

The Information Revolution in Cuba



Although our team was officially listed as the "Caribbean" group, Cuba has been the focus of our research.

Findings:

The development of the Internet in Cuba is a fascinating topic because the setting is unique.

The combination of government and economic forces in Cuba is truly unlike any other nation in the world. Although Cuba is in many ways similar to other Latin American countries (on an economic and technological scale, for example), the political system and foreign policy separate Cuba from the rest of Latin America.

There are many obstacles to the development of the Internet in Cuba.

By far, the greatest obstacle is the restriction imposed by the government. In addition, economic reality limits the extent to which the Internet can penetrate Cuban society. The weak telecommunications infrastructure also prevents full realization of the potential of the Internet. Cuba also faces unique obstacles, such as the efforts of angry exiled "hackers" who attack Cuba's computer systems.

Despite these obstacles, the Internet in Cuba will continue to grow and may someday flourish.

The political climate in Cuba has changed noticeably in the recent past, and we anticipate further opening in the future. Certainly, the efforts of non-governmental organizations to advance the rights of freedom and expression will have an impact on Cuban society. Our final presentation includes a discussion of why, beyond the political ramifications, the [future of the Internet in Cuba may be bright](#).

First Presentation

- Slides
 - [Educational Opportunities and Technical Capacity](#)
 - [Access and Labor Markets](#)
 - [Links to data](#)
-

Second Presentation

- [Slides](#)
 - [Links to data](#)
-

Final Presentation

- Slides
 - [Overview, NGOs, Obstacles & Opportunities](#)
 - [Commercial Venture Case Study; Conclusion](#)
 - [Links to data](#)
-

Links

Course-related:

- For general information about the class, and to find links for other countries, visit the [course homepage](#) for CS377C/CLAS194.

The Caribbean & the Internet:

- The Network Startup Resource Center (NSRC), a non-profit organization, has been involved for the past decade with the deployment and integration of appropriate networking technology in various projects throughout Asia, Africa, Latin America and the Caribbean, the Middle East, and Oceania. Visit [NSRC's Cuba page](#) for some information about internet access in Cuba.
- The [Caribbean University Network](#) was launched in 1991 with the goal of helping Caribbean educational and scientific institutions access the internet. CUNet recently gained support from the OAS for implementation of its Phase II plan.

The Internet in Cuba:

- Steve Kettmann's article in Wired News (4/30/99) discusses [the use of e-mail at the University of Havana](#).
- Vito Echevarria's article in Wired News (9/7/99) discusses [internet infrastructure and the future of WebTV in Cuba](#).

Cuba in general:

- [The CIA Factbook](#) provides basic geographic and statistical information about Cuba.
- [Cubaweb](#) covers all major issues in Cuba today. Topics include news, business, politics, culture, tourism, and technology.
- [CubaNet](#) is a non-profit organization that supports freedom of the press and attempts to inform the world about Cuba.
- Visit [Latinworld's Cuba page](#) for some information and directories.

- The University of Texas offers a wealth of information about Latin America online through LANIC - Latin American Network Information Center. Check out [LANIC's Cuba page](#)

The Caribbean in general:

- Visit [The Georgetown University Caribbean Project](#) for information a variety of policy issues in the Caribbean.
-

We would like to extend special thanks to Taylor C. Boas for the guidance of his thesis, "www.cubalibre.cu? - Transnational Networking and the Impact of the Internet on Non-Democratic Rule" (1999).

Brought to you by [Matt Light-Oglander](#) and [Martin Gavrilov](#). Please send us your questions, comments, and suggestions for improving our site.



Opportunities

- **Unique level of Control**
 - Lack of US presence in market leaves Cuba uniquely able to control how the Internet will be used.
- **Goals other than money**
 - Lack of market competition allows the Internet to serve social rather than financial interests.
- **Cuba as an Island**
 - Desire for connection to other societies
- **Education key**
 - Cuban government strongly promotes computer-education.
- **State control over workers**
 - makes the "seed corn" problem less harmful.

Slide 7 of 7



Overview - Cuba

- Island nation 90 mi. south of Florida in the Caribbean Sea.
- Total population is approximately 11 million.
- Since 1959, Cuba's government has been dominated by Fidel Castro's Communist regime, which has exercised strict control over the economy as well as the media.
- The U.S. has maintained a trade embargo against Cuba Since the 1960s.
- Despite efforts to modernize the telecom infrastructure, it remains a weak point.
- Roughly 20,000 Cubans have an email address. (less than 0.2%)
- Monthly charges range from \$15 for six hours of low-speed connection to as much as \$560 for unlimited high-speed access
- Average wage is approximately \$20 a month.
- Tourism industry leading the way for internet development and economic growth in general.

