Discussions from PPGIS.net

Food for thought and further discussion in the classroom

Compiled by Jeroen Verplanke
PGM, ITC, 2005

Ethics in PGIS

As an opinion, there have been many cases where ethics in PGIS have crossed with issues on IPR (intellectual property rights). The presentation by Giacomo Rambaldi during GISDECO this May in Johor, Malaysia on 'Who owns the legend, quickly brings to mind the issue of ownership when local knowledge in particular is transcribed especially, onto PGIS products for later use in decision making by others in different contexts, even if the local people themselves are still actively using it for what it was intended.

Within ICRAF (the World Agroforestry Centre) as well, the issue of 'to what extent can we say a product like a map becomes the property of she/he who has adapted it by adding new information to it, to suit a new context? We know that maps can be powerful and when used to communicate can even be more so (Giacomo, 2004. who owns the legend?) Reason why, in such cases as the latter, originality in participatory mapping in which GIS tools (GPSs or mobile GIS)are used directly in a local setting, are increasingly more preferred to transcribing participatory maps onto a computer-based overlay, thus raising concerns of ownership and rights to information use. In the former case rights may be better and more clearly defined, respected and protected than in the latter. There are many instances one can site.

Although the need to be careful about who we are empowering or disempowering when using integrative technologies that link local people to hi-tech contexts is always there, 'ethics' in general will continue to be an important issue in many fields not just PGIS. It needs to be discussed so professionals in integrative, development-oriented fields are aware of its importance. However, we need to be careful that the need for 'ethics' is not viewed as a factor limiting creativity in practicing PGIS.

I strongly agree with points Mbile has pointed out. not only will contexts vary in their uses/purposes, be it for good or bad motives, but by whom (researchers, forester, mappers, agriculturalists, GOs/NGO officers, land administrators, stakholders etc) the entire PGIS process is led, cordinated and facilitated.

The ethics in PGIS is a complexed issue, as experts from different professions participate. So it really boils down to whether all participating parties do have 'Ethics' in their own fields/organisations and how strong these are upheld. Which may almost seem to suggest a massive merger of Ethics from varying professions, simplified and consolidated into one that is accepted, but easily adapted.

But then again the Legend owners, i.e. the farmers/villagers/communities who are directly in-charge, hence is beyond our control. Some sort of educational awareness incorporated in the process to alert the clientele on the possible predicaments/disadvantages of PGIS, might be a safer way to approach this issue.

My personal view is that as long as our objectives/goals are centred on good principles and good ethos - in any PGIS process/exercise we can't go wrong, ultimately keeping in mind our intended overall objective - that is to empower and impact people and communities in defining and controlling their own development/welfare/cultural values etc. through PGIS ..

Jimmy Maro, GIS - National Agricultural Resaerch Institute, Papua New Guinea

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Ethics and good practice ...

I have just come back from a PGIS exercise in the Pacific involving the use of participatory orto-photo-mapping and GIS applications. Objective of the exercise was to support residents of a small island in developing a management & development plan covering both terrestrial and coastal ecosystems. The exercise was presented as the starting point of a longer process. As a guest/observer I had the opportunity to appreciate how well villagers could relate to aerial photography (1: 12,000 scale) and map resource location, distribution, use access and control. Still, participants experienced some difficulties in rendering their mental maps in a

scaled manner, and tended to oversize their farms, etc. Anyway, that was a matter facilitators had to deal with and which participants understood once presented with reference areas. This contributed to adding precision in the depiction process. The use of a larger scale (e.g. 1:5,000) would have further enhanced the quality of the proces!
s.
The activity lasted for two days involving close to 70 people and 4 facilitators.
At the end of the exercise facilitators transferred some information from the photo-maps to a GIS and showed the resulting output to the community, explaining that they would complete the extraction process back in their offices and would return to the village to discuss the results. Therafter they carefully rolled all aerial photographs, properly greated the community and left the village.

"PGIS ethics" kicks in here, because what I describe next is common to work involving community mapping and ITs.

The facilitators took all outputs with them, aerial photographs, legend, depicted community knowledge (including sensitive issues like fishing areas, cultural grounds, and more..). What was left with the participating villagers? Nothing exept the promise to come back.

I discretely raised the issue on the whereabouts of the building blocks of Participatory GIS: ownership, empowerment, stake in handling and controlling access and use to indigenous knowledge, ...? I raised the questions on who would decide on what to digitize and what to display? Who would adjust areas, manipulate data to "fit experts' expetations" in terms of precision, accuracy and "logic". We all agreed that the process needed improvement and eventually the integration of different and eventually more appropriate PGIS practices.

We all agreed that one ethical pre-requisite is to leave the outputs of the mapping exercise with those who produced these. It should be the responsibility of the facilitators/practitioners to make their own copies and to ensure the existance of some mechanisms which would allow representatives from the concerned communities to master and supervise the tranfer, manipulation of further use of community knowledge in the hosting GIS environment.

