

Access to and Use of Publicly- Funded Geospatial Data for Health and Environmental Applications in Latin America: A Focus on Poverty Reduction and Sustainable Development

(A Study Design)

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Today's Menu..

- **Background Information**
- **Study Motivations**
- **Literature Review**
- **Study Design**
- **Significance and Broader Impact of the Study**
- **Concerns and Limitations**

Background Information

- I work on this study with my colleague Paul F. Uhler, the Board on International Scientific Organizations (BISO), the U.S. National Academies.
(<http://www7.nationalacademies.org/biso/>)
- The Study is still at the design stage,
- Currently looking for funding for it,
- Identifying local partners in the region, and
- I am planning to start collecting my preliminary data during the 9th International Conference of the Global Spatial Data Infrastructure: Spatial Information: Tool for reducing poverty. Chile, November 2006.

The Study Motivations

- 1- The importance of science for sustainable development.
- 2- The importance of open access to scientific data, information, and knowledge for science and sustainable development.
- 3- Interest and attention at National, Regional, and International levels.
- 4- Latin America Region: problems, needs, opportunities, and funding.

**Scientific
and
Practical
Motivations**

1- The Importance of Science for Sustainable Development.

“S&T is the paramount force behind the **advancement of human civilization**. The **productivity gains** and **achievements** of humankind have been derived chiefly from **scientific discovery**, technological and engineering innovations, as well as extensive applications of **S&T** in the social life of humankind”.

Source: The Third World's Academy of Science (TWAS) BEIJING DECLARATION, 2003.

“Indicators from developed countries supports the fact that S&T communities have played important role in their countries development”.

"Science and Technology continues to occupy an instrumental role in the development agenda's of developing countries which are striving towards modernization and industrialization”.

“The growth of scientific communities and the status of scientific potential in the countries of the south, for many reasons, **have received only marginal attention**”.

Source :Gaillard , J. Krishna,V. Waast, R. (1997). *Scientific Communities in the developing world*. Sage Press.

“**Harnessing science, technology and innovation for sustainable development**”

A report from the ICSU-ISTS-TWAS Consortium ad hoc Advisory Group (2005)

The Study Motivations

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**Scientific
and
Practical
Motivations**

2- The Importance of Open Access to Scientific Information for Science and Sustainable Development

“Just as Science is critical to the advancement of the information society, open access to Scientific and Technical Information (STI) is critical for the advancement of science”

Source: Science in the Information Society *Background document prepared for the Workshop “Science in the Information Society”* UNESCO. Paris, France .12 March 2003.

“Freedom of inquiry, the open availability of scientific data, and full disclosure of results through publications are the cornerstones of basic research”.

Source: Reichman, J.H, and Uhler, P.F. (2003). A Contractually Reconstructed Research Commons For Scientific Data in A Highly Protectionist Intellectual Property Environment. *Law and Contemporary Problems* Vol.66, p (315-463). School of Law, Duke University.

“Access to and sharing of data are essential for the conduct and advancement of science”

Source: Promoting Access to Public Research Data for Scientific, Economic, and Social Development. OECD Study. 2004

“The Public Research Data contributions to the creation of new knowledge and downstream economic and social goods is multiplied exponentially when the data are made openly available on digital networks “.

“There is thus an urgent need for rationalized national strategies and more coherent international arrangements for sustainable access to public research data, both to data produced directly by government entities and to data generated in academic and not-for-profit institutions with public funding”.

Source: Uhler, Paul F. and Peter Schröder. (Publication Pending) Maximizing the Value of Public Scientific Data for Global Science. *Data Science Journal*, CODATA, Paris.

An ICSU/CODATA *ad hoc* Group on Data and Information was established in June 2000

“Scientific advances rely on full and open access to data”.