Slide 1 of 7



NGOs - Conflict of Ideas

- Cuba's government restricts NGO operation
- U.S. Policy regarding NGOs --
 - 1992 Cuban Democracy Act (Torricelli Act)
 - to "provide assistance, through appropriate NGOs , for the support of individuals and organization to promote nonviolent democratic change in Cuba."
- Concepts of "civil society"
 - "bottom-up" (grassroots)
 - "top-down" (state control)

Slide 2 of 7



NGOs - CubaNet

- **Cubanet** -- <http://www.cubanet.org/>
- Uses the internet to transmit news about Cuba around the world.
- Stated goals are to:
 - foster free press in Cuba
 - assists its independent sector to develop a civil society
 - inform the world about Cuba's reality
- Typical of the approach of US-based NGOs toward Cuba
- Receives funding from the United States Agency for International Development (USAID)

Slide 3 of 7



NGOs - Hermanos al Rescate

- **Hermanos Al Rescate**- www.hermanos.org
- Organization devoted to
 - rescue those who flee Cuba
 - advocate human rights and national solidarity; support dissidents within the island
 - promote nonviolent National Civic Defiance to bring democracy and sovereignty to Cuba.
- Famous for the February 24, 1996 incident in which two of their planes were shot down by Cuban planes, killing 4.
- According to their "Plan For National Civic Defiance"
 - success depends on communication networks
 - assistance in communication most likely to come from exiles

Slide 4 of 7



NGOs - Directorio

- **Directorio Revolucionario Democratico Cubano** www.directorio.org
 - believes that the fight against dictatorship to restore democracy must come from inside of Cuba.
 - has supported the dissident and opposition movement inside of Cuba
 - has acted as a vehicle for reporting human rights violations and denouncing the Cuban government from within.
- DRDC has 3 main goals:
 - To rescue the Cuban national culture
 - To promote freedom and democracy in Cuba in the face of the current dictatorship.
 - To get the Cuban youth, both inside and outside of Cuba, actively involved in the process of eliminating the dictatorship and establishing a new system of government in Cuba.

Slide 5 of 7

Overview - Cuba

12/4/99

[Click here to start](#)

Table of Contents

[Overview - Cuba](#)

[NGOs - Conflict of Ideas](#)

[NGOs - CubaNet](#)

[NGOs - Hermanos al Rescate](#)

[NGOs - Directorio](#)

[Obstacles](#)

[Opportunities](#)

Author: Matt Oglander

Email: mlo@stanford.edu

Home Page:

www.stanford.edu/~mlo/carib/caribmain.html

NGOs - Hermanos al Rescate

- **Hermanos Al Rescate -- www.hermanos.org**
- **Organization devoted to**
 - rescue those who flee Cuba
 - advocate human rights and national solidarity; support dissidents within the island
 - promote nonviolent National Civic Defiance to bring democracy and sovereignty to Cuba.
- **Famous for the February 24, 1996 incident in which two of their planes were shot down by Cuban planes, killing 4.**
- **According to their "Plan For National Civic Defiance"**
 - success depends on communication networks
 - assistance in communication most likely to come from exiles

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)



Obstacles

- - Poor Infrastructure:
 - especially weak telephone system
- - Income:
 - most Cubans simply cannot afford internet access
- - Government policies
 - restrict internet access and use
- - Unique Opposition: anti-Castro exiles
 - Exiles hackCubaWeb (1996)
 - Targeted Virii

Slide 6 of 7

Opportunities

• Unique level of Control

- Lack of US presence in market leaves Cuba uniquely able to control how the Internet will be used.

• Goals other than money

- Lack of market competition allows the Internet to serve social rather than financial interests.

• Cuba as an Island

- Desire for connection to other societies

• Education key

- Cuban government strongly promotes computer-education.

• State control over workers

- makes the "seed corn" problem less harmful.

[Previous slide](#)

[Back to first slide](#)

[View graphic version](#)

NGOs - CubaNet

- **Cubanel -- <http://www.cubanel.org/>**
- **Uses the internet to transmit news about Cuba around the world.**
- **Stated goals are to:**
 - foster free press in Cuba
 - assists its independent sector to develop a civil society
 - inform the world about Cuba's reality
- **Typical of the approach of US-based NGOs toward Cuba**
- **Receives funding from the United States Agency for International Development (USAID)**

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

NGOs - Conflict of Ideas

- **Cuba's government restricts NGO operation**

- **U.S. Policy regarding NGOs --**

- 1992 Cuban Democracy Act (Torricelli Act)
- to "provide assistance, through appropriate NGOs, for the support of individuals and organization to promote nonviolent democratic change in Cuba."

- **Concepts of "civil society"**

- "bottom-up" (grassroots)
- "top-down" (state control)

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Overview - Cuba

- **Island nation 90 mi. south of Florida in the Caribbean Sea.**
- **Total population is approximately 11 million.**
- **Since 1959, Cuba's government has been dominated by Fidel Castro's Communist regime, which has exercised strict control over the economy as well as the media.**
- **The U.S. has maintained a trade embargo against Cuba Since the 1960s.**
- **Despite efforts to modernize the telecom infrastructure, it remains a weak point.**
- **Roughly 20,000 Cubans have an email address. (less than 0.2%)**
- **Monthly charges range from \$15 for six hours of low-speed connection to as much as \$560 for unlimited high-speed access**
- **Average wage is approximately \$20 a month.**
- **Tourism industry leading the way for internet development and economic growth in general.**

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Obstacles

- - **Poor Infrastructure:**

- especially weak telephone system

- - **Income:**

- most Cubans simply cannot afford internet access

- - **Government policies**

- restrict internet access and use

- - **Unique Opposition: anti-Castro exiles**

- Exiles hack CubaWeb (1996)
- Targeted Virii

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

NGOs - Directorio

• Directorio Revolucionario Democratico Cubano -- www.directorio.org

- believes that the fight against dictatorship to restore democracy must come from inside of Cuba.
- has supported the dissident and opposition movement inside of Cuba
- has acted as a vehicle for reporting human rights violations and denouncing the Cuban government from within.

• DRDC has 3 main goals:

- To rescue the Cuban national culture
- To promote freedom and democracy in Cuba in the face of the current dictatorship.
- To get the Cuban youth, both inside and outside of Cuba, actively involved in the process of eliminating the dictatorship and establishing a new system of government in Cuba.