Food for thoughts ...

Giacomo Rambaldi

Participatory Marine Ecological Research and Monitoring

I ran a project in Nicaragua last year as part of my Msc in Tropical Coastal Management. A team of 6 students including myself undertook research relating to coastal management of 2 islands off of Nicaragua's Atlantic Coast (the Corn Islands). The project included marine habitat mapping, coral reef surveys, fisheries socio-economic surveys, a fisheries management perception study, coastal pollution perception study and monitoring surveys and also a fisheries spatial perception survey. (www.reefmap.org.uk).

The study lasted 2 months and we wanted to take a participatory approach and so we contacted as many local organisations as we could and we worked with about 25 local university students and volunteers in the data collection training most in some form of survey techniques that could be usefull for ongoing ecological monitoring.

For me the project was a steep learning curve in participatory approaches and I realised by the end of the project that this was the most important aspect of the study and what was really important was for the work to continue afterwards, (especially for ecological monitoring purposes).

I have been editing all of the data into a management report (with reccomendations), a GIS and an access database over the last year and am almost ready to send this all back to the the islands government, the central governement, the universities and NGOs that we worked with.

The Access database is in a fairly user freindly format and the GIS layers are viewable in a free viewer (this will all be updated online as soon as I find the time). What I am predicting however is that very little of our research will be accessible to the communities that we worked with and it will still be very difficult for the local project partners on the Corn Islands to continue with the monitoring.There are few computers on the islands and although the paper report will be available this is not the most effective use of the research and does little to encorage monitoring. What is needed is a locally available and simple to use GIS that is in the hands of local NGOs, university groups and local governement as well as the central government and the western NGOs.

I really dont want to cut and run on this project because I know how important it is to many people who rely on the dwindling marine natural resources and so I have been working on a proposal for a continutation of the monitoring and research based on the implementation of appopriate technologies for data recording (low cost, indestructible hardware and free software) and participatory GIS methods (knowledge mapping, fuzzy ecological modelling).

I have a team of people who are keen to help me out on this including a team of computer software and hardware engineers who are helping to design an cheap (low spec) waterproof and ruggedised computer unit running Linux and a Java based database and GIS interface. The hope is that this can also be used to facilitate participatory GIS data collection and can also be left in the field rather than the data being removed. The unit will hopefully also have wireless lan interface for short range data transmission to a central server and via the internet to a repository (i.e. the governement fisheries / environment department who have legal jurisdiction over management).

The database will be based on participatory data collection and research and there is a lot of information available on the iapad site that I have been reading with enthusiasm. I know that there are problems relating to data collection ethics relating to extraction of local knowledge but I hope to build the data collection methodology so it is as much about perceptions as it is local knowledge and that these percpeptions will be used in a two way process of participation based on workshops and a co-management agenda.

I would be keen to hear if the technology application is something that interests or if its too much of a 'techno' focused solution to a very human problem. Any comments or criticism would be gratefully recieved.

I will have our project report online soon but if you have a very large inbox I can email a copy!!

Duncan Hume

Duncan,

I have visited http://www.reefmap.org.uk and noted that your research is part of a broader intervention aimed at formulating a coastal management plan for the municipality including two islands (Corn Islands).

My understanding is that the work your group has been doing has been research-led. At this point in time your sincere desire would be to ensure better access and increased control over the data by local stakeholders.

I assume that the ReefMap initiative (apparently well sponsored) will somehow address your concerns in the future. Anyway going back to the issues you have raised in your message my questions are the following: Was your action a response to local needs or to externally-identified critical issues (i.e. externally driven)? Who defined the initial core problem(s) and their root causes? Who designed the survey methodologies and led the way in data collection/generation? Who choose the tools for analyzing gathered data and displaying derived information? Who decided on what was important and what to display and make public? Has capacity building in Information and Communication Management (ICM) among local stakeholders been integral part of the process? Who owns and has ultimate control over the information you have gathered? What should motivate local communities in pursuing data monitoring? Would the act of monitoring empower or disempower local grassroots? Is there any enablin!
g (legal) framework which would support local communities, groups, NGOs and other civil society actors in taking the lead in managing (i.e. controlling use and access) on coastal resources?

I my mind this are the questions you should have been asking yourself since the beginning of your work. Participatory GIS is about putting Geo-IT at the services of civil society, for civil society to play a more informed, proactive and responsible role in decision making … and sustainable natural resource management. On the other hand it is not about using indigenous spatial knowledge to serve external needs or data-driven research.

