

SIG Participativo (SIGP) Participación a través de SIG

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¿Qué es el SIG Participativo (SIGP)?

- ❖ El SIGP se vale del SIG para integrar conocimientos locales y perspectivas de los actores interesados (stakeholders)
- ❖ El SIGP utiliza métodos y tecnologías que representan espacialmente el conocimiento de la gente para incidir en la toma de decisiones a través de una mayor capacidad para generar, analizar y comunicar información local.
- ❖ El SIG se orienta hacia el empoderamiento comunitario



Componentes del SIGP

| PARTICIPACIÓN | GEOGRÁFICA | INFORMACIÓN | SISTEMAS |
|--|---|---|---|
| <ul style="list-style-type: none">❖ Los grupos locales de la comunidad pueden acceder a las herramientas de SIG❖ En asociación con las comunidades locales – nosotros conocemos el SIG y ellos tienen la información❖ ¿Cómo pueden las comunidades locales colaborar para responder a sus problemas ambientales? | <ul style="list-style-type: none">❖ Los datos espaciales se representa en un SIG como:<ul style="list-style-type: none">❖ Puntos - especies de un hábitat, sitios de importancia cultural❖ LÍNEAS - delineación barrio, vías❖ AREAS-fronteras | <ul style="list-style-type: none">❖ El conocimiento local de un área está ligado a las representaciones espaciales.<ul style="list-style-type: none">❖ ¿Dónde juegan los niños en un barrio?❖ ¿Qué áreas se inundan con mayor frecuencia?❖ ¿Cómo se usa el suelo? | <ul style="list-style-type: none">❖ Estas son las herramientas que se utilizan para visualizar, analizar y comunicar el conocimiento local. |

PGIS names



<http://www.sacog.org>

❖ Participatory GIS

❖ Public Participatory GIS

❖ Community-integrated GIS (Harris and Weiner, 1998)

❖ GIS-2 (Harris and Weiner, 1996; Schroeder, 1996; Pickles, 1999)

❖ GIS for participation (GIS-P; Cinderby, 1999)

❖ Participatory 3-Dimensional Modelling

(P3DM; Rambaldi and Callosa-Tarr, 2000; 2002)

❖ Bottom-Up GIS (BUGIS; Talen, 2000),

❖ Collaborative GIS/geocollaboration (Mac-Eachren and Brewer, 2004; Schafer *et al.*, 2005; Balram and Dragic'evic', 2006; Jankowski *et al.*, 2006)

Advantages and complications of using PGIS

| ADVANTAGES | COMPLICATIONS |
|--|--|
| <ul style="list-style-type: none">❖ Provides an opportunity for marginalized populations to participate in GIS.❖ Provides a means to legitimize a community's traditional and cultural knowledge.❖ Analysis of data can be used to problem solve.❖ Allows affected communities to create and manage local data. | <ul style="list-style-type: none">❖ What is the purpose of the project and who will benefit?❖ Representing all parties involved is a complex undertaking.❖ Maps are never final, keeping data current.❖ Who owns the data what are the ramifications of data ownership? |

Aspects to consider

- ❖ Why are you doing PGIS :
 - ❖ What is the purpose of talking to the community?
- ❖ Who are you going to invite and why?
 - ❖ Conduct a meeting, gather information in the field.
 - ❖ How do you determine community members/leaders.
- ❖ What resources do you need?
 - ❖ Maps, pens, stickers, tape recorders?
- ❖ What questions will you be asking?
- ❖ Participatory ethics - “Practical Ethics for PGIS Practitioners, Facilitators, Technology Intermediaries and Researchers” by Rambaldi, Chambers, McCall, and Fox