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Technical Capacity, I

10/26/99

[Click here to start](#)

Table of Contents

[Technical Capacity, I](#)

[Technical Capacity, II](#)

[Technical Capacity, III](#)

[Educational Opportunities, I](#)

[Educational Opportunities, II](#)

[Educational Opportunities, III](#)

Author: Academic Computing

Email: martin.gavrilov@stanford.edu

[Download presentation source](#)



Technical Capacity, I

- Arguably the worst telecommunication infrastructure in Latin America and the Caribbean
- Concentrated on internal development rather than international connectivity
- Connectivity based on the UUCP and X.25 protocols -- outdated and poorly suited to IP traffic

Slide 1 of 6



Technical Capacity, II

- The only IP link to the Internet is 64kb/s connection to Sprint in the US
- Traffic has outgrown the connection's capacity. Hoping for an upgrade the Sprint link to 256 kb/s.
- Partnership with US companies impeded by the US embargo

Slide 2 of 6



Technical Capacity, III

- **Four network providers (ISPs):**
 - CENIAI
 - RENACYT
 - Teledatos
 - Infomed
- **Small IP connectivity -- around 100 users**
- **UUCP-email relatively common and accessible: health sector, government, YCC**

Slide 3 of 6



Educational Opportunities, I

- Traditional emphasis on education at all levels
- General education
 - compulsory education through the 9th grade
 - illiteracy rate of 3-6%
 - 7% of the population has graduated from college and 11% from technical schools

Slide 4 of 6



Educational Opportunities, II

- **Strong technical education**
 - 1.8 scientists and engineers per 1,000 population
 - 40 universities and other centers of higher education
 - over 200 research and development centers
 - 1.17% of GDP devoted to technological research and development.

Slide 5 of 6



Educational Opportunities, III

- **Training the Support Personnel**
 - Classes provided by some of the ISPs
 - Most is learned on the job
- **Training the Users**
 - Nationwide organization of Youth Computer Clubs in 164 municipalities (out of 169 total) providing free and unstructured Net access. Email access available to everyone, everywhere

Slide 6 of 6

Educational Opportunities, I

- **Traditional emphasis on education at all levels**

- **General education**

- compulsory education through the 9th grade
- illiteracy rate of 3-6%
- 7% of the population has graduated from college and 11% from technical schools

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Educational Opportunities, III

• Training the Support Personnel

- Classes provided by some of the ISPs
- Most is learned on the job

• Training the Users

- Nationwide organization of Youth Computer Clubs in 164 municipalities (out of 169 total) providing free and unstructured Net access. Email access available to everyone, everywhere

[Previous slide](#)

[Back to first slide](#)

[View graphic version](#)

Small, illegible text in the top-left corner, likely a page header or metadata.

12/13/1999 4:38:47 PM

Technical Capacity, III

- **Four network providers (ISPs):**
 - CENIAI
 - RENACYT
 - Teledatos
 - Infomed
- **Small IP connectivity -- around 100 users**
- **UUCP-email relatively common and accessible: health sector, government, YCC**

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Technical Capacity, II

- **The only IP link to the Internet is 64kb/s connection to Sprint in the US**
- **Traffic has outgrown the connection's capacity. Hoping for an upgrade the Sprint link to 256 kb/s.**
- **Partnership with US companies impeded by the US embargo**

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Technical Capacity, I

- **Arguably the worst telecommunication infrastructure in Latin America and the Caribbean**
- **Concentrated on internal development rather than international connectivity**
- **Connectivity based on the UUCP and X.25 protocols -- outdated and poorly suited to IP traffic**

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Educational Opportunities, II

• Strong technical education

- 1.8 scientists and engineers per 1,000 population
- 40 universities and other centers of higher education
- over 200 research and development centers
- 1.17% of GDP devoted to technological research and development.

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Cuba and the Information Revolution

10/30/99

[Click here to start](#)

Table of Contents

[Cuba and the Information Revolution](#)

[Access](#)

[Access](#)

[Censorship vs. Restricted Access](#)

[Access: Political control vs. economic benefit](#)

[Access: Dictator's dilemma](#)

[Labor Markets](#)

Author: Matt Oglander

Email: mlo@leland.stanford.edu

Home Page:

<http://www.stanford.edu/~mlo/carib/caribmain.html>

[Download presentation source](#)



Cuba and the Information Revolution

Obstacles_{and Opportunities}

Slide 1 of 7



Access

- Usual pattern of access growth is:
 - 1. early research/experimentation in networking among academic/scientific communities
 - 2. emergence of commercial ISPs
 - 3. explosive growth of infrastructure guided by "invisible hand" of market

Slide 2 of 7



Access

- Steps 2 and 3 can't occur in Cuba!
 - process depends on existence of a market
 - *example.* China has a huge emerging market, Cuba's is small, unsteady, highly restricted

Slide 3 of 7



Censorship vs. Restricted Access

- Cuba's strategy is constrained
 - Resistance to political reform via strict control of all media
 - Concerns over subversive potential of internet are strengthened by goals of US policy
 - View of globalization drawn from Marxist/Leninist philosophy
 - Technological limitations prevent Cuba from implementing censorship on a scale similar to China

Slide 4 of 7



Access: Political control vs. economic benefit

- China
 - Encourage widespread access
 - Let market direct pattern of growth
- Cuba
 - Shouldn't be expected to promote widespread access
 - Won't let market direct growth

Slide 5 of 7



Labor Markets

- Brain Drain
- “El Duque”
- Absence of information/service sector
- Gov’t control: possible advantage?