You are "working on a proposal for the continuation of the monitoring and research based on the implementation of appropriate technologies for data recording and participatory GIS methods". While your intention is meritorious I would like to question the timing. Why now, at the project end? "Appropriate technologies" should be identified – jointly with those who would be running the post-project show - ahead of data collection and management. In this context I think that your intention to set up a "team of computer software and hardware engineers" to make the system more sustainable falls in line with the initial IT-led approach. What about building a multidisciplinary team of community workers, anthropologist, sociologists, collaborative natural resource management specialists, activists and or PGIS practitioners?

I would like to share this summary concept of Participatory GIS which was put together after discussing the issue throughout two dedicated events (GISDECO 2004 and PPGIS 2004) for you and all [ppgis] listers to comment on:

"Sound PGIS practice empowers communities through visualizing and representing peoples' spatial stories (examples include indigenous land mapping, participatory 3D modelling, multimedia GIS, etc.). Planning and/or development agencies find data in this format very useful. Visualising geo-referenced indigenous spatial knowledge helps communities entertaining peer-to-peer dialogues and promotes their issues and concerns vis-à-vis planners and decision makers. The integrated and multifaceted process of which PGIS is a component,

gives communities confidence in interacting with outsiders and adds authority to local knowledge. […] PGIS practice has to be embedded into a well thought out process including the following steps: (i) understanding people's questions, (ii) assessing the existing legal/regulatory framework, (iii) jointly setting the objectives, defining strategies and actions including choosing appropriate spatial information management tools. Such choice should take in!
to consideration a broad range of tools and methods starting with low tech sketch mapping upwards towards integrating geo-information systems and technologies, but always taking into consideration the issues of connectivity, human skills and capacities of actors concerned with the use of to-be-established systems, with and without external support and funding. There was general consensus that external support is needed particularly when dealing with resource poor agents of change." (Rambaldi and Weiner, 2005, Summary Proceedings, Track on International Perspectives; International Conference on Public Participation GIS University of Wisconsin-Madison, 18-20 July Madison, Wisconsin, USA; full document available on www.ppgis.net under "Resources") I hope my thoughts will contribute to the PGIS reflection and to your future work on Corn Island.

Giacomo Rambaldi

Dear Duncan,

I agree with Giacomo's questions and responses. This, for a number of reasons. For PGIS to be effective it must be pro-active. It needs to consider first, local interests and how these link-up to policies, projects and trends. This is for the simple reason that participatory methods are largely determined by the goals they seek to achieve. True participatory methods consider local involvement 'inevitable' and therefore cannot be effective if very wide local participation is not attained. On the contrary pseudo-participatory approached can go on quite well with local involvement been considered within the framework of legitimacy and window-dressing. So the unfortunate scenario when participation becomes an after-thought is that it then becomes dis-empowering. Nevertheless, your experience does serve a useful lesson for the practice.

Like so many practitioners who 'stumble' on participatory GIS out of very sincere creativity, you are on to something important and significant. I do not know much more than you have said about your work but there are similarities with the situation I found myself in, 5 odd years ago when I started practicing PGIS with the object (in my case) to provide advocacy (my luck) for people living in a National and within its periphery and threatened with expulsion.

The first point is that though your work uses technology, and plans to use even more you need not be anxious about it being techno-focused. The essential point is that the technology needs to enhance the different stages of the participatory process - this should be an important justification for use of various communications technologies. Note that, the essential aspect we all look for in work like this is that it should enable local people in need to communicate effectively with more powerful decision-makers, remotely located.

The essential value is the information, empowering information and feedback that can occur and be translated into concrete long-term and mutually beneficial actions. There is plenty of knowledge at the local level. Local people in a locally initiated participatory context are not unduly anxious about sharing knowledge, in fact by sharing their knowledge they know that their knowledge grows. Like in my case today, the trick is to Identify a local partner (NGO preferably) or local collaborator very early in the work. Once local interests, collaborators' interests and your interests and aspirations are harmonised, be sure that continuation of especially the monitoring, management and valorisation aspects of the work will follow.

A point to always remember is that capacity development always aims at longer term positive results, PGIS is a process and not an activity or event and so practitioners must always remember that. You may have carried-out an activity and generated information; information

needed to establish the link between a vulnerable group (perhaps) and a decision-maker. Although the initiation was clearly led by external motives not entirely known or owned by local people, to save the situation now, the next step is to urgently animate and sustain that link (like two water containers linked by a hollow tube) so that the power can be redistributed.

Peter MBILE

Participatory GIS: some conceptual and theoretical notes

W.H. Erik de Man (03-01-2005)

Participatory GIS (P-GIS) means generally different things to different people both in literature and in discussions. Does this matter? Not necessarily, I would say; as long as we are able to communicate. Nevertheless, some conceptual and theoretical efforts with regards to issues surrounding P-GIS seem to be appropriate.

Why a theory matters?