Source: www.codata.org

2- The importance of open access to scientific information for science and sustainable development (cont,)

Open access to S&T data [1]:

Reinforces open scientific inquiry,	Encourages <u><i>diversity of analysis and opinion</i></u> ,
Promotes <u><i>new research and new types of research</i></u> ,	Allows the verification of previous results,
Makes possible the testing of new or alternative hypotheses and methods of analysis,	Supports studies on data collection methods and measurement,
Facilitates the education of new researchers,	Enables the <u><i>exploration of topics</i></u> not envisioned by the initial investigators,
Permits the <u><i>creation of new data sets</i></u> when data from multiple sources are combined,	Helps transfer factual information to and promote capacity building in developing countries,
Promotes <u><i>interdisciplinary, inter-sectoral, inter-institutional, and international</i></u> research; and	Generally helps to <u><i>maximize the research potential of new digital technologies</i></u> and networks, thereby providing greater returns from the public investment in research.

2- The importance of open access to scientific information for science and sustainable development (cont,)

The data and databases generated directly through government research or public funds have the following *policy considerations favouring their open availability and unrestricted reuse*^[1] :

- Legal and Economic considerations (*Public Good*).
- Ethical considerations (*Equity and fairness*).
- Socio-economic considerations (*Maximize the value and return on public investment and consequently improve citizens' lives*).
- Good governance considerations (*Democracy and transparency*).

[1] Publicly funded research data are a public good, produced in the public interest, as such they should remain in the public realm. “Promoting Access to Public Research Data for Scientific, Economic, and Social Development”. OECD, 2003.

The Study Motivations

- 1- The importance of science for sustainable development.
- 2- The importance of open access to scientific data, information, and knowledge for science and sustainable development.
- 3- Interest and attention at National, Regional, and International levels.**
- 4- Latin America Region: problems, needs, opportunities, and funding.

**Scientific
and
Practical
Motivations**

3- Interest and Attention at National, Regional and International levels

- ICSU
- CODATA International
- National CODATAs
- UNESCO
- OECD
- National Governments
- National Academies of Science
- Private Sector ??
- Universities
- Individual scientists and activists.

More Empirical Studies are needed:

the direct and indirect social and economic costs and benefits of the different open access models.

The Study Motivations

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**Scientific
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4- Latin America Region: Problems, needs , opportunities, and funding.

Why Latin America?

Not a good idea to study your region first– Some potential research biases..

LA is very enabling environment for such a study:

- Different Levels of openness to these data
- Poverty is one of the main problems in the region
- Opportunities for funding.

Personally, I would like to learn Spanish language and get better in Salsa Dancing 😊.

4- Latin America Region: Problems, needs , opportunities, and funding (Cont.),

Access to Information in Latin America and the Caribbean.

By:**Kati Suominen**. Paper commissioned for An Inter-American Dialogue Conference held in Buenos Aires, Argentina 11-12 December 2002. Published in Comparative Media Law Journal. Number 2, July-December 2003.

David Banisar, (2004). Freedom of Information and Access to Government Records Around the World. Global Survey.

4- Latin America Region: Problems, needs , opportunities, and funding (cont,)

- **Belize, Bolivia, Colombia, Ecuador, and several countries particularly in the Caribbean have a longer tradition of freedom of information laws,**
- **Chile, Jamaica, Mexico, Panama, and Peru have only recently made notable legal improvements.**
- **Argentina, Costa Rica, Dominican Republic, Guatemala, Paraguay, and Uruguay have been considering freedom of information laws, albeit often painstakingly slowly.**
- **El Salvador, Honduras, Brazil, and Nicaragua, lack a comprehensive and solid legal framework beyond constitutional guarantees of access to information.**
- **Constitutional and legal guarantees of freedom of information remain particularly inadequate in Cuba and Haiti.**



The freedom of Information issues are at the forefront of national debate and policy making in Latin American Countries.

4- Latin America Region : Problems, needs, opportunities, and funding (Cont.),

POVERTY in LATIN AMERICA

“Latin America’s development in the past few decades has been characterized by two disappointments: lagging growth and persistent poverty and inequality. Set against the performance of other regions, notably China and India, and the East Asian miracles before them, Latin America’s average annual growth of 4.2 percent in 2005 is at best modest, and at worst, inadequate to tackle poverty quickly. And the region’s poverty remains acute, with one quarter of Latin Americans with incomes of under \$2 a day, and the highest measures of inequality in the world”.