Slide 7 of 7

Censorship vs. Restricted Access

• Cuba's strategy is constrained

- Resistance to political reform via strict control of all media
- Concerns over subversive potential of internet are strengthened by goals of US policy
-
- View of globalization drawn from Marxist/Leninist philosophy
-
- Technological limitations prevent Cuba from implementing censorship on a scale similar to China

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)



Access: Dictator's dilemma

- Conflict of interest:
 - Exploit internet for economic gain, risk political effects
 - » or
 - Clamp down while foregoing economic gain
- 3 choices
 - Laissez-faire
 - Regulation (content)
 - Regulation (access)

Slide 6 of 7

Labor Markets

- Brain Drain
- ìEI Duqueî
- Absence of information/service sector
- Govít control: possible advantage?

[Previous slide](#)

[Back to first slide](#)

[View graphic version](#)

#####

00000000-00000000

00000000-00000000-00000000-00000000-00000000-00000000-00000000-00000000-00000000-00000000

1. early research/experimentation in networking among academic/scientific communities
 2. emergence of commercial ISPs
 3. explosive growth of infrastructure guided by "invisible hand" of market :-V L2/L3 ISP
- not obvious: (a) 2nd wave 2 and 3 can't occur in Cuba
process depends on existence of a market
- example: China has a huge emerging market, Cuba's is small, unsteady, highly restricted, etc.

pdf Ownership vs. Restricted Access:1 pdf (Cuba + democracy is constrained
reference to political reform via direct control of all media

Concerns over subversive potential of Internet are strengthened by goals of US policy

View of globalization drawn from Marxist/Leninist philosophy

Technological limitations prevent Cuba from implementing censorship on a scale similar to China:10/07/2000

0000 [12/13/1999 4:41:36 PM]
0000 [12/13/1999 4:41:36 PM]
0000 [12/13/1999 4:41:36 PM]
0000 [12/13/1999 4:41:36 PM]

Stanford: mlo@stanford.edu
Title: Cuba slides
URL: http://www.stanford.edu/~mlo/carib/slides/acc-lab/Cuba slides
Date: 12/13/1999 4:41:37 PM

Access

• Steps 2 and 3 can't occur in Cuba!

- process depends on existence of a market
-
- example: China has a huge emerging market, Cuba's is small, unsteady, highly restricted

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Access

• Usual pattern of access growth is:

- ○ 1. early research/experimentation in networking among academic/scientific communities
- ○ 2. emergence of commercial ISPs
- ○ 3. explosive growth of infrastructure guided by "invisible hand" of market

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Cuba and the Information Revolution

Obstacles and Opportunities

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Access: Dictatorís dilemma

• Conflict of interest:

- Exploit internet for economic gain, risk political effects
 - or
- Clamp down while foregoing economic gain
-

• 3 choices

- Laissez-faire
- Regulation (content)
- Regulation (access)

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Access: Political control vs. economic benefit

• China

- Encourage widespread access
-
- Let market direct pattern of growth

• Cuba

- Shouldn't be expected to promote widespread access
-
- Won't let market direct growth

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Sources for first presentation:

- <http://som.csudh.edu/cis/lpress/devnat/nations/cuba/index.htm>
- <http://som.csudh.edu/cis/lpress/ieee.htm>
- <http://www.link.no/IPS/eng/cat/ED.html> (full text at <http://burn.ucsd.edu/archives/chiapas-1/1998.12/msg00412.html>)
- <http://www.latinolink.com/news/news98/0403ncub.htm>
- http://library.advanced.org/18355/education_in_cuba.html
- <http://www.worldwide.edu/ci/cuba/>
- <http://www.unesco.org/iau/educcu.html>
- <http://www.georgetown.edu/sfs/programs/clas/Caribe/bp13.htm>
- http://www.hotwired.com/collections/censorship/6.02_cuba_internet1.html
- <http://www.ciponline.org/articles.htm>

Presentation #2

11/10/99

[Click here to start](#)

Table of Contents

[Cuban Legislature](#)

[Cuban Politics](#)

[Cuban Labor and Environment Regulations](#)

[Effect of Government Policies: US](#)

[Sources of Financing](#)

[Investment Infrastructure](#)

[Private Sector](#)

Author: Matt Oglander

Email: mlo@stanford.edu

[Download presentation source](#)



Cuban Legislature

- Joint ventures permitted since 1982 (max 49% share)
- 1992 Cuban constitution modified, to recognize new forms of property
- 1992 foreign corporations allowed to repatriate profits
- 1993 telecommunications privatized through joint venture (29.9% owned by the Italian STET)
- 1995 investment permitted up to 100%
- Investors guaranteed full protection, allowed to remove profits in hard currency
- 1996 law passed reducing tariffs on imported goods
- 1996 law established free trade zones, industrial parks, with associated tax breaks

Slide 1 of 7



Cuban Politics

- Cuba's emphasis remains on internal development
- Curbing the network access of NGOs (fear of subversion)
- Imposing control over Internet content like France, China, Germany (through regulatory agencies) and Vietnam and Singapore (through centralizing traffic)
- Imposing control over Internet access and content by setting up a local copy of the Net
- In 1996 Decree-Law 209 issued creating a Inter-Ministerial Commission to regulate access and manage networking (compare with big capital in rest of Latin America)

Slide 2 of 7



Cuban Labor and Environment Regulations

- Typically, investments in Third World countries are sought because of fewer environmental restrictions and labor protection
- This is not the case in Cuba:
 - Investors required to provide for waste disposal and sound land use
 - Workers are hired through the state. They can challenge a dismissal as unfair or discriminatory.
 - Discrimination on basis of race, sex or ethnicity is prohibited in Cuban and foreign companies

Slide 3 of 7



Effect of Government Policies: US

- Embargo since early 1960s
- Cuban Democracy Act of 1992
- Helms-Burton Act (“Cuban Liberty and Democratic Solidarity Act” of 1996)
 - **Title III**suspension -- to "expedite a transition to democracy in Cuba"
 - **Title IV**enforcement -- based on “the principle of respect for the property rights of U.S. citizens.”