A theory of P-GIS
- helps in clarifying "what we are talking about"
- helps to understand/explain/etc. concrete P-GIS practices
- relates to adjacent knowledge/literature/concepts/ideas
- helps to avoid pamphlet-ism
- helps to design sound/healthy P-GIS practices
- etc.

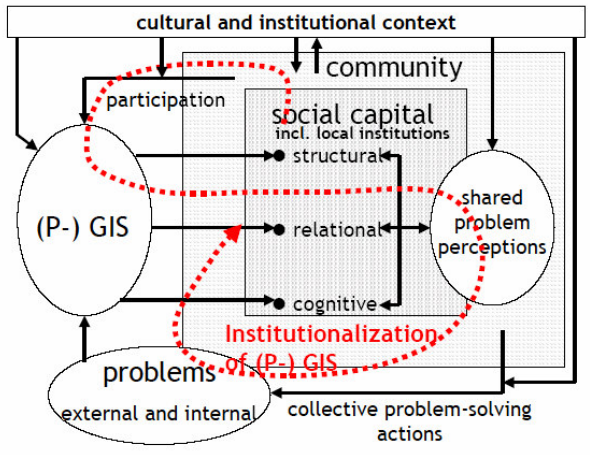
and above all
- helps to identify and formulate dilemmas in our current understanding and practice of P-GIS which – in turn – provide opportunities for doing nontrivial research and thus for continuous improvement of our understanding.

Danger of a theory

However, theories may also have adverse effects. A potential danger of a theory is that it
- creates artificial and unproductive divides
- tries to explain too much and actually does too little
- etc.

Conceptual and theoretical developments in P-GIS may help us to avoid the trap of positioning P-GIS in reaction of a caricature (misrepresentation) of mainstream GIS. Think for a moment what a non-participatory GIS would look like. Is information without participation thinkable? Probably, P-GIS is about what Information Systems (IS), GIS, Geo-information, and the like, ought to be. This then would mean that a theory of P-GIS is quite the same as a theory of GIS in general. And, consequently, I will speak of "(P-) GIS".

Different theoretical frames may be applied to different research questions(P-) GIS is multifaceted and different aspects may be addressed by different research questions each having their own, distinct theoretical backdrop. The following conceptual framework intends to bring together some of the theoretical frames that I believe surround the field of (P-) GIS. Roughly speaking, the conceptual framework bases itself on the premise that social groups (community) is the basis for geo-information – or any information for that matter – to be meaningful. On the other hand, mechanisms that provide communities with meaningful (geo-) information may become "part and parcel" or institutionalized within these communities.



Conceptual framework of P-GIS

Note: "Community" may also refer to arrangement between local community and external authority.

Dear Dr. Eric,

The theoretical and conceptual issue related to P-GIS raised by you that made me think deeply about our study related to rural development here in India. In this we used GIS and subsequently we ended up developing a Bilingual (Local language & English) Windows based simple easy to use with minimum Nos. of menus package, where the GIS data can be accessed, updated for a meaningful participation at grassroots level in the village development plan as per requirement.

I do not know it was P-GIS or not but certainly it helps local people to access required spatial data and participate in the local planning process.
It empowered them to the knowledge, which was hidden in the otherwise mundane (to them) household, resource data, many of it created by them through PRA technique.

Now the question is what theory we used?

It was nothing but theory of participation for development. GIS database creations started from the PRA technique used by villagers and subsequently fine-tuned with scientific geo-referencing by professionals. Development related Data have been incorporated in the package foe community usage.

Who decided what data is required?

Initially us and later the community once they mature in the planning process as well as the usage of the package for planning.

Now the big question comes whether it would have been helpful to us if there was a P-GIS theory?

My personal view is, it would not help us. Our primary goal was development through meaningful participation. If I had some technology oriented protocol or theory we would tend to copy it or tried to follow it. It would have brought another intellectual hurdles. Rather I would prefer a forum like ppgis or a knowledge library of P-GIS where we share our experiences.

Now that does not mean a theory is not required but the basic question is P-GIS theory for what purpose to achieve what goal and by whom. If we may addressed this three questions carefully we may develop an simple but all encompassing powerful theory of P- GIS which will not create intellectual bottlenecks but help people across the board to understand it clearly.

Regards, Sujit Choudhury

Mental Mapping and "sketch mapping vs. scale mapping".

just some thoughts to a few messages on the topic of mapping tsunami.

For my master's thesis, I worked on mental mapping sketch map). From examing people's mental maps I learned a great deal about their life routine, a bit of their personality and places that they favoured. Perhaps, project that incorporates mental mapping of an area prior to and after the tsunami hit would proove useful as documentation of past landscapes and areas with sentimental feelings.

The way I collected sketch maps was with a Tablet PC. Participants drew directly on the computer. These maps were stored immediately and with potential for post digital work or integration into a GIS.

