire for the rural telecommunications cooperative to be successful, they too face challenges which may cause them to redirect their efforts toward other demands. These challenges arise externally in rural inhabitants' interactions with government, and internally as the membership of each cooperative attempts to monitor and control its management.

Although rural people all over a developing country may wish to encourage their government to support rural telecommunications access, they suffer from an inability to work together and pressure for change in unison. The sparse geographic distribution of rural people throughout a country, combined with their lack of access to communication services, make it very difficult for rural people to coordinate their efforts to pressure the government for change. As a result, rural communities may feel isolated and lose faith in their ability to mobilize support for their cause, perhaps hoping that someone else will take up the challenge in their place. In addition, poverty may rationally influence rural inhabitants to set aside their

aspirations of establishing a telecommunications cooperative and instead focus on necessities such as food, health care and education. In order to overcome these challenges, rural people need a champion who can initiate change at the national level and provide the opportunity and inspiration for local initiatives.

Even if a cooperative is successfully formed, the members of a community will have trouble coming to the collective decisions necessary in order to operate the cooperative and oversee its management. Here, the relatively large number of members and their geographic distribution will present difficulties. Fortunately, these will be alleviated by the introduction of communication services. Nevertheless, many members of rural communities may be inexperienced with the collective decision-making necessary in order to run the cooperative. The cooperative may therefore benefit from a national cooperatives' organization providing leadership and guidance when called upon.

Given the varying interests of each of the players and the numerous challenges to the viability of a rural telecommunications cooperative, it is clear that an additional player needs to be introduced to align all interests and assist each player in overcoming the obstacles it faces. One particularly appropriate candidate for this position is the Millennium Challenge Corporation.

V. Millennium Challenge Corporation

The Millennium Challenge Corporation (MCC) is an American government corporation[173] which provides bilateral foreign assistance[174] to a selected group of low- and lower middle-income countries[175] through a fund called the Millennium Challenge Account (MCA). The magnitude of the MCC's aid programs along with its access to expertise in rural telecommunications cooperatives position it particularly well to enable the success of cooperatives in developing countries. This section provides an overview of the MCC and MCA, demonstrates the applicability of MCA funding to rural telecommunications, and describes the effect the MCC could have on each of the players in a rural telecommunications cooperative.

A. Overview of the MCC and MCA

On March 14, 2002, U.S. President George W. Bush announced the creation of the MCA, a new foreign economic assistance plan to launch in 2004 and provide an additional $5 billion of foreign assistance each year starting in 2006.[176] The program as announced represented a 50% increase in U.S. official foreign development assistance[177] and possibly the most significant change to American foreign aid policy since the Kennedy administration.[178] So far, MCA funding has been significantly below what was originally promised,[179] and the MCC has only

[173] 22 U.S.C. § 7703(a) (2004).
[174] Steven Radelet, *The Millennium Challenge Account: Transforming US Foreign Assistance Policy?*, 11 Agenda 51, 51 (2004), *available at* http://www.cgdev.org/doc/mca%20monitor/Agenda_McLeod.pdf.
[175] CURT TARNOFF, CONGRESSIONAL RESEARCH SERVICE, CRS REPORT FOR CONGRESS: MILLENNIUM CHALLENGE ACCOUNT 3 (2006), *available at* http://fpc.state.gov/documents/organization/70295.pdf.
[176] CRS REPORT FOR CONGRESS, *supra* note 175, at 1.
[177] James W. Fox & Lex Rieffel, *The Millennium Challenge Account: Moving Toward Smarter Aid* 4 (The Brookings Institution, Policy Brief 145, July 25, 2005), *available at* http://www.brookings.edu/comm/policybriefs/pb145.pdf.
[178] Radelet, *supra* note 174, at 51.
[179] In 2007, the Bush Administration requested $3 billion for the MCA, but Congress approved only $2 billion, which the Senate reduced to $1.9 billion. CRS REPORT FOR CONGRESS, *supra* note 175, at 28.

requested $2.225 billion for 2009.[180] Nevertheless, the MCA's magnitude is sufficient to allow the MCC's compacts to have a dramatic impact on the development of low- and lower middle-income countries.