Participatory Tools

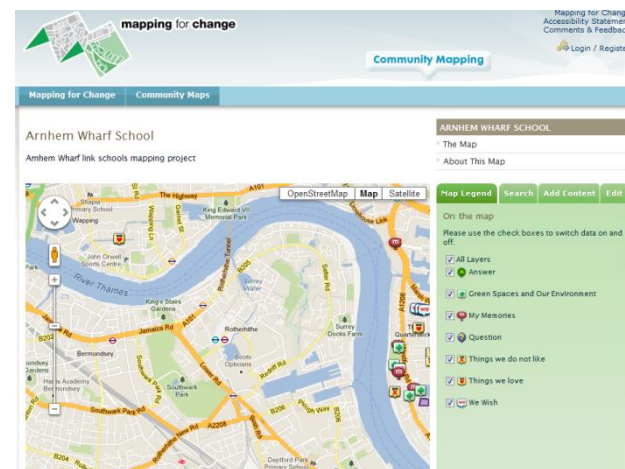
- ❖ **Ephemeral mapping** – drawing a map on the ground and participants uses rocks, leaves, etc to map physical and cultural landscapes
- ❖ **Sketch mapping** – a map is drawn by hand but not necessarily to scale, participants use paper and pens to draw in the landscape
- ❖ **Scale mapping** – a map is made with geo-reference data allowing the community to develop accurate scaled maps in order to perform comparisons
- ❖ **3D modeling** – these models integrate local knowledge with elevation in order to produce 3-D scaled, geo-reference model. Community uses push pins, yarn, and paint to denote features.



Participatory Tools con't

- ❖ **Photomaps** – maps of aerial photographs, community can draw on the maps, place stickers in order to represent features and boundaries
- ❖ **Global Positioning Systems (GPS)** – community uses GPS to locate features and areas of land of importance
- ❖ **Map-linked multimedia** – local knowledge is documented using video, photos, and written text and then linked to interactive maps.
- ❖ **Online GIS** – develop online maps which communities can add points/line/areas to, as well as, information about those features.

Adapted from Rambaldi et al. (2005) and Corbett (2005)



Methods

1. Maps in community meetings – paper map

❖ Then put the info into the GIS

2. Take maps out into the community

❖ Lots of people won't come to community meeting but they may talk to you in their community

❖ Rapid Appraisal PGIS– (RAP- GIS) ask people the same questions, perhaps in survey form, and/or where each participants has their own map in order to locate areas, identify regions.

3. Online digital GIS tools

Uses

- ❖ PGIS is a concept as well as a tool.
- ❖ Uses
 - ❖ Urban planning
 - ❖ Managing conflict over land and natural resources
 - ❖ Resource management for indigenous peoples
 - ❖ Land-use planning
 - ❖ Conservation