Initially, subjects were asked to draw on a Tablet PC. The drawing software used was Corel Draw (as it is compatible with GIS software). The process was recorded by another software which capture the screen drawings and sound.

The subject was given two reference points for two reasons. One is to give them a sense of scale and relativity in space. The second is to use these reference points as anchor points in GIS. Following the completion of the sketch map, it could be immediate projected in a GIS environment for analyses.

If you are interested or would like more detail on the project, I can send you more final thesis for your comments or suggestions.

niem

When facilitating community mapping and practicing what is broadly described as Participatory GIS (PGIS), those facilitating the process assist groups of individuals sharing common traits in visualizing their mental maps through different means. The outcome of these exercises is usually spatial information resulting from a negotiation process stored and/or displayed in the forms of 2D or 3D maps and / or digital thematic layers.
In community mapping, the issues of "accuracy" and "scale" are high on the agenda, but not necessarily at its top. "Accuracy" and "scale" are important because they signify the difference between "sketch mapping" and "scale mapping". It is the latter which commands the power and authority increasingly attributed to local spatial knowledge. Nonetheless in community mapping "accuracy" should be considered as a quite flexible concept: fundamentally it should be limited to meeting the purpose of the exercise. Forest dwellers negotiating resource use or no-touch cultural areas do not need the level accuracy an engineer would need in designing a dam. Boundaries among pastoralists and farmers in the Kerio Valley (Kenya) may fluctuate, be fuzzy, vary according to season and maturity of crops, or other intangible factors. Therefore a consensus on the understanding of "accuracy" has to be reached on a case to case basis by those concerned by the mapping exercise. A similar approach!
pertains to scale, as different issues have different scales of analysis.

Practitioners involved in "tenure mapping" as an example have to go beyond "sketch mapping" to make sure that local / indigenous spatial knowledge is scaled, georeferenced, documented and robust enough to pose a challenge to consolidated tenure systems and prevailing economic forces. In the last decade a lot of work has been done in Southeast Asia where Indigenous People and NGOs have matched indigenous knowledge, technological advances with strong advocacy to get the concept of community mapping recognized at institutional levels. (P.S. A lot of work has been done also in Canada and New Zealand among First Nations)

The issues here are on how to facilitate the recollection process which allows individuals to compose their mental representations of space through a process which offers opportunities

for cross-fertilization and cross-validation. How many people can work at a time on a tablet PC or on a keyboard? Who would analyse the data stored on the hard disk? "Ensuring broad and equitable Participation" should feature at the top of the agenda of community mappers, thus the choice and combinations of methods, tools and technologies is the key to success.

Back to the first posting of Barbara, I found significant parallels between what research has revealed and good PGIS practice.

"on the issue of Rotation": When working with villagers in composing a 3D model or discussing features displayed on a map, it is good practice to orient the model and the map N/S. This facilitates participants in connecting their real world to what is featured in a scaled manner on the map. Did you ever try to turn the wall map of your country upside down? Try it, and we'll read from you later. Among practitioners we call it "inverted map exercise".

"Other systematic errors" mentioned by Barbara are linked to scaling mental representations of space. We, as community mappers tasked at facilitating processes leading to the production of "accurate" maps should help informants overcoming these "systematic errors". Here come the physical 3D models widely used in Southeast Asia http://www.iapad.org/p3dm_video.htm where the vertical dimension offers additional cues to memory to better recollect and compose mental maps. Here come a basket of tools which help village informants in depicting their realities in a scaled manner http://www.iapad.org/tips/default.htm

Exploring how the human mind works in storing and rendering space is a fascinating subject and I think that a better understanding of the mechanics governing these processes (if generalisation is acceptable) is essential for those who would want to put a capital "P" in front of "gis".

Giacomo

Dear Niem,
Back to your original suggestions (the discussion seems to have moved onto a more theoretical plane - itself extremely interesting)
I think your idea is excellent, - probably. Certainly worth developing and checking out.

Helping survivors to draw mental maps (or whatever we want to call them) of their former home & life spaces could be very beneficial
(a) a theraputic activity for them related to the terrible trauma, not just the immediate pains but the losses of home space and neighbourhood
(b) some heritage to re-create for the survivors of this generation but also for their children.
(a town on Sri Lankan south coast i work with has lost upto 1/3 of its homes and the neighbourhoods. How will people rememebr their lives) Of course the maps aren´t everything, but recorded & preserved, they can be one part of the survival process and of an inheritance.