The MCC's goal is to reduce poverty in developing countries by promoting sustainable economic growth.[181] While the MCC's mission may not seem novel, its methods are. Unlike existing aid programs, the MCC is highly selective in determining aid recipients,[182] requires little bureaucracy,[183] and expends significant energy monitoring project performance.[184] The program is also unique in its intention to have a "transformative" effect on recipient countries by funding large projects with coordinated benefits.[185] Moreover, the MCC takes a "bottom-up" approach to aid, preferring to finance recipient-proposed projects.[186]

MCA funding is only available to a select group of poor countries who qualify each year based on their performance in three categories: ruling justly, investing in people, and fostering

---

[180] *See* MILLENNIUM CHALLENGE CORPORATION, BUDGET JUSTIFICATION 2009 1 (Jan. 2008), *available at* http://www.mcc.gov/documents/mcc-fy09-cbj.pdf.

[181] Millennium Challenge Corporation, About the Millennium Challenge Corporation, http://www.mcc.gov/about/ (last visited March 22, 2007) ("The MCC focuses specifically on promoting sustainable economic growth to reduce poverty through investments in areas such as transportation, water and industrial infrastructure, agriculture, education, private sector development, and capacity building."); *see also* 22 U.S.C. § 7701(2) (2004) (noting that the purpose of the MCA is to "provide [United States global development] assistance in a manner that promotes economic growth and the elimination of extreme poverty and strengthens good governance, economic freedom, and investments in people.")

[182] CRS REPORT FOR CONGRESS, *supra* note 175, at 3.

[183] Radelet, *supra* note 174, at 60.

[184] Government Accountability Office, Report to the Chairman, Committee on Foreign Relations, U.S. Senate, *Millennium Challenge Corporation: Compact Implementation Structures Are Being Established; Framework for Measuring Results Needs Improvement* 5 (July 2006), *available at* http://www.gao.gov/new.items/d06805.pdf (recounting the MCC's framework for oversight, management, fiscal accountability, procurement, monitoring, and evaluation of its aid programs, and noting that the "MCC has conditioned some disbursements on the countries' achieving performance targets.")

[185] Government Accountability Office, Report to the Chairman, *supra* note 184 at 1 ("MCC's mission is to reduce poverty by supporting sustainable, transformative economic growth in partnership with developing countries that create and maintain sound policy environments."); SHEILA HERRLING & STEVE RADELET, CENTER FOR GLOBAL DEVELOPMENT, SHOULD THE MCC PROVIDE FINANCING THROUGH RECIPIENT COUNTRY'S BUDGETS? 1 ("The MCC strives to be . . . transformative in its impact in recipient countries.")

[186] Radelet, *supra* note 174, at 61-62 (noting the shortcomings of a top-down approach to foreign assistance, and that the MCA will instead "give recipients much more of the responsibility for program design.")

enterprise and entrepreneurship.[187] Funding is unavailable to any country that fails a corruption test, one of the "ruling justly" performance indicators.[188] This shift to increased selectivity likely resulted from recent literature suggesting that foreign aid is effective at promoting growth in countries with "good" policies and institutions, but is ineffective elsewhere.[189]

Once a country is selected, it must consult with a broad sampling of civil society[190] before deciding which projects to propose to the MCC.[191] The MCC then selects the most promising proposals based on their likelihood of stimulating economic growth and poverty reduction,[192] and enters into compacts with those countries for up to five years.[193]

---

[187] CRS REPORT FOR CONGRESS, *supra* note 175, at 2; *see also* 22 U.S.C. § 7706(b) (2004) (listing the eligibility criteria as "just and democratic governance," "economic freedom," and "investments in . . . people.")

[188] CRS REPORT FOR CONGRESS, *supra* note 175, at 3, 34.

