Applying PGIS to DRR
'Good Practice'

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Pre Conditions

- Purpose, purpose and purpose
- Partnership
- Positively discriminate
- Power
- Products
- Participation is learning
- Participation is slow
- Practice modesty – in what is offered
- PRA principles – flexibility, innovative, involved, triangulation

Purpose!

- "Purpose, - which purpose?, whose purpose?" – analytical and operational clarity about the *purpose* of the PGIS exercise is the key element.

- Be very certain about the purpose – why? do people get involved in this particular exercise, and which? people.

- many purposes & justifications for P-Mapping.

Basis

Think before you act.

- Participatory & non-conventional knowledge acquisition: semi-structured interviews, open-ended discussions, stories, songs, pictures, chance meetings,

- RRA/PRA spatial tools: sketch maps, diagrams, historical time lines, time-space diagrams.

Political Climate – Enabling Conditions

Pre-condition is that legislative, legal and political climate must be amenable and supportive to participation values and a PGIS strategy.

This condition is unlikely to be fully met, so the PSP activities or projects at another level, will need to be directed towards strengthening political forces towards this.

Guidelines
Good Practice in P-Mapping & PGIS

A 'good practice' sequence or 'users' guide' to improve application & performance of PSP, especially P-mapping and P-GIS

- *Before* the Pre-conditions.

- *During* the Works - in the Process and Procedures.

- *After* the participatory activity

Group Exercise

Write brief Guidelines for *Good Practice*
Participatory GeoSpatial Information for
Disaster Risk Management in Georgia

I.   Pre- Field Research preparation
II.   During the Field Research activities
III. After the Research – after data collection

Write 3 or 4 items for the three stages

Preparation

Acquire sufficient prior knowledge

Make a reconnaissance of the area in the company of local experts, before beginning the full process.

Acquire professional geospatial information - base maps, aerial photos, remote sensing imagery,

as well as conventional a-spatial information sources - documents, censuses, reports,

Preparation

- Identify and attempt to understand local (indigenous) spatial knowledge (LSK) including: concepts of neighbourhoods, boundaries (property or cultural), conflict zones and risk zones, priority areas, time-distance relations, dynamic spaces (e.g. empty or crowded streets).

- Collaborative selection of the appropriate spatial scale for geo-data inputs, based on social, political as well as geographic criteria is important to gain the acceptance of community.

Preparation

- Plan for, acquire, and gather together the field and office equipment, such as GPS, Personal Digital Assistant (PDA) (Pocket PC for mobile GIS); and the necessary materials. E.g. papers, plastic overlays, coloured pencils, marker objects

Expectations

- Avoid raising expectations. Any process of analysis facilitated by an outsider is liable to raise expectations of some benefit, even if the outsider goes to pains to explain that they have limited to offer and nothing will follow dircetly from their visit. Disappointment with visitors and organisations outside the community may then follow

Negative Effects

- Consider collaboratively what might be the negative impacts of the outputs – PSP and P-mapping can lead to more conflicts, and more concentration of power or resources in a few hands.

- Consider the likely needs for confidentiality of spatial information – ranging from the locations of rare species or of valuable medicinal plants, to secret, sacred sites.

Pro Active towards Marginalised

- PGIS is directed towards the marginalized, the unrepresented, the inarticulate, the resource-poor, the power-deficient.

- PGIS must show positive discrimination towards groups of marginalised people identified by gender, age, wealth, resource levels, caste, religion, class

Information Sources

- Ensure broad (representative) range of local people are involved.

What criteria to use for the selection?

- Include women, children, elderly,
- people with specialised knowledge (as local experts),
- representatives of the power-deficient or marginalised and the inarticulate or disadvantaged.
- urban community, e.g. property owners, the landless / homeless, renters, absentee landlords, local authorities, political representatives, NGOs, technical staff, business people.

"A picture says more than 1000 words"

- thus, showing damaged building fronts or waste dumps or leaking pipes on photos or sketches makes for better arguments.

- not necessary always to use GIS technology software; Use graphics software like *Macromedia Freehand FX* or *Adobe Illustrator* is also possible.

- Supplement spatial information sources with digital photography, video, sound recordings, sketching

Participation

- Let the people do the activities – Keep instructions and interference to minimum. Do not over-emphasise details, or maybe the big picture gets lost. External professional experts should always have patience.

- Observe the P-mapping process to increase understanding. Ask questions, probe, ask for explanations, e.g. why are there regularities and why anomalies in the results?

- The process should be clearly useful to the local participants – but - it can also be enjoyable, as well as systematic and scientific

Participation is always a learning process – and best if it is learning in two directions-

- Experts learn the interests, objectives, limitations, constraints, and variability from the insiders.