In addition, there could be local people´s maps made for other more standard purposes of ´participatory mapping´.
- for mapping where the immediate tsunami attack was strongest, its spatial patterns and its temporal progress (could be useful for hazard preparation as well as scientific analysis),
- mapping of former locations and patterns of natural resource sites and managemnt, (especially mapping the inshore fisheries,marine products etc. resources of artisanal fisherpeople, which were probably never recorded before, and now not so many people know them.)
- Another use would be the usual participatory planning use of preference and selection maps for the new settlement sites. (In the Lankan town, survivors will have to relocate 1 km. inland.)
As many of the other comments have reiterated, the only? fundamental questions about whether - and especially how - to use mental maps / P-mapping / PGIS, are: "what´s the purpose?" "who can & will make use and benefit?"

So, thanks for the ideas which are now being shared with local community groups working there.

Mike McCall

Dear all,

I wish I had written the message prior to my defense. I would have benefitted greatly from you insights, different opinions and thoughts.

The intention of my message was to suggest another way to examine sketch maps via GIS. Distortions are derived from diferent perceptions and senses so I understand that sketch maps vary from person to person. My suggestion is not to examine the static map only, but to incorporate as others in the discussion have already stated, to include the qualitative compenent such material from interviews, stories or discussions.

The projection of sketch maps into a GIS environment does little and I acknowledge that. But if the qualitative information is included in the attribute table, then that becomes much more powerful, even as information storage and visualization because it embodies the qualitatiave and quantitative data. From my short experience with GIS, the bulk of data stored and used are quantitative. For this tool to be useful to all geographers, physical and social alike, it must be able to house and analyze both types of data.

I am excited to talk about different ways sketch maps can be analyzed, collected and visualized, taking into consideration traditional methods but also venturing out and trying different approaches.

niem

Let me introduce myself first. I am a Social Anthropologist, working with World Wide Fund For Nature (WWF) Pakistan. A few comments on participatory mapping exercises. Very interesting and useful discussions, I found on mapping tsunami. Apologies, I have missed some of the messages. I understand that it is always difficult to agree on what is ideal because people have different perceptions on the basis of their experiences and knowledge about a single thing.
During my little experience in applying participatory tools and methods in the field I learnt some of the participatory mapping techniques like village mapping, resource mapping, concept mapping, mind mapping and mental mapping. All these terms we used to understand some concepts and process. I have tried participatory resource mapping techniques in three steps: the resource status of watershed 20 years back, the present status and the future status people would like to see after 20 years. All these exercises provided simple sketches of the area but yield a immense amount of qualitative information. Because, they provided bases for further discussions to generate required information for the resource management planning of the watersheds. A GIS expert can better tell how this information is possible to insert in a digitized map but the question is do we need to put all the generated information in the map? To me, it is good to be clear about the purpose of the exercise. If the purpose is clear and meets the requirements, no matter this fit into the scientific parameters of GIS map or not. When we talk about participatory exercises and communities (illiterate and common people) we should know do the people want to know what we want to tell them?
Cheers, Altaf Hussain

Dear Altaf,

while I agree with you in terms of the accessibility and also the use of such tools by the community, I somehow disagree the fact that PRA mapping and sketch mapping could be

useful. the issues with these rudimentary mapping tools are that they seldom save as useful monitor or planning tools as there are just mental sketch of the communities and are normally not scaled. I think the best so far tool that I have come across is the Participatory 3 Dimensional modelling tool, which is very useful and community friendly and the information captured can easily be digitized into the conventional GIS system. I strongly feel that P3-DM can meet both the requirement of communities and planner simultaneously.

anil

I am happy to join in this discussion. I think that this presents a great opportunity fo interaction and sharing of ideas. Coming to the dicussion, i think that P3D mapping is the best method so far. I'm saying this because of the following experince.

I was with elderly men from my community (rural) and we had to make a decision which required the knowledge of boundaries. Without GPS or whatever technlogy, one of the elederly men (probably in his late seventies) walked us in an area fr about 10km showing us becons (spp.) or rather markers which were erected about 30 years ago. Even though hewas not sure but throug that mental mapping method he was able to help solve the proble.

I do agree with you Altaf, my background is in draughting, cartography and GIS. I have worked with scaled mapping all my entire working life and I guess anything other than that would be difficult for me to accept. However, I feel that the type of mapping that you do will really have to suite the type of application. E.g. for children in the tsunami hit areas, mental maps or just drawings will do them good.

Here in Fiji, the use of mental maps have been used quite a lot with community work. This year, however we will be holding a workshop on Participatory 3D model (P3DM) (thanks to Giacomo Rambaldi) and I know that this will be the best for community mapping like you have mentioned in your mail where it will serve a lot of purpose. Not only with the community putting their knowledge into the model it will also teach them scaled mapping. Putting all these information into GIS will only take a short time which, if not for the community mapping the GIS information would not be as accurate and detailed as it would. Definitely it would take a longer time to capture all these information without the community support and knowledge. I am sure that this will be the mapping tool that we will use here after this workshop and I sure am looking forward to it.