The World Bank report on “*Poverty reduction and growth: virtuous and vicious circles*”. Last retrieved on Oct.10, 2006 at http://siteresources.worldbank.org/EXTLACOFFICEOFCE/Resources/8708921139877599088/virtuous_circles1_complete.pdf

The Importance of Geographical Information for Poverty Reduction and Sustainable Development.

Geographical information and technologies are central to achieving successful transition from traditional environment and resources management practices to sustainable development because of their integrative quality (linking social, economic, and environmental data) and their place-based quality (addressing relationships among places at local, regional and global scale)”

Source: National Research Council (2002), *Down to Earth: Geographical Information for Sustainable Development in Africa*, National Academy Press, Washington, DC.

Study Design

- Study Goals
- Conceptual Framework
- Study Approach and Methodology
- Significance and Broader Impact of the Study
- Concerns and Limitations

Study Goals

- **Identify the types and volumes of publicly funded geospatial data that are produced in Latin America or by sources outside Latin America, and are maintained and used in Latin America.**
- **Describe the laws, policies and other key factors that affect access to and use of those data.**
- **Describe the current status of access to and use of those data, and characterize the uses and the users of such data in the health and environment fields.**
- **Identify and discuss the impact of access to and use of publicly funded geospatial data on the development, dissemination and use of health and environment-related GIS tools and applications, and the potential impact on poverty reduction and the broader sustainable development efforts in the region.**

Geospatial data[1] are the dominant form of data in terms of data volume.

It is estimated that almost 80 percent of data that have been generated so far are geospatial data[2].

[1] Geospatial data may be defined as the information that identifies the geographic location and characteristics of natural features, manmade features, or boundaries on the earth.

[2] Di, Liping. Distributed Geospatial Information Services-Architectures, Standards, and Research Issues. Retrieved on Feb. 18, 2006 at <http://www.isprs.org/istanbul2004/comm2/papers/121.pdf>

Conceptual Framework

Phase One: The Production and Dissemination of PFGD

1- What are the current policies/ legislations?

2- Are there other proposed policies/ legislations?

The Publicly Funded Geospatial Data (PFGD) in LA countries:
The Production and the Users of the Data

Government Policies and Legislations On the Access to and the Use of PFGD

Current Status of Access to and Use of PFGD

- 1- Availability
- 2- Accessibility
- 3- Accuracy (Quality Assurance)
- 4- Timeliness
- 5- Preservation

1- What are the types of PFGD produced in LA countries?

2- What are the amounts of the produced PFGD?

3- Who are the main users of the PFGD?