Slide 4 of 7



Sources of Financing

- Government
 - No access to credit from int'l financial institutions like the World Bank.
 - Because of its poor credit rating, an \$11 billion hard currency debt, and the risks associated with Cuban investment, interest rates are high.
- Foreign Investment
 - Big foreign investors are Canada, Mexico, Spain, UK, Italy, France
 - Many major trading partners -- Canada is a prime example -- reject US attempts to regulate their business and ignore Helms-Burton.
 - telecommunications is the #1 industry
- NGOs
 - Foreign NGOs providing basis for funding networks
 - CIDA provides funding
 - USAID could help fund NGOs!

Slide 5 of 7



Private Sector

- Havana in 1993 legalized self-employment for some 150 occupations, in order to:
 - provide jobs for workers laid off due to the economic crisis
 - furnish services the government was having difficulty providing
 - try to bring some forms of black market activity into legal--and therefore controllable--channels
- The government tightly controls the private sector by regulating and taxing it
 - Monthly fees (regardless of income)
 - Service restrictions
 - Strict inspections (stiff fines)

Slide 7 of 7

Effect of Government Policies: US

- Embargo since early 1960s
- Cuban Democracy Act of 1992
- Helms-Burton Act (Cuban Liberty and Democratic Solidarity Act of 1996)
 - Title III suspension -- to "expedite a transition to democracy in Cuba"
 - Title IV enforcement -- based on the principle of respect for the property rights of U.S. citizens.

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)



Investment Infrastructure

- **Cuba's internet investment infrastructure is weak, but growing .**
Two promising groups have yet to establish a web presence:
 - "Silicon Calle"
 - coming soon: "www.siliconcalle.com"
 - "CUBA Investments Securities Corp." : New Web Site in 2000

- **Cuba Economic News**
 - reports on Cuba's economy
 - investment information for potential investors.

Slide 6 of 7

Private Sector

- **Havana in 1993 legalized self-employment for some 150 occupations, in order to:**
 - provide jobs for workers laid off due to the economic crisis
 - furnish services the government was having difficulty providing
 - try to bring some forms of black market activity into legal--and therefore controllable--channels

- **The government tightly controls the private sector by regulating and taxing it**
 - Monthly fees (regardless of income)
 - Service restrictions
 - Strict inspections (stiff fines)

[Previous slide](#)

[Back to first slide](#)

[View graphic version](#)

1990 (aka "anti-trust" law) to regulate the form of property
1991 (aka "anti-trust" law) to regulate the form of property
1992 (aka "anti-trust" law) to regulate the form of property
1993 (aka "anti-trust" law) to regulate the form of property
1994 (aka "anti-trust" law) to regulate the form of property
1995 (aka "anti-trust" law) to regulate the form of property
1996 (aka "anti-trust" law) to regulate the form of property
1997 (aka "anti-trust" law) to regulate the form of property
1998 (aka "anti-trust" law) to regulate the form of property
1999 (aka "anti-trust" law) to regulate the form of property
2000 (aka "anti-trust" law) to regulate the form of property
2001 (aka "anti-trust" law) to regulate the form of property
2002 (aka "anti-trust" law) to regulate the form of property
2003 (aka "anti-trust" law) to regulate the form of property
2004 (aka "anti-trust" law) to regulate the form of property
2005 (aka "anti-trust" law) to regulate the form of property
2006 (aka "anti-trust" law) to regulate the form of property
2007 (aka "anti-trust" law) to regulate the form of property
2008 (aka "anti-trust" law) to regulate the form of property
2009 (aka "anti-trust" law) to regulate the form of property
2010 (aka "anti-trust" law) to regulate the form of property
2011 (aka "anti-trust" law) to regulate the form of property
2012 (aka "anti-trust" law) to regulate the form of property
2013 (aka "anti-trust" law) to regulate the form of property
2014 (aka "anti-trust" law) to regulate the form of property
2015 (aka "anti-trust" law) to regulate the form of property
2016 (aka "anti-trust" law) to regulate the form of property
2017 (aka "anti-trust" law) to regulate the form of property
2018 (aka "anti-trust" law) to regulate the form of property
2019 (aka "anti-trust" law) to regulate the form of property
2020 (aka "anti-trust" law) to regulate the form of property
2021 (aka "anti-trust" law) to regulate the form of property
2022 (aka "anti-trust" law) to regulate the form of property
2023 (aka "anti-trust" law) to regulate the form of property
2024 (aka "anti-trust" law) to regulate the form of property
2025 (aka "anti-trust" law) to regulate the form of property

2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

Stanford University is an Equal Opportunity Institution. All persons have the right to participate in its educational programs and activities without regard to race, sex, or other characteristics. For more information, contact the Office of Institutional Equity, 310 Lomax Drive, Stanford, CA 94305-5080, (415) 495-7200.