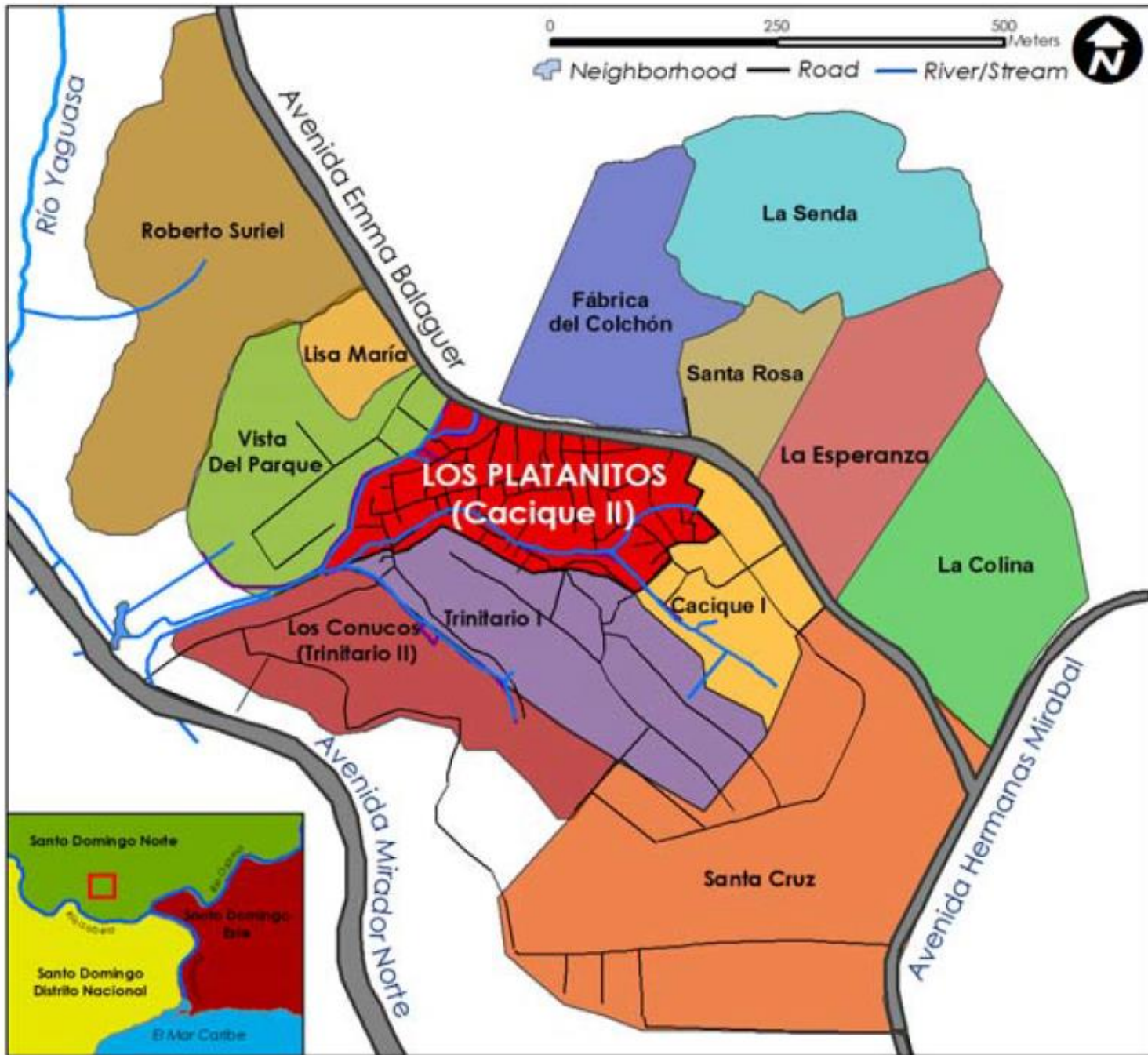
CASE STUDY #1

El Rincon de los Olvidados: Participatory GIS, Experiential Learning and Critical Pedagogy in Santo Domingo, DR”

OBJECTIVE : Working with community members, partners in local government and NGO’s a group of students from the University of Texas – Austin conducted a mixed-method participatory assessment of environmental and social challenges facing the community of Los Platanitos, Santo Domingo, DR, around risk and vulnerability due to flooding.

BACKGROUND : Los Platanitos is an informal settlement located in Santo Domingo Norte. It has roughly 260,000 residents and is located in a steep canyon which drains into Rio Ozama. The community experiences frequent flooding and mudslides. The neighborhood also has limited to absent basic services such as electricity, water, sewage, and garbage collection.

The community has a strong social network.



METHODS

January 2008 – Students worked with community members to :

- ❖ build a model of the built environment (building footprints, infrastructure),
- ❖ map flood zones and areas of hazard

1)Mental Mapping Workshop - Invited self-selected community leaders to identify a boundary of the neighborhood on a poster sized map. This boundary was later vetted by a number of community members. Never before was the neighborhood of Los Platanitos drawn on city maps.

2) Walked the neighborhood with community leaders to identify zones of hazards, draw infrastructure.

3) Conducted household surveys and interviews to identify areas of greatest risk.

4) Held a “Problem Evaluation Workshop” with children, women and men separately, using the maps to identify areas which are not safe along the river channel

TOOLS

Students created three maps of **aerial photographs** at different scales of Los Platanitos and its surrounding area. They also created a map books at 1:25 of Los Platanitos which they could bring into the field.

The large maps were used to help identify the neighborhoods boundary and the map book was used to help draw building footprints.