- Insiders (community traditional leaders, elected leaders, NGO, CBO, civil society, etc) learn from the expert (planner, GIS, mapper, geographer, doorkeeper to outside knowledge, contact with outside power). Insiders learn technical knowledge, and new technical, economic and social skills, but also a wider vision.

Serendipity

Always be prepared for new knowledge, for surprising findings and information. "Expect to be surprised", which implies keeping eyes, ears and minds open to challenging information.

Avoid Danger

Avoid exposing people to danger.

- Street children who made maps of their parts of Cairo showed where the drug dealers operated, which could have got them in trouble.
- Urban dwellers in Jamaica analysing violence had to be stopped when local thugs began to take a suspicious interest.
- Children in a refugee camp inadvertently showed the market where they went with their parents to sell relief food illegally;
- villagers in South-east Asia working on a 3D model pointed to hideouts of rebel groups

Triangulation

- A key idea in PGIS, is *triangulation* -: checking and double-checking 'everything' – the data sources, the opinions, the analysis, the conclusion, the recommendations – by using alternative sources and measurement & analytic methods.

- Cross-check the LSK visualisations and geo-referenced indigenous technical data with geo-information from standard maps, topographic maps, etc.

- Do not take the standard official maps as the only authentic base against which to measure.

Visualisation

- Participatory maps can be transferred into appropriate graphics visualisation software like *Macromedia Freehand FX* or *Adobe Illustrator*

- Maybe better attuned to LSK characteristics of indeterminacy, fuzziness, and emotion, and can show rich, qualitative, holistic information.

- Make use of interactive visualisation software for development and for participatory spatial planning with user groups.

- results in better presentation and visualisation, interpretation of outputs, and understanding.

Working with the results

- Use the map products - take them on further PRA exercises, transect walks, etc.
- Show and discuss the groups' maps in joint meetings – for triangulation, and for awareness, for conflict management, empowerment, etc.

Outputs

- final outputs may be printed maps, hardware models (3-D models), CD-ROMs (GIS), websites (e-maps), etc.

- Each output has specific detailed requirements, and different ´ownership´conditions; even the printing of good quality maps may be very difficult to organise within reach of the community.

- The delivery and dissemination of spatial information and other outputs should be pre-planned collaboratively to meet people's expectations of transparency, accountability and equity

Ownership of the products as well as the information/ knowledge inputs

- Who determines the purpose of the map?
- Who decides on the priorities between interests and issues?
- Who selects the information to be included?
- Who decides on the sources of information, including the choice of "key informants"?
- Who decides on the legend? i.e. what items will be located on the map.
- What are the spatial extent & limits of the P-mapping exercise, the boundaries. (Always depends on the purpose.)

Ownership

- The Maps are never final, static, they are not 'cast in stone' – they should be triangulated, improved, verified.
- Later they should be updated. How to ensure this?
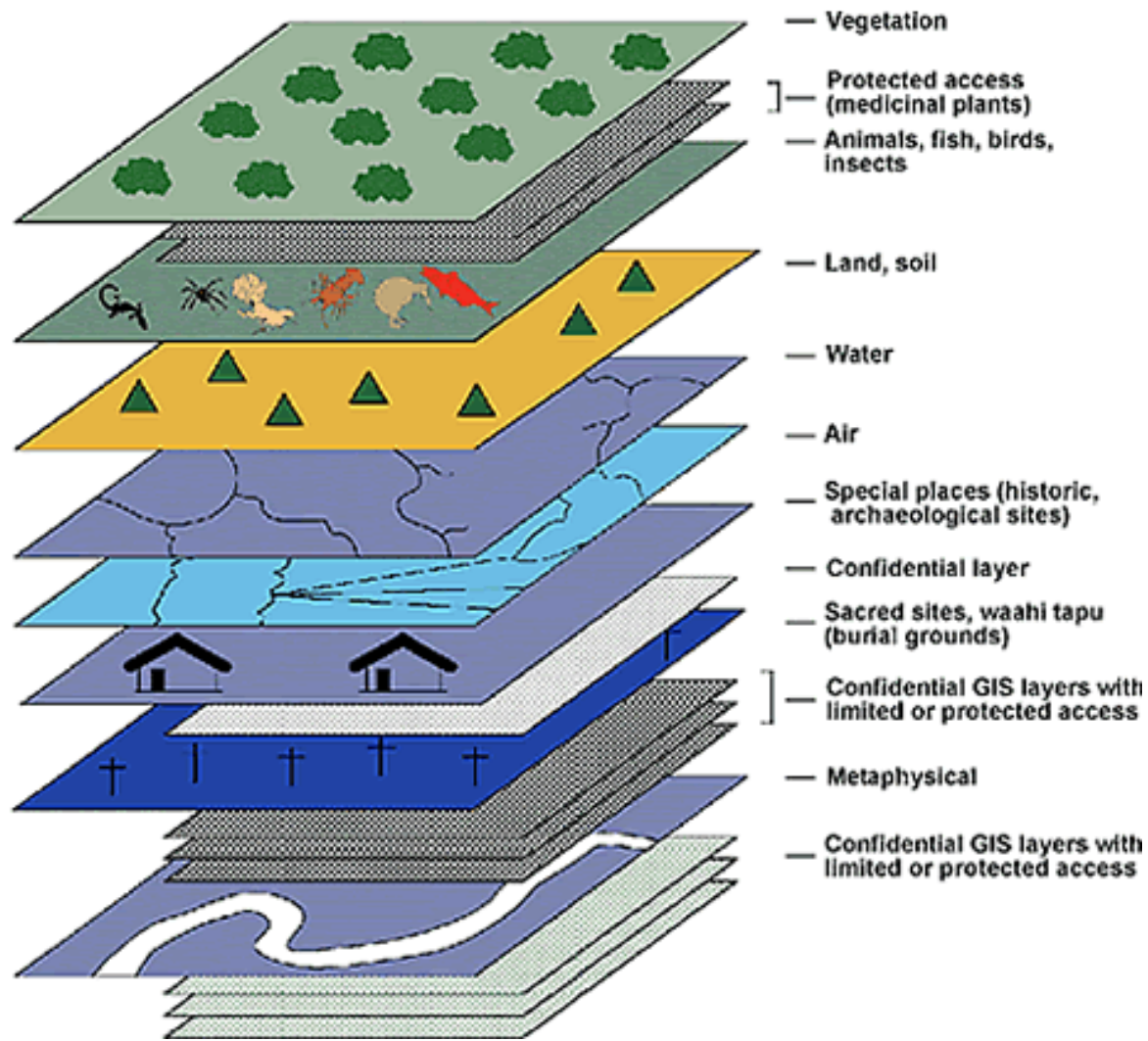
Clear Ownership:
- Multiple, full-quality copies of the maps should remain in the community probably with several organisations / groups. Copies should also go to local governments, local NGOs, etc.
- Include the names of the contributors to the maps.