[189] Press Release, Office of the Press Secretary, President Proposes $5 Billion Plan to Help Developing Nations (March 14, 2002), *available at* http://www.whitehouse.gov/news/releases/2002/03/20020314-7.html ("The evidence shows that where nations adopt sound policies, a dollar of foreign aid attracts $2 of private investment. And when development aid rewards reform and responsibility, it lifts almost four times as many people out of poverty, compared to the old approach of writing checks without regard to results."); *See* Craig Burnside & David Dollar, *Aid, Policies, and Growth*, 90 American Economic Review 847 (September 2000). Other studies have challenged this conclusion. *See, e.g.,* Henrik Hansen & Finn Tarp, *Aid Effectiveness Disputed*, 12 Journal of International Development 375 (2000) (concluding that aid promotes growth even in countries with unfavorable policy environments.); William Easterly, *Can Foreign Aid Buy Growth?*, *17* Journal of Economic Perspectives 23 (Summer 2003) (concluding that the correlation between aid, economic growth, and good policies is not robust to reasonable changes in the definitions of "aid," "growth," and "policies."); William Easterly, Ross Levine & David Roodman, *New Data, New Doubts: Revisiting "Aid, Policies, and Growth"* (Center for Global Development, Working Paper 26, June 2006) (failing to find a clear correlation between growth and aid using an expanded data set and longer time frames than the Burnside study.)

[190] CRS REPORT FOR CONGRESS, *supra* note 175, at 2.

[191] CRS REPORT FOR CONGRESS, *supra* note 175, at 17.

[192] 22 U.S.C. § 7706(c)(2) (2004).

[193] 22 U.S.C. § 7708(j) (2004). Congress is considering extending the maximum duration to ten years for projects which cannot be completed within the regular five year limit. House Report 4014; CRS REPORT FOR CONGRESS, *supra* note 175, at 28.

Twenty-four countries are currently eligible for MCA funding,[194] of which fifteen have entered into compacts with the MCC.[195] Each compact includes a number of projects, often emphasizing rural development.[196] Most compacts have focused on the agriculture and transportation infrastructure sectors, although the MCC has demonstrated willingness to support a wide variety of programs.[197] For example, the Benin compact includes a component to improve access to justice,[198] the Ghana compact includes a project to improve the electrification of rural areas,[199] and the El Salvador compact includes funding to improve education and skill development programs.[200]

The compacts have grown in value since the MCC's foundation, with the largest being one of the most recent: a $697.5 million compact signed with Morocco which is expected to

[194] The eligible countries were Armenia, Benin, Bolivia, Burkina Faso, El Salvador, Georgia, Ghana, Honduras, Jordan, Lesotho, Madagascar, Malawi, Mali, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nicaragua, Senegal, Tanzania, Timor Leste, Ukraine, and Vanuatu. *See* MILLENNIUM CHALLENGE CORPORATION, REPORT ON SELECTION OF ELIGIBLE COUNTRIES FOR FY 2008 (Dec. 2007), *available at* http://www.mcc.gov/documents/cn-121307-eligiblecountries.pdf.

[195] The MCC has entered into compacts with Armenia, Benin, Cape Verde, El Salvador, Georgia, Ghana, Honduras, Lesotho, Madagascar, Mali, Mongolia, Morocco, Mozambique, Nicaragua, and Vanuatu as of September 2007. *See* BUDGET JUSTIFICATION 2009, *supra* note 180, at 9-10.

[196] Each compact includes projects intended to benefit rural people, including goals to "reduce rural poverty," "increase investment in rural land," "raise the income of the rural population," complete "Rural Infrastructure Development Project[s]," and "improve access to markets for rural communities." *See* MILLENNIUM CHALLENGE CORPORATION, COMPACT-ELIGIBLE COUNTRY REPORT (Feb. 2007), *available at* http://www.mcc.gov/countries/csr/all_CSR.pdf (last visited March 27, 2007). *See also* Fox, *supra* note 177, at 15 (observing an emphasis on "targeting rural poverty," encouraging "rural business development," and "expanding rural credit" in the first four compacts.)

[197] CRS REPORT FOR CONGRESS, *supra* note 175, at 18.

[198] MILLENNIUM CHALLENGE COMPACT BETWEEN THE UNITED STATES OF AMERICA ACTING THROUGH THE MILLENNIUM CHALLENGE CORPORATION AND THE GOVERNMENT OF THE REPUBLIC OF BENIN, Annex I, Schedule 3, pp. 1-2, *available at* http://www.mcc.gov/countries/benin/081606BeninCompact.pdf.