Cuban Labor and Environment Regulations

- **Typically, investments in Third World countries are sought because of fewer environmental restrictions and labor protection**
- **This is not the case in Cuba:**
 - Investors required to provide for waste disposal and sound land use
 - Workers are hired through the state. They can challenge a dismissal as unfair or discriminatory.
 - Discrimination on basis of race, sex or ethnicity is prohibited in Cuban and foreign companies

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Cuban Politics

- **Cuba's emphasis remains on internal development**
- **Curbing the network access of NGOs (fear of subversion)**
- **Imposing control over Internet content like France, China, Germany (through regulatory agencies) and Vietnam and Singapore (through centralizing traffic)**
- **Imposing control over Internet access and content by setting up a local copy of the Net**
- **In 1996 Decree-Law 209 issued creating a Inter-Ministerial Commission to regulate access and manage networking (compare with big capital in rest of Latin America)**

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Cuban Legislature

- **Joint ventures permitted since 1982 (max 49% share)**
- **1992 Cuban constitution modified, to recognize new forms of property**
- **1992 foreign corporations allowed to repatriate profits**
- **1993 telecommunications privatized through joint venture (29.9% owned by the Italian STET)**
- **1995 investment permitted up to 100%**
- **Investors guaranteed full protection, allowed to remove profits in hard currency**
- **1996 law passed reducing tariffs on imported goods**
- **1996 law established free trade zones, industrial parks, with associated tax breaks**

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Investment Infrastructure

- **Cuba's internet investment infrastructure is weak, but growing. Two promising groups have yet to establish a web presence:**

- iSilicon Calleî

- coming soon: "www.siliconcalle.com"

- ○ iCUBA Investments Securities Corp.î : New Web Site in 2000

- **Cuba Economic News**

- reports on Cuba's economy
- investment information for potential investors.

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Sources of Financing

• Government

- No access to credit from intl financial institutions like the World Bank.
- Because of its poor credit rating, an \$11 billion hard currency debt, and the risks associated with Cuban investment, interest rates are high.

• Foreign Investment

- Big foreign investors are Canada, Mexico, Spain, UK, Italy, France
- Many major trading partners -- Canada is a prime example -- reject US attempts to regulate their business and ignore Helms-Burton.
- telecommunications is the #1 industry

• NGOs

- Foreign NGOs providing basis for funding networks
- CIDA provides funding
- USAID could help fund NGOs!
-

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Sources for second presentation:

- [Internet CUBA - http://www.cybercuba.com/InternetCUBA.html](http://www.cybercuba.com/InternetCUBA.html)
- [US State Department Cuba Site - http://www.state.gov/www/regions/wha/cuba/index.html](http://www.state.gov/www/regions/wha/cuba/index.html)
- [Text of Helms-Burton Act - http://www.state.gov/www/regions/wha/cuba/helms-burton-act.html](http://www.state.gov/www/regions/wha/cuba/helms-burton-act.html)
- [Foreign Investment in Cuba by Country - http://www.cubatrade.org/foreign.html](http://www.cubatrade.org/foreign.html)
- [Compilation of news and info relating to Cuban business - http://www.cubabiz.com/](http://www.cubabiz.com/)
- [US and international trade policy toward Cuba - http://www.dfait-maeci.gc.ca/english/foreignp/dfait/policy_papers/1993/93_04_e/s8.html](http://www.dfait-maeci.gc.ca/english/foreignp/dfait/policy_papers/1993/93_04_e/s8.html)
- [Cuban Trade and Economic Overview - http://www.dfait-maeci.gc.ca/geo/html_documents/cubatrade-e.htm](http://www.dfait-maeci.gc.ca/geo/html_documents/cubatrade-e.htm)
- [One example of an NGO active in Cuba - http://www.canurb.com/ipo/cuba_5.htm](http://www.canurb.com/ipo/cuba_5.htm)
- Press, Larry. "Cuban Telecommunication Infrastructure and Investment.", presented at the Conference of the Association for the Study of the Cuban Economy, Miami, FL, August, 1996. <http://som.csudh.edu/cis/lpress/devnat/nations/cuba/asce.htm>
- Press, Larry, "Cuba," in The MOSAIC Group, The Global Diffusion of the Internet Project, An Initial Inductive Study, March 1998. <http://som.csudh.edu/cis/lpress/devnat/nations/cuba/cubasy.htm>
- Valdés, Nelson P. "Cuba, the Internet, and U.S. Policy", The Cuba Briefing Paper Series, Number 13, March 1997 <http://www.georgetown.edu/sfs/programs/clas/Caribe/bp13.htm>
- "Cuba in Transition" Proceedings of the Annual Meetings of the Association for the Study of the Cuban Economy (ASCE) <http://www.lanic.utexas.edu/la/cb/cuba/asce/>
- Gordon, Joy. "Cuba's Entrepreneurial Socialism" The Atlantic Monthly, Jan 1997. <http://www.theatlantic.com//issues/97jan/cuba/cuba.htm>
- Cuba Reference Desk. Economy section. <http://lanic.utexas.edu/la/cb/cuba/>

Cuba specifics, Internal

12/2/99

[Click here to start](#)

Table of Contents

[Cuba specifics, Internal](#)

[Cuba specifics, External](#)

[Telecom Industry Background, I](#)

[Telecom Industry Background, II](#)

[Telecom Industry History, I](#)

[Telecom Industry History, II](#)

[Telecom Industry History, III](#)

[Cuba Today](#)

[Conclusion](#)

Author: Academic Computing

Email: martinga@cs.stanford.edu

[Download presentation source](#)



Cuba specifics, Internal

- On technical as well as political levels: concentration on internal development, rather than external connections
- The best educational system in Latin America
- Strong technical education (40 universities, over 200 R&D centers)
- Good labor and environmental protection
- Telecommunications seen as national priority. The beneficiaries are the hard-currency generating industries (**tourism** and **biotechnology**).