Ownership of Spatial Data

- gathering, hunting, fishing, grazing, woodfuel
- waterholes.
- boundaries of culture areas, clans, tribes.
- customary property demarcations within a cultural boundary, e.g. by clan, lineage, household,
- historic places
- ancestral grounds, sacred areas, buried art
- indigenous place names, cosmological (creation) locations.

Owning = Protecting Spatial Information

- Vegetation
- Protected access (medicinal plants)
- Animals, fish, birds, insects
- Land, soil
- Water
- Air
- Special places (historic, archaeological sites)
- Confidential layer
- Sacred sites, waahi tapu (burial grounds)
- Confidential GIS layers with limited or protected access
- Metaphysical
- Confidential GIS layers with limited or protected access

How is Ownership protected?

o concealed files linked to GIS

o overlay only at a crude scale

o hyperlink to an accepted authority figure

Ownership   (G. Rambaldi)

- Who decides on what is "important"?
- Who owns
    - the pictorial language,
    - its graphic vocabulary and
    - the resulting message?

LEGEND
Participatory 3-D Model of Pu Mat National Park, Nghe An, Vietnam

Who owns the Legend?

Follow Up and Up-Dating

- Follow-ups, monitoring and evaluations should be designed into the PGIS process from the outset, and with an independent component.

Reiteration - Back to the Beginning

- Participation in all the above activities carried out, not only with short-term, functional participation, but with sustainable, local capacity-building to carry the activities through, as the empowerment objective.
  - technical surveying, mapping, computer and GIS skills;
  - extending local knowledge, e.g. from older key informants to young people, from women to men
  - extending external understanding– about the knowledge and capacities of local communities.
  - organisational skills – presentations, negotiation, lobbying, legal entitlements.

ITC

Purpose – again!

Re-consider & re-assess purpose of exercise:

- to what extent was it local initiative?, or was it external intervention?

- What will have changed in the community?

- Who will have benefited? and,

- Who will have borne the costs? - in the long, as well as the short term

Manuals and Toolboxes (using PGI)

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ACTIONAID

PVA Participatory Vulnerability Analysis

Focus groups. Historical profiles, Vulnerability map, seasonal calendar. Livelihood analysis, problem trees, concept mapping?, Coping matrix, venns, scenarios, timelines

Action Aid Participatory Vulnerability Analysis (PVA) Case Studies

Johannesburg: Action Aid

http://www.actionaid.org/wps/content/documents/PVA%20case%20studies%20Final.pdf

CEPREDENAC

Local Risk Management

Lavell, Allan with Elizabeth Mansilla and David Smith (2003)

Local Risk Management: Ideas and Notions relating to Concept and Practice.