[199] MILLENNIUM CHALLENGE COMPACT BETWEEN THE UNITED STATES OF AMERICA ACTING THROUGH THE MILLENNIUM CHALLENGE CORPORATION AND THE GOVERNMENT OF THE REPUBLIC OF GHANA, Annex I, Schedule 3, p. 4, *available at* http://www.mcc.gov/countries/ghana/080106GhanaCompact.pdf.

[200] MILLENNIUM CHALLENGE COMPACT BETWEEN THE UNITED STATES OF AMERICA ACTING THROUGH THE MILLENNIUM CHALLENGE CORPORATION AND THE GOVERNMENT OF THE REPUBLIC OF EL SALVADOR, Annex I, Schedule 1, p, 1, *available at* http://www.mcc.gov/countries/elsalvador/compact-112906-elsalvador.pdf.

enter into force during the summer of 2008.[201] The MCC is currently considering proposals for additional large compacts, including one for Tanzania, valued at nearly $700 million.[202] The compacts are intended to be sizeable relative to the economies of the recipient countries,[203] and can therefore be expected to have dramatic effects.

These funds are not simply handed over to the country upon signing the compact, however. Instead, an "accountable entity" is set up in each country to manage expenses and request disbursements from the MCA.[204] This provides greater control over the funds flowing into the country and increased assurance that they will be put to their intended use.[205] In addition, the disbursements are generally conditioned on a number of performance criteria. These allow the MCC to halt funding for parts of a compact should a particular project fail to produce the results originally expected.[206]

B. Suitability of MCA Funding to Rural Telecommunications Cooperatives

Rural telecommunications cooperatives are well-suited for MCA funding. First, the MCC has often sought to achieve its goals of economic growth and poverty reduction by focusing on rural areas of developing countries. For example, many existing MCC compacts call for rural

[201] *See* BUDGET JUSTIFICATION 2009, *supra* note 180, at 10.
[202] *See* BUDGET JUSTIFICATION 2009, *supra* note 180, at 10.
[203] CRS REPORT FOR CONGRESS, *supra* note 175, at 19.
[204] HERRLING, *supra* note 185, at 1.
[205] HERRLING, *supra* note 185, at 1.
[206] Steve Radelet, *From Pushing Reforms to Pulling Reforms: The Role of Challenge Programs in Foreign Aid Policy*, *in* THE NEW PUBLIC FINANCE: RESPONDING TO GLOBAL CHALLENGES 8 (Inge Kaul & Pedro Conceição eds.), *available at* http://www.cgdev.org/files/2735_file_Radelet_WP_53.pdf ("Once a country qualifies and begins to receive funding, additional tranches are contingent on achieving specified results—such as distributing a targeted number of bednets or building a certain number of miles of roads."); *see* also Government Accountability Office, Report to the Chairman, *supra* note 184, at 5.

business development,[207] improvements to rural infrastructure,[208] and increased access to markets for rural communities.[209] The expected impact of rural telecommunications cooperatives aligns perfectly with the MCC's mission: telecommunications access has been correlated with economic growth, and cooperatives have been shown to encourage sustainable poverty reduction.[210] Given these common objectives, the MCC may reasonably choose to fund improvements in rural telecommunications in developing countries through consumer-owned cooperatives.

Second, many of the countries currently eligible for MCA funding suffer from inadequate telecommunications infrastructure. Thirteen of the countries selected in 2007 have effective teledensities below 5, compared to an average of 72 in high income countries.[211] Similarly, ten of the eligible countries have fewer than 0.25 public phones per thousand inhabitants, while the average lower-middle income country has 5.3 public phones per thousand inhabitants.[212] These figures are representative of telecommunications access in other low-income countries that do not currently satisfy the MCC's selection criteria, but might eventually become eligible for MCA funding.[213] Although the statistics do not account for rural-urban disparities in telecommunications access, rural areas of developing countries are known to suffer from much