Slide 1 of 9



Cuba specifics, External

- Lost economic partners in the Socialist Block and the USSR
- Political tensions between Cuba and the U.S.
 - The Cuban Democracy Act of 1992 calls for improving info exchanges. Authorizes US-based communications companies to share revenues with Cuba's national phone company ETECSA.
 - The Cuban Liberty and Democratic Solidarity Act of 1996 amends the Cuban Democracy Act in **restricting communication investment**.
 - The Helms-Burton Act of 1996. EU brings an action against U.S. before the WTO and introduces retaliatory legislation. Canada and Mexico passed retaliatory legislation as well.
 - The effect of the embargo for Cuba is devastating while the U.S. loses an estimated \$1-\$2 billion in export.

Slide 2 of 9



Telecom Industry Background, I

- Considered the worst telecom infrastructure in Latin America (no data backbone, telephone infrastructure obsolete and deteriorating)
 - Info revolution constrained more by the internal infrastructure than the not-fully adequate international connectivity.
 - Almost all of the national data traffic is using UUCP and X.25 marking a difficult transition to TCP/IP.
 - Unmanageable mixture of different equipment base (France, U.S., Canada, Scandinavia, East Germany, Hungary). Interruption of supplies of spare parts from Eastern Europe.

Slide 3 of 9



Telecom Industry Background, II

- Current demand for calls is around \$250 million per year. Dramatic increase expected if the US trade embargo is revoked.
- Potential that Cuba becomes a center for cable communications between the U.S. and the Caribbean, and later the hub of a U.S./Caribbean/Central America/South America loop.
- The Cuban national phone company Empresa de Telecomunicaciones del Cuba, S. A. (ETECSA) has inherited assets of the nationalized Cuban Telephone Company, an ITT subsidiary. The US-based ITT has an outstanding claim for \$131 million against the Cuban Government.

Slide 4 of 9



Telecom Industry History, I

- In 1993, Cuba decides to privatize its telecom industry (after the 1992 constitution changes).
- 6/94, Mexico holding company Grupo Doms Internacional (Doms), agrees to purchase a 49% of ETECSA for \$1.5 billion. As a joint venture, ETECSA has a concession for 25 years with two possible 12-year extensions to provide:
 - Basic national, domestic long distance, and international telecom services
 - Data transmission
 - Telex
 - Public telephones
 - Trunked radio communication
 - Subscription TV
 - Paging
 - Other value-added services (except for cellular telephony)

Slide 5 of 9



Conclusion

- Cuba is one of the most promising countries in Latin America
- Cuba's networking is not that different from much of Latin America, where networking has been centralized by private capital (due the Net's commercialization and the presence of foreign capital).
- Market globalization makes possible the emergence of few big players which will control the future of Latin America.

Telecom Industry Background, II

- **Current demand for calls is around \$250 million per year. Dramatic increase expected if the US trade embargo is revoked.**
- **Potential that Cuba becomes a center for cable communications between the U.S. and the Caribbean, and later the hub of a U.S./Caribbean/Central America/South America loop.**
- **The Cuban national phone company Empresa de Telecomunicaciones del Cuba, S. A. (ETECSA) has inherited assets of the nationalized Cuban Telephone Company, an ITT subsidiary. The US-based ITT has an outstanding claim for \$131 million against the Cuban Government.**

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)



Cuba Today

- Cuba plans to invest US\$900 millions through 2004 for telecom upgrades (digitalization, phone lines increase, public phones)
- Two national telecom systems
 - U.S. Dollar-only-use digitized system and analog cellular telephone system which used mainly by foreigners.
 - Peso-only-use system for Cuban nationals. Investments of over US\$100 millions which move toward digitizing of existing lines and improved service
- European technology used to produce fiber-optic cables for internal use and export
- Plans to eliminate subsidies to government-operated companies by 2003 in compliance with the rules of the WTO.

Slide 8 of 9

Conclusion

- **Cuba is one of the most promising countries in Latin America**
- **Cuba's networking is not that different from much of Latin America, where networking has been centralized by private capital (due to the Net's commercialization and the presence of foreign capital).**
- **Market globalization makes possible the emergence of few big players which will control the future of Latin America.**

[Previous slide](#)

[Back to first slide](#)

[View graphic version](#)



Telecom Industry History, II

- 5/95, Domos sells 25% of their interest to STET International Netherlands, N. V., a subsidiary of the Italian State Telecommunication Company Telecom Italia for \$291.2 million.
- STET, the world's fifth largest telecom company in terms of revenues, owns significant equity interests in the national telecom companies of the Republic of Cuba, Argentina, Bolivia, Chile, Venezuela.
- 2/97, Domos defaults on the required investment and loses their equity. STET now controls 29.29%, the Cuban government 49%, and a coalition of banks the remainder.