Phase Two: The Use of PFGD in the Health and Environment Areas

Cases from Business/ Industry

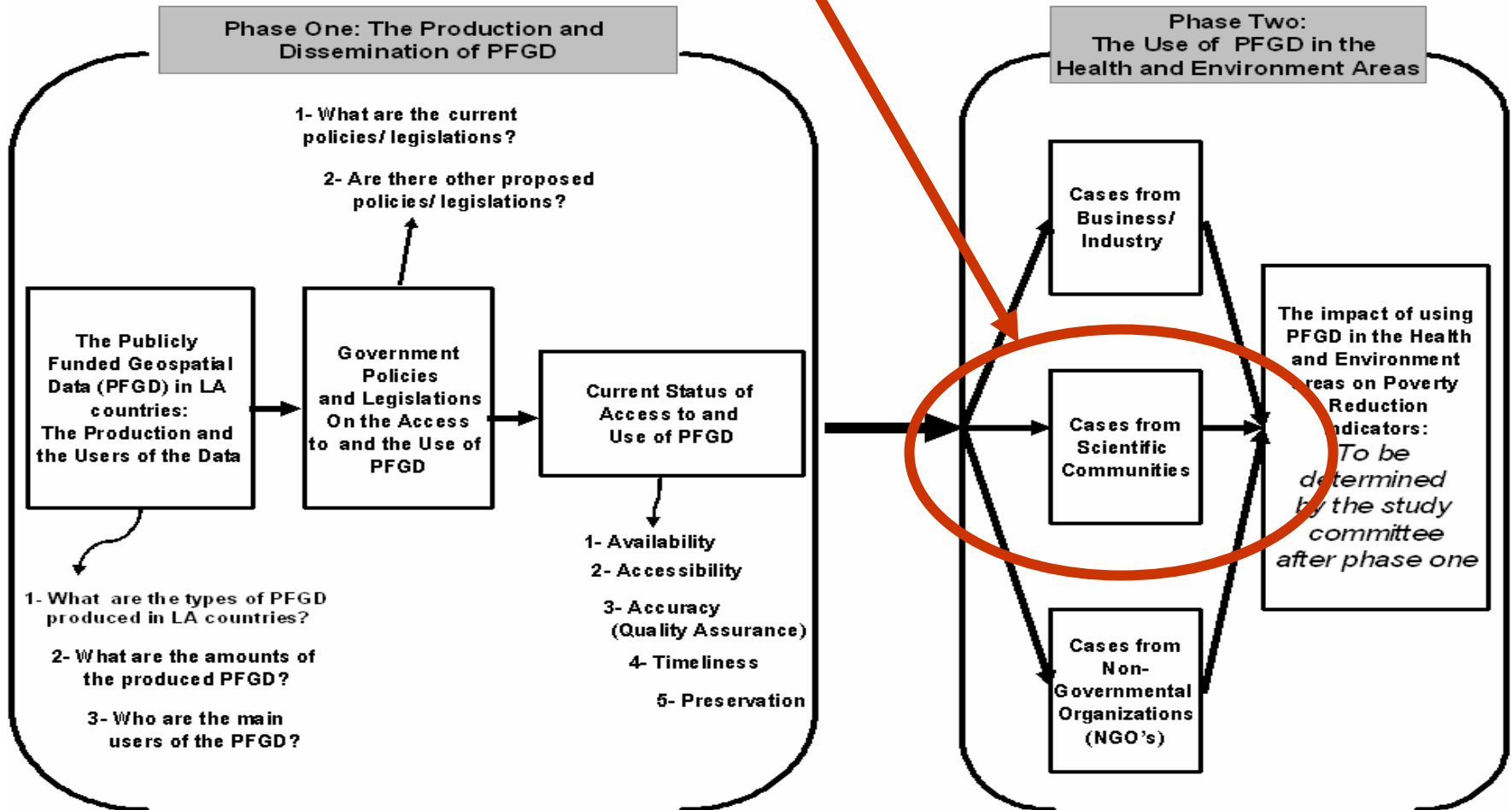
Cases from Scientific Communities

Cases from Non-Governmental Organizations (NGO's)

The impact of using PFGD in the Health and Environment areas on Poverty Reduction Indicators:
To be determined by the study committee after phase one

For my Dissertation

Conceptual Framework



Study Approach and Methodology

- The study is two parts: Descriptive and Analytical.
- Both quantitative and qualitative approaches will be used to collect and analyze data over 18 months.

Phase One: The Production and Dissemination of PFGD

1- What are the current policies/ legislations?

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Phase One

Data Collection Techniques:

- Desk Research and Document Analysis (e.g. Reports, Memos, Press Release)
- Online Interviews
- Web Survey

Sample: Purposive sampling

Target:

- 1- Public Content Holders (mainly government agencies, universities, and Non-profit research centers).
- 2- Scientists and Researchers in the Health and Environment areas.