Silika

Dear Anil,
Thank you for recommending P3DM. I agree this is an improved and powerful tool in combination with GIS and GPS in defining geographic boundaries and land use patterns but highly dependent on modern equipments and outside support. This tool is good to use in places where modern facilities are available but is less effective working with primitive communities living at 3500-meter elevation of Karakoram, Himalayas and Hindukush mountain ranges. They don’t have access to PCs, GPS and GIS laboratories. A digitized map may not be their perceived need but ours, because they do not have electricity and are cut-off from rest of the world more than six months in a year, due to heavy snow fall and land sliding. I think, the rudimentary and primitive tools are also useful, if they are effective and less dependent on modern equipments and outside specialists. I understand that a single tool cannot be effective in everywhere and in all situations therefore I use tools, which are situation specific and produces the desired results regardless they are old or new. In development world it is a common practice to use the term "participatory" referring to all the actions but they may not be participatory in real sense.
I believe that primitive and indigenous communities are the most important and effective stewards of the earth and we so-called modern people are the culprits of damaging the earth and its natural resources. Look around, you will find most of the modern equipments and

commodities not friendly to our earth in your room. The machine you are working on, the chair, the pen, the GPS, and the phone all these equipments are plastic made. We all know the negative impacts of plastic on our "one and the only planet".
Let me share an important lesson learned. Twelve years back, I was on a field visit in the mountains of Northern Areas of Pakistan. In a village, two women were going back after attending a health and hygiene education session. They stopped near a water channel and one said to other this channel water is dirty, see a germ is in the water. When I saw I found a frog in the channel water.
Cheers,
Altaf Hussain

Let me add in my bit, especially, on the essence and possible misconceptions about 'Mental Mapping'. I agree with Anil regarding his comments on the great value of Participatory 3-D mapping.
However, it must be said that contrary to some held opinions, though the 'product' of a mental mapping process is important, even more so is the 'process, its objectives, its empowering influence and ownership'. I agree with those who call for best practices to be promoted, because increasingly we realize that sloppy work in what we refer to as Mental Mapping is clouding the essence of Mental Mapping.

Mental maps are communications tools and come from the inner knowledge possesses by its practitioners - geospatial and technical knowledge possessed cognitively by those who have been in very close relationship with resources, events, issues, etc being mapped. Even producing a final result in the event that integration of this knowledge into another media is envisaged requires facilitation skills that bring out both the quantitative and qualitative aspects of balanced human intelligence and memory.
To the best of my knowledge the basis of classical so-called 'scaled maps' are not very different either. Though these may appear more authoritative and come from a more sophisticated process of satellites, software, IT specialists, interpreters and users, the final product may well be dis-empowering for a local community seeking greater ownership of its own space. Mental Maps should never be viewed as an end in themselves. They are a means to an end. The quality of a mental mapping process is linked to participation, involvement, and ownership by those whose knowledge is being represented, captured, transmitted, valued. Mental maps represent only one attempt, amongst many to further value indigenous human intellectual resources and link it to self-development: realizations and people-led practices that are becoming increasingly used in the face of failures by high-tech products to resolve local problems, deliver credible information or link the knowledge, mental resources and perceptions of local people to the rest of society. Mental mapping is a liberation tool, a development process, an empowering endeavour. Mental mapping is a celebration of knowledge without language as we know it. What it is not is a map-making event for the appreciation of some one who wishes to move from A to B.

Peter MBILE

Dear Altaf,

I agree with your views . Tool is not important overall development objective is important. In many remote part in our sub-continent we found from our experience that making people involved in development planning is more important than using GIS or any other technology per say. In simple PRA technique many things can be achieved but most important one is participation and in that process 'Mental Mapping' is an unique tool to make people involved at a much deeper level. In the next stage participatory GIS tool can be useful if the participation reaches a level of maturity.

Sujit

I've been reading with interest the discussion regarding sketch maps, mental maps, and now scale maps. I have a relatively simplistic view of the relationship among these concepts. Cognitive and Mental maps are those representations of spatial, and related non-spatial information, that exist in the complex structure of our mind (some neuropsychologists or biologists might argue for the term brain). Sketch maps are one technique available for externalizing these representations. I think most of the discussion so far has been consistent with these definitions (semantics aside). I'm sure members of this listserv have also used real time mapping to integrate participatory knowledge. At the U of Saskatchewan we have used this technique to map the evolution of informal walking and biking trails along the river (South Saskatchewan) that borders our campus. The approach has been documented many times and involves GPS mapping of meaningful places, spaces, and paths, along with a record (written, drawn, spoken, etc.) of why an element is meaningful. This provides a mapable feature (the point, line, or area) along with non-spatial material that can be attached in the database.