[207] MILLENNIUM CHALLENGE COMPACT BETWEEN THE UNITED STATES OF AMERICA ACTING THROUGH THE MILLENNIUM CHALLENGE CORPORATION AND THE GOVERNMENT OF THE REPUBLIC OF NICARAGUA, Annex I, Schedule 3, p. 1, *available at* http://www.mcc.gov/countries/nicaragua/071405NicaraguaCompact.pdf.
[208] MCC-GHANA COMPACT, *supra* note 199.
[209] MILLENNIUM CHALLENGE COMPACT BETWEEN THE UNITED STATES OF AMERICA ACTING THROUGH THE MILLENNIUM CHALLENGE CORPORATION AND THE GOVERNMENT OF THE REPUBLIC OF ARMENIA 2, *available at* http://www.mcc.gov/countries/armenia/032706ArmeniaCompact.pdf.
[210] *See* Section 2, supra.
[211] WORLD TELECOMMUNICATION DEVELOPMENT REPORT, *supra* note 1, at A4-7.
[212] WORLD TELECOMMUNICATION DEVELOPMENT REPORT, *supra* note 1, at A20-21.
[213] WORLD TELECOMMUNICATION DEVELOPMENT REPORT, *supra* note 1, at A4, A20.

lower teledensities than their urban counterparts.[214] It is therefore safe to conclude that many countries vying for MCA funding would benefit from improvements in their rural telecommunications infrastructure.

Finally, the cooperative structure proposed matches the MCC's philosophy of encouraging bottom-up development by aid recipients. Rather than imposing telecommunications solutions on rural communities, an MCC compact could provide an enabling environment wherein communities will be able to independently design, develop and operate successful telecommunications cooperatives. What remains, then, is to demonstrate how the MCC can enable the success of these cooperatives.

C. Effect of the MCC on Rural Telecommunications Cooperatives

The influence of the MCC in a developing country can significantly improve the likelihood that rural telecommunications cooperatives will be created and become sustainable. Should the MCC choose to prioritize telecommunications within a compact (among a variety of other priorities), it will have the capability to align the interests of each of the players involved in the cooperative and enable them to overcome the obstacles they face.

1. The MCC's Influence on the Government

The MCC is able to exert a great deal of influence over the governments of low- and lower-middle income countries because of the size of its aid packages and the reputational benefits reaped by those countries selected as MCA-eligible. The MCC can therefore pressure governments to overcome their misgivings about rural telecommunications cooperatives, and

[214] Navas-Sabater, *supra* note 8, at 1.

to make particular legislative, regulatory, and policy adjustments in order to improve rural access to telecommunications.

The MCC is first and foremost able to exert influence over the governments of developing countries because of the magnitude of the aid program it administers. As the MCC compacts have grown, they have become increasingly valuable to their recipients. For example, the five-year compact in Benin is worth more than $300 million,[215] in a country with a GDP below $5 billion.[216] Before agreeing to a compact, the MCC therefore has a great deal of negotiating leverage which it can utilize to ensure the recipient nation provides an environment in which rural telecommunications cooperatives will thrive.

The existing government incentives to neglect rural telecommunications cooperatives are unlikely to be substantial enough to offset the opportunities presented by such large aid programs. For example, a government's interest in operating a national telecommunications provider with a monopoly over all markets (even those rural markets it is unable to serve) is unlikely to be strong enough for it to risk sacrificing an entire MCC compact. Similarly, regulators and government officials protecting private telecommunications interests will be hard-pressed to justify their position to the MCC, an impartial third-party hoping to ameliorate the country's telecommunications industry. While corrupt governments in developing countries may prefer to discourage cooperatives and other rural grassroots initiatives, these countries are unlikely to be eligible for MCA funding because of the MCC's "ruling justly"

[215] MCC-BENIN COMPACT, *supra* note 198, at 2.
[216] Central Intelligence Agency, CIA World Factbook: Benin, https://cia.gov/cia/publications/factbook/geos/bn.html (last visited March 23, 2007) (estimating Benin's 2006 GDP to have been $4.622 billion.)