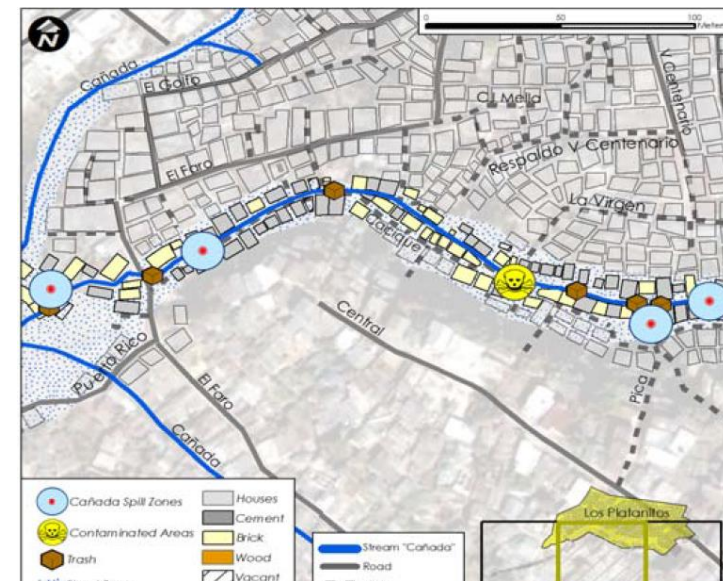
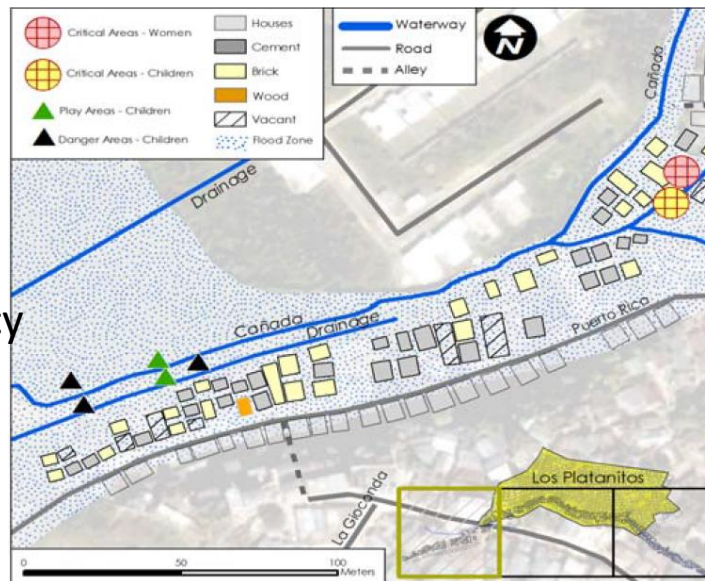
To map the floodplains the students **walked** the canal with elders from community and they identified the highest flood waters they could remember on exterior walls of houses and canyon walls. The students were not able to incorporate into GIS, the painful stories which were recounted surrounding these floods.

RESULTS and OUTPUTS :

- ❖ Map showing the boundary of the neighborhood
- ❖ Map showing problems areas from local knowledge (channel spill zones, garbage accumulations, contaminated areas, areas where children play, areas that are hazardous.
- ❖ Map of all infrastructure (houses, common spaces, ect)

Unintended consequences – This work led to the municipalities paving certain roads in Los Platanitos but no roads in surrounding communities which were not mapped.

How should these areas be represented on a map so that they would seem “scientific” to policy makers and reflect local knowledge appropriately.



CASE STUDY #2

“Land use driven conditions for habitat structure: A case study from the Ecuadorian Andes”

OBJECTIVE : Investigate the factors involved in decision making when habitat structural change from natural lands to agricultural lands in Papallacta. And what are the impacts of this land use change for natural species.

This study conducted household interviews, aerial photos and used elevation data in order to assess the impact and influences of land use chooses.

BACKGROUND : The Papallacta village is located between 3000 and 5000 meters of altitude. Agricultural land use is mainly found in the valley bottoms and on the valley slopes, the main agricultural activity is market-based dairy production. Pasture lands have increased in this community by over 50% from 1956-2000. Papallacta represents an ideal study area to focus on how land use dynamic impact spatial habitat structures.

Land use decisions are usually made at the local scale, however impact of land use decisions are felt at a large scale. This study used a multi scale approach to and collected data as the regional, village, and household level.

Household surveys were conducted from May-Oct. 2000. The 28 village households who are active in dairy production and who own or have access to land were visited.

Data on **socioeconomic** issues, **land use practices** were gathered through the survey.

Land cover was determined through field studies and aerial photo interpretation. The photos were from 1956, 1965, 1977, 1994 and LandSat 7 imagery for 2000.