Slide 6 of 9



Telecom Industry History, III

- 7/97, STET and AT&T form a joint venture to develop the Latin American telecom market, expected to increase 70% during the next 4 years (Cuba excluded of the deal).
- 7/97, STET and ITT reach agreement where STET will pay US\$25 million to ITT Corporation for a ten-year right to use assets within the Republic of Cuba.
- 6/98, EXCITE establishes a partnership with Telecom Italia (whose subsidiary is STET) to develop enhanced search, E-mail, and online communication capabilities.

Slide 7 of 9

Small, illegible text in the top-left corner, likely a page header or metadata.

Copyright 1999 by M. L. Ocasio. All rights reserved. This document is the property of M. L. Ocasio and is not to be distributed, copied, or otherwise used without the express written permission of M. L. Ocasio. Stanford University is not responsible for the content of this document.

Copyright 1999 by M. L. Ocasio. All rights reserved. This document is the property of M. L. Ocasio and is to be used only for the purposes specified in the license agreement. No part of this document may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, without the prior written permission of M. L. Ocasio.

12/16/1999 11:39:18 AM

Telecom Industry Background, I

- **Considered the worst telecom infrastructure in Latin America (no data backbone, telephone infrastructure obsolete and deteriorating)**
 - Info revolution constrained more by the internal infrastructure than the not-fully adequate international connectivity.
 - Almost all of the national data traffic is using UUCP and X.25 marking a difficult transition to TCP/IP.
 - Unmanageable mixture of different equipment base (France, U.S., Canada, Scandinavia, East Germany, Hungary). Interruption of supplies of spare parts from Eastern Europe.

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Cuba specifics, External

- **Lost economic partners in the Socialist Block and the USSR**
- **Political tensions between Cuba and the U.S.**
 - The Cuban Democracy Act of 1992 calls for improving info exchanges. Authorizes US-based communications companies to share revenues with Cuba's national phone company ETECSA.
 - The Cuban Liberty and Democratic Solidarity Act of 1996 amends the Cuban Democracy Act in restricting communication investment.
 - The Helms-Burton Act of 1996. EU brings an action against U.S. before the WTO and introduces retaliatory legislation. Canada and Mexico passed retaliatory legislation as well.
 - The effect of the embargo for Cuba is devastating while the U.S. loses an estimated \$1-\$2 billion in export.

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Cuba specifics, Internal

- **On technical as well as political levels: concentration on internal development, rather than external connections**
- **The best educational system in Latin America**
- **Strong technical education (40 universities, over 200 R&D centers)**
- **Good labor and environmental protection**
- **Telecommunications seen as national priority. The beneficiaries are the hard-currency generating industries (tourism and biotechnology).**

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Telecom Industry History, II

- **5/95, Domos sells 25% of their interest to STET International Netherlands, N. V., a subsidiary of the Italian State Telecommunication Company Telecom Italia for \$291.2 million.**
- **STET, the world's fifth largest telecom company in terms of revenues, owns significant equity interests in the national telecom companies of the Republic of Cuba, Argentina, Bolivia, Chile, Venezuela.**
- **2/97, Domos defaults on the required investment and loses their equity. STET now controls 29.29%, the Cuban government 49%, and a coalition of banks the remainder.**

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Telecom Industry History, I

- **In 1993, Cuba decides to privatize its telecom industry (after the 1992 constitution changes).**
- **6/94, Mexico holding company Grupo Doms Internacional (Doms), agrees to purchase a 49% of ETECSA for \$1.5 billion. As a joint venture, ETECSA has a concession for 25 years with two possible 12-year extensions to provide:**
 - Basic national, domestic long distance, and international telecom services
 - Data transmission
 - Telex
 - Public telephones
 - Trunked radio communication
 - Subscription TV
 - Paging
 - Other value-added services (except for cellular telephony)

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Cuba Today

- **Cuba plans to invest US\$900 millions through 2004 for telecom upgrades (digitalization, phone lines increase, public phones)**
- **Two national telecom systems**
 - U.S. Dollar-only-use digitized system and analog cellular telephone system which used mainly by foreigners.
 - Peso-only-use system for Cuban nationals. Investments of over US\$100 millions which move toward digitizing of existing lines and improved service
- **European technology used to produce fiber-optic cables for internal use and export**
- **Plans to eliminate subsidies to government-operated companies by 2003 in compliance with the rules of the WTO.**

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Telecom Industry History, III

- **7/97, STET and AT&T form a joint venture to develop the Latin American telecom market, expected to increase 70% during the next 4 years (Cuba excluded of the deal).**
- **7/97, STET and ITT reach agreement where STET will pay US\$25 million to ITT Corporation for a ten-year right to use assets within the Republic of Cuba.**
- **6/98, EXCITE establishes a partnership with Telecom Italia (whose subsidiary is STET) to develop enhanced search, E-mail, and online communication capabilities.**

[Previous slide](#)

[Next slide](#)

[Back to first slide](#)

[View graphic version](#)

Additional sources for final presentation:

- [CIA World Factbook, Cuba - http://www.odci.gov/cia/publications/factbook/cu.html](http://www.odci.gov/cia/publications/factbook/cu.html)
- [CubaNet - http://www.cubanet.org/](http://www.cubanet.org/)
- [Hermanos al Rescate \(Brothers to the Rescue\) - http://www.hermanos.org/](http://www.hermanos.org/)
- [Directorio Revolucionario Democratico Cubano - http://www.directorio.org](http://www.directorio.org)
- [Another example of an NGO active in Cuba - http://www.canurb.com/ipo/cuba_5.htm](http://www.canurb.com/ipo/cuba_5.htm)