selection criteria.[217] Even if such countries are selected, they are unlikely to justify their disdain for cooperatives in negotiations with the MCC. Finally, although some governments may not place telecommunications high on their list of developmental priorities, the MCC can emphasize the importance of telecommunications projects and the success of community-owned networks in other parts of the world, including the United States. While pressure of this type may conflict with the MCC's stated preference for recipient-proposed projects, it is already part of the MCC system: many countries tailor their proposals in response to the type of projects which have been favored by the MCC administration.[218]

The MCC can also affect government policies before compact negotiations begin, or even before a country becomes eligible for MCA funding. Once the MCC demonstrates its support for the policy changes which enable rural telecommunications cooperatives, potential recipients may begin a process of reform in order to increase their likelihood of being selected as eligible for a compact. Moreover, they may choose to include telecommunications cooperative projects in their proposals in hope of increasing their chances of being awarded a compact. Indeed, the potential to bring about government policy changes *prior* to entry into a

[217] These criteria include: control of corruption, voice and accountability, government effectiveness, rule of law, civil liberties, and political freedom. *See* CRS REPORT FOR CONGRESS, *supra* note 175, at 1.
[218] Joshua Kurlantzick, *Bush's Fake Aid*, Rolling Stone 37 (Mar. 23, 2006), *available at* http://www.rollingstone.com/politics/story/9448194/bushs_fake_aid ("Given the MCC's business orientation, many countries have simply given up on requesting aid for health or education, focusing instead on banking and other projects favored by the administration. Madagascar asked for aid for hospitals and schools -- but none of the money in its compact is allotted for either health or education. Instead, roughly a third of the aid will be used to improve credit standards and assist financial institutions -- including $21 million to help banks in Madagascar clear checks.")

compact is characteristic of the MCC.[219] Studies have demonstrated that countries vying for MCA funding respond to the MCC's incentives by improving their selectivity indicators.[220]

But the incentives created by the MCC are not limited to its compacts' direct pecuniary benefits. Countries that have yet to enter into a compact or become eligible for MCA funding may also seek the reputational benefits associated with MCA eligibility and MCC compacts. Selection by the MCC provides a "stamp of approval" on the policies of a low-income country, which can be expected to increase foreign investment and trade revenues.[221] Developing countries therefore have an additional reason to tailor their policies and proposals to the MCC's expectations.

Given the MCC's mission and bargaining power, it should therefore encourage the governments of eligible countries to undertake changes to enable rural telecommunications cooperatives. As previously stated, [222] these changes include the creation of a legal structure for cooperatives, the liberalization of the telecommunications industry, and multiple regulatory changes to facilitate small rural telecommunications providers. In addition, the MCC could develop financing programs in conjunction with the government in order to provide long-term, low-interest loans to communities that organize cooperatives.

---

[219] Radelet, *supra* note 206, at 12-13 (comparing the MCC's new form of aid which "pulls" reforms from potential recipients to existing – and largely unsuccessful – aid programs which attempt to "push" reforms upon the country but are often reversed once funding is received.)

[220] DOUG JOHNSON & TRISTAN ZAJONC, CAN FOREIGN AID CREATE AN INCENTIVE FOR GOOD GOVERNANCE? EVIDENCE FROM THE MILLENNIUM CHALLENGE CORPORATION 14-15, *available at* http://ssrn.com/abstract=896293 (April 11, 2006) (noting that between 2002 and 2004, MCA candidate countries are significantly more likely to improve than non-candidate countries on eleven of the fourteen selectivity criteria for which data was available.)

[221] President Proposes $5 Billion Plan to Help Developing Nations, *supra* note 189 ("Countries that live by these three broad standards -- ruling justly, investing in their people, and encouraging economic freedom -- will receive more aid from America. And, more importantly, over time, they will really no longer need it, because nations with sound laws and policies will attract more foreign investment. They will earn more trade revenues. And they will find that all these sources of capital will be invested more effectively and productively to create more jobs for their people.")

[222] *See* Section IV(A)(2).

2. The MCC's Influence on Management

Once the government has undertaken the important changes necessary for cooperatives to get off the ground, the MCC can enter into a compact with the country in order to provide additional support for cooperatives. To ensure the success of the cooperatives, the MCC needs to help the players overcome the two challenges to effective management: inexperience and self-interest.