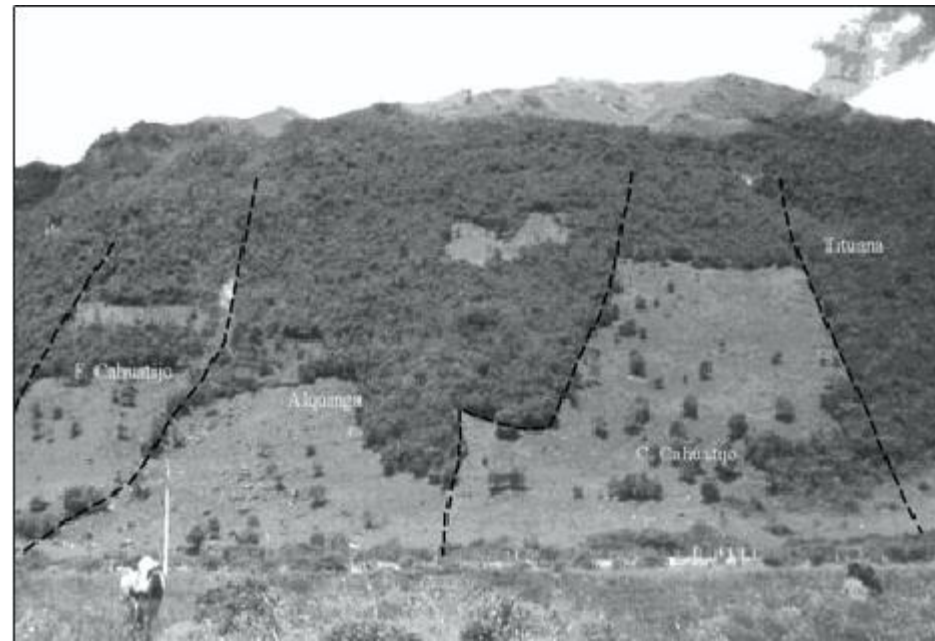
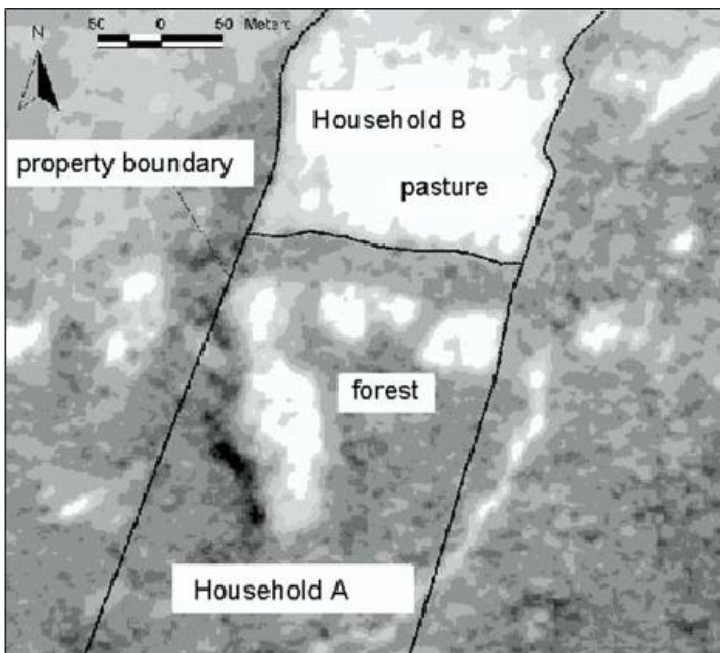
In order to calculate biodiversity the following 3 measures were used:

- ❖ Area and percent of nature cover
- ❖ Number and size of isolated patches
- ❖ Adjacency to agricultural land cover

LAND USE INFLUENCES :

- ❖ Biophysical properties such as terrain, and slope heavily influenced where land would be natural or pasture. No pastures on slopes greater than 40%.
- ❖ Topographic features such as ravines or gullies were boundaries for natural/pasture lands.
- ❖ Property boundaries and land tenure had a large influence in land use choices.

75% of forest /pasture border were attributed to topography and 10% to land tenure.



CONCLUSIONS : At least for the Papallacta region the isolated patches of natural land cover in the agricultural areas mainly follow topographic features such as gorges or ravines. And these corridors are connected to large continuous natural land located in the periphery of the study area. Thus, allowing for movement of wild organisms.

In this region floral and faunal diversity is highly correlated with topography. Since the majority of pasture lands are located in the valley, species that favor this zone will be most affected, while species found higher, steeper elevations will be less affected.

Land owners who had access to graze on public lands would be less likely to convert their lands into pasture.

Discussion

What are some other issues that should be raised around land use change in Papallacta?

Additional Resources

<http://www.iapad.org>

<http://ppgis.net>

<http://pgis.cta.int>

<http://www.youtube.com/user/ppgis>

<http://vimeo.com/channels/pgis>

<http://pgis-tk-en.cta.int/>