Data Analysis: Content Analysis (Atlas Ti)

Phase Two

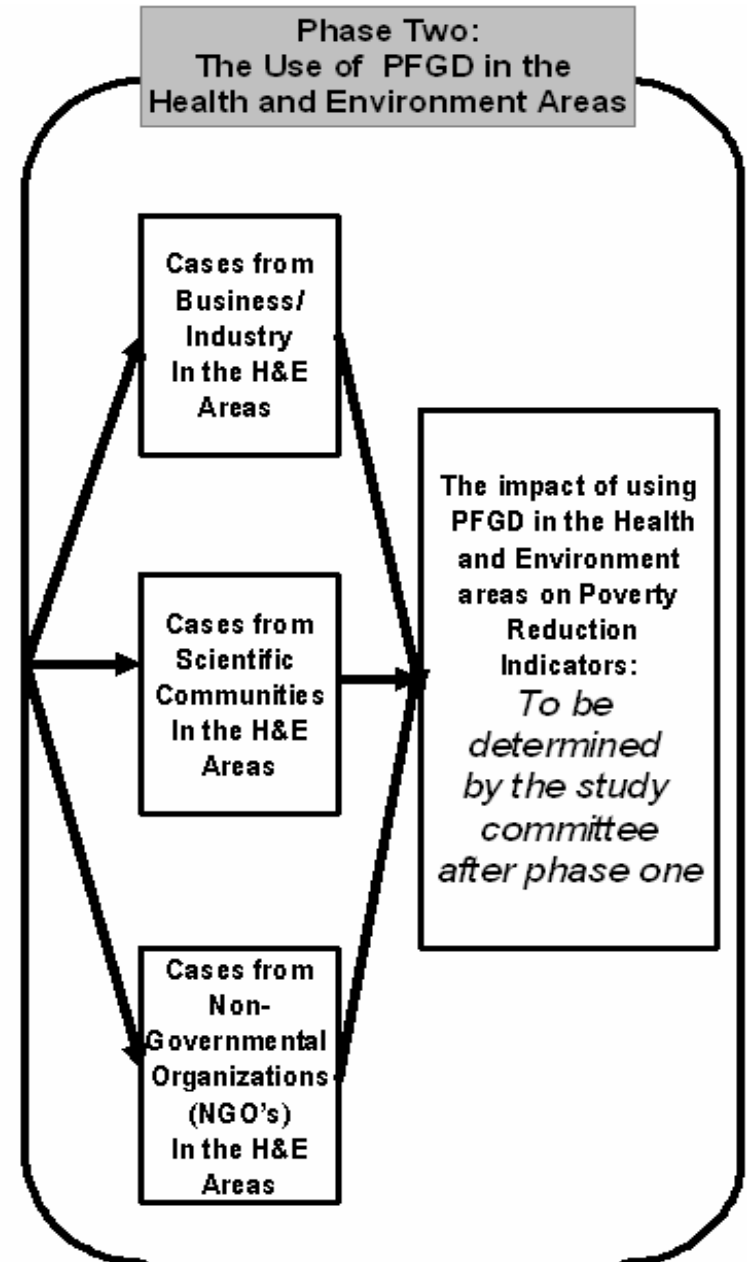
Data Collection Techniques:

- Interviews (FTF and Online)
- Focus Group Meetings (at conferences)
- Web Survey.
- Document Analysis (e.g., Reports, Memos, papers,)

Sample: Purposive and Random Samples.

Target: Scientists, Researchers, Policy Makers and Administrators in the Health and Environment areas

Data Analysis: Content (Atlas Ti) and Statistical Analyses (SPSS).



Significance and Broader Impact of the Study

1. **First study of this kind in the developing countries- empirical evidence**
2. **Case studies and lessons learned for other developing countries.**
3. **More attention at the regional and international levels.**

Concerns and Limitations

1. **Complexity and sensitivity of the study area**
2. **Operationalization of some concepts such as level of openness , direct and indirect social and economic impact, direct and indirect relationship between the study variables.**
3. **Responsiveness from both the Government , Industry, NGO's and Scientific Communities.**
4. **Discussion and dissemination of the findings.**
5. **Future Steps**

Need your help in Similar Research

- **Anther study I am involved in with one of my committee advisors, Prof. Jian Qin.**
- **The relationship between the level of use of government and publicly funded scientific databases and scientific productivity.**
- **Short questionnaire, less than 5 minutes, as a pilot study.**
- **Target population professors and scientists.**
- **You can either give it back to me or leave it with the students volunteers at the registration table.**
- **Thanks in advance for your help**

Comments, suggestions, or Questions?

Gracias !!