To do so, the compact can call for the creation of a national organization of telecommunications cooperatives. Such an organization could be modeled after the United States' NTCA, and can be created with the guidance and under the supervision of the NTCA's International Development program.[223] The resulting organization could provide a variety of services to improve the management of rural cooperatives. In particular, the organization could provide training and support for managers by leveraging the NTCA's experience and by collecting the lessons learned by cooperatives around the country. In addition, the organization could assist management as they negotiate to purchase necessary equipment and technology. By collecting orders from multiple cooperatives and placing them together, the organization will earn discounts from suppliers.[224] Finally, the organization can monitor the performance of cooperatives around the country on behalf of the MCC. Coordinated monitoring will provide a check on management to help ensure they act in the best interest of their membership. In addition, monitoring will encourage management to provide service to their communities

[223] National Telecommunications Cooperative Association, NTCA International Development Program, http://www.ntca.org/ka/ka-2.cfm?Folder_ID=323 (last visited March 23, 2007). The program has been active in a number of countries, including Nigeria, the Philippines, Poland, South Africa, Tanzania, Uganda, and Ukraine.

[224] Although each cooperative will decide for itself which technologies and equipment will best suit its needs, it is highly likely that there will be significant overlap in the choices made by different communities in similar circumstances.

quickly and reliably, as they will face the risk of losing their MCA funding should their cooperative fail to meet certain performance criteria.

3. The MCC's Influence on Membership

An MCC compact would also be able to assist the potential membership of a rural cooperative to overcome the special obstacles it faces and provide additional incentives to spur the formation of cooperatives. First, the MCC will correct the nationwide collective action problem facing the potential members of cooperatives by spearheading negotiations with the central government and by establishing a national organization of cooperatives. Such an organization will link the various cooperatives operating throughout the country such that they may benefit from one another's experiences. It will also provide a central point where members of the various cooperatives can unite to pressure the government to undertake changes necessary in the future. Second, the MCC can improve the members' ability to make collective decisions and monitor the cooperative's managers. This can be accomplished through training programs administered by the NTCA in conjunction with the national cooperatives' organization. Third, the MCC can provide financing for rural cooperatives in order to alleviate the initial burden on the members. The financing can be a combination of donations to the cooperative for sunk costs as well as long-term low-interest loans. Fourth, the MCC can encourage rural people to start cooperatives by signing compacts which include additional projects that have significant synergies with telecommunications access. For example, the MCC could fund projects extending internet and telephone-based financial services to rural areas. The MCC could also fund projects to increase the availability of micro-credit such that members of cooperatives can purchase their own telecommunications devices

rather than relying on devices shared by the community.[225] Finally, through its various initiatives enabling rural telecommunications cooperatives, the MCC can give rural people new hope and provide community members with the inspiration to work together to solve their telecommunications problems.

VI. Conclusion

The lack of telecommunications access in rural areas of developing countries has long isolated communities and minimized their opportunities for economic growth. The MCC is well positioned to take the first steps to bridge this "digital divide." By influencing government policy and providing training and financing, the MCC can enable rural inhabitants to organize cooperatives and provide telecommunication services for themselves. By requiring smaller returns and leveraging community resources, these cooperatives are able to operate as economically sustainable telecommunication providers in areas where market-based solutions have failed. In addition, cooperatives unite community members as they work toward a common goal and overcome a shared challenge. This type of cooperation has been shown to strengthen communities and provide rural people with the encouragement to undertake additional developmental initiatives. As rural people take more ownership over the solutions to the problems they face, they increase their abilities and confidence, and over time are most likely to sustainably reduce their poverty.

[225] Grameen Bank's Village Phone program in Bangladesh offers rural women microfinance loans which allow them to purchase a cellular telephone, prepaid airtime card, external antenna and marketing materials. These women are then able to provide a public telephone service to members of their community which generates sufficient revenue for the women to repay the loan and earn a living. *See* GRAMEEN FOUNDATION USA, *supra* note 33, at 5-6.