Guatemala: CEPREDENAC Centro de Coordinación para la Prevención de los Desastres Naturales en América Central, CEPREDENAC – PNUD; and: Geneva: UNDP, Regional Programme for Risk Management in Central America. (62p.)

http://www.crid.or.cr/digitalizacion/pdf/eng/doc15784/doc15784-contenido.pdf

ProVention

ProVention

Measuring Mitigation. Tools for Mainstreaming Disaster Risk Reduction

Collecting & using Info on Natural Hazards

Economic appraisal; environmental appraisal , Log Frames; M & E; appraisal of Institutions

Vulnerability & Capacity Analysis (VCA) (cf. VA, SIA, HIA, livelihoods analysis)

Sustainable Livelihoods Approaches; 2ry data; sample surveys, Interviews, HH Case studies;
   Envir. Checklists, Timelines, Seasonal calendars, mapping, Ranking methods, Venns,
   Shocks & Trends Indicators

Risk Assessment - hazard mapping, forecasts, economic appraisal, social appraisal

ProVention (2006?) Community Risk Assessment Methodologies and Case Studies.

Compiled by Maya Schaerer. Geneva: ProVention.

http://www.proventionconsortium.org/?pageid=43   or,   go to main website
   www.proventionconsortium.org

Working with **women at risk**: practical guidelines for assessing local disaster risk.
   International Hurricane Research Centre, Florida International

Manuals and Toolboxes (using PGI)

ADPC   -   *CBDRM Community based disaster Risk Management*
Disaster Risk Assessment :   Gender analysis Gender Needs Activity Profiles
vulnerability assessment , Timeline. Hazard & Resources Map, Seasonal Calendar, Ranking. Transect.
   Historical Transect.   Matrix Ranking. Proportional Piling,
CBDRM Field Practitioners' Handbook
Abarquez, Imelda; and Zubair Murshed (2004) Pathumthani, Thailand: ADPC   (163p.)
http://www.adpc.net/pdr-sea/publications/12Handbk.pdf

GTZ
CBDRM Community Based Disaster Risk Management
Timelines   actor mapping. Problem trees ranking venns vulnerability & capacity analysis
SSI Participatory observation Social / Wellbeing Ranking
Bollin, Christina (2003) Community-Based Disaster Risk Management Approach. Experience
   gained in Central America.   Eschborn: GTZ , Division 4200 Governance and Democracy.
   http://www.gtz.de/de/dokumente/en-community-based-drm.pdf

IFRC
VCA   Vulnerability & Capacity Assessment
e.g. Solomon Islands
Stakeholder analysis; seasonal calendar; Cause analysis, SWOT   Community Mapping.
   Scoring & ranking of health problems Food security SSI etc

Environmental Equity & Justice

- e.g. Clary-Meuser Network (USA mapping environmental justice issues) http://www.mapcruzin.com/

Post-Disaster emergency Mapping

- **MapAction**, UK-based specialist volunteers, support humanitarian operations provide spatial data & mapping capabilities in the field. Large-scale maps focused on specific relief requirements sectoral overlays. **http://www.mapaction.org/**

- **GISCorps** since 2003 volunteer basis. GISCorps volunteers reside in USA and work collaboratively. Emergency & relief work in: Andaman Is. Tsunami. With Global MapAid, post-tsunami; Katrina USA, Afghanistan; Armenia, Hungary, Kenya. Marshall Is., Mali, Namibia
    http://www.giscorps.org/

Global MapAid, supplies specialist maps to emergency & humanitarian aid. Aid Workers, GIS Analysts, web developers. Map crisis hotspots by capturing data in slow onset disasters such as food security, drought, HIV monitoring, refugee programs e.g. UN WFP. Also rapid onset disasters such as floods.
    http://www.globalmapaid.rdvp.org/

Ethics of P-GIS

A Guideline for Integrated Development Plan

Cristina Madrid
Paul Ofori
Suman MeherShrestha
Rajit

Before

- Attitude "Helping to solve the problem instead of solving the problem"
- Acquaintance with local information
- Respect / understand local culture and IK
- Community entry and familiarization of the area
  - Identification of resource person
- Design community meeting strategy
  - Formal / Informal meetings

During 'A'

- Explain the importance & purpose of the participation
- Respect for culture / views
- Avoid biasness
- Ensure transparency
- Equity in participation
- Avoid creating false expectations
- Moderation in the meeting
- Strong justification based on spatial information
- Manage possible conflicts

During 'B'

- Identification of physical & natural resources
- Explore potentiality of resources
- Adopt democratic process in prioritizing
- Making the map with "local cartographic knowledge" (symbols)
- Derive consensus on "Where and How"? (Implementation)

After

- Finalize plan through Public Forum
- Ensure sense of ownership
- Guarantee confidentiality of IK
- Be available when needed
- Be responsible