Over the past few years I have been working on several techniques that support the georeferencing of sketch maps, we should remember that the concept of a sketch map is extremely broad and can range from free drawing on a blank piece of paper of any size to the simple act of labeling countries on an outline map of the world. If we free ourselves from the constraints of the formal definition of the word "sketch" we can extend sketch mapping to model building, as has been done with blind and blindfolded people (making it much easier for them to create external spatial models of their cognitive maps). While I have used both constrained sketch mapping techniques (those that support georeferencing and digitizing) and unconstrained (free drawing) I prefer the constrained approach for situations in which integrating several participant's contributions onto a single representation (or into a single database) is desired. I have several students working on different approaches, primarily with rural farming communities in Canada, and each has had success in developing an understanding of the shared beliefs and knowledge of the respective participating community. Perhaps this technique would fall under the term "scaled sketch mapping."

There are a variety of ways to develop constrained sketch mapping techniques, some will provide "sketchers" more freedom, while others will limit participants' opportunity for free sketching. While a sketch mapping task performed on a blank piece of paper with limited restrictions might allow each individual a greater opportunity to share their knowledge, the power that communities will derive from such an exercise might be limited by the inability to integrate the products with existing GIS data. By integrating a frame of reference of some time will provide a basis for digitization and georeferencing, creating a foundation for integration with existing spatial data. While choosing the right base map for sketch is always a difficult decision, the right decision can pay off in the end, for both the practitioner and the community. In the past this has been done with a single frame of reference (including a scale and orientation) along with only a limited array of spatial information (locations of well know features, such as towns, buildings, or natural features), to a complete reference (topographic) map on which participants can draw. Further constraints could be introduced by providing a list of features to be mapped and asking participants to place them accurately on the base map, this approach, while valid, does not lend itself as well to participatory mapping as it limits a participant's ability to express their personal knowledge of the space being mapped.

Scott.

Interestingly enough the debate has shifted from "mental maps" to "sketch mapping vs. scale mapping".

In support to Altaf I would like to say that sketch maps are excellent visualising tools when used at village level and for specific purposes. Sketch maps can be drawn with materials available at village level and in any condition. Definitely sketch maps can support discussion, planning and problem solving (at village level).

According to my experience scale mapping kicks in when the area to be visualised is large, includes several villages and vast territories. Compared to sketch mapping, scale mapping allows informants to input many more features on a given base and promotes consistency in terms of symbols used. Scaled and georeferenced maps are less subjective in terms of interpretation (provided a good legend is available) and provide a good basis for dealing with conflict, simply because such maps provide equal access to information to all concerned parties. Sketch maps are usually very subjective. Scaled and georeferenced maps tend to command more authority when resource control and tenure are at stake.

In my mind there is no "best bet", but a variety of options, each one suited to different situations and purposes. I would go farther and say that best results are usually achieved when tools, methods, technologies and systems are integrated. NGOs involved in tenure mapping in Indonesia start with sketch mapping, followed by GPS fixes and GIS applications. In the Philippines the prevailing tendency in dealing with ancestral domain claims is to start with Participatory 3D Modelling (P3DM), complemented by GPS readings and GIS applications. The big issue here is on ownership and control of data and local spatial knowledge. For sure 3D models are hard to move around and tend to stay in the village where they were manufactured. NGOs adopting these practices are generally well aware of the need to protect local knowledge from exploitation and elaborate extracted data with the supervision and concurrence of concerned villagers.

GIS applications are not the panacea (the best solution) but an option, an add-on. Peter Poole told me that in Suriname and Guyana he uses Adobe Illustrator to assist Indigenous Communities to produce their tenure maps. Fair enough, because tier starting point are topographic maps stripped off of their non essential data and left with contour lines or river courses. In a recent discussion I had with Daniel Weiner he correctly argued that in PGIS, GIS is used mainly as computer cartography with limited GIS functionality. So, those wanting can opt for pen and ruler, Adobe, MapMaker, ArcView or other solutions.

Let's remember that Participatory Spatial Information Management is about empowerment, and empowerment implies granting access and control to systems which should possibly be handled and maintained by those who are supposed to be "empowered". If this does not occur the risk is to end up "disempowering".

I would like to take this opportunity to call the attention of all members of this list to a draft "description" of "Participatory GIS practice" which has been compiled by a group of practitioners and researchers as part of the outline an International Conference we are going to announce in the coming days.

For those interested, the description is found at http://www.iapad.org/participatory_gis.htm
Your reactions are welcome.

Giacomo

I am not convinced that one has to give up mental mapping when one uses GIS. Remember that you can scan in these maps, create a point layer on top and attach attributes to that layer.

I will be working for the next few years with a Cree community in Northern Quebec and will be using a combination of mental mapping and GIS. I am especially interested in ways to link (and thus create a dialog about) the attributes of one digital mental map to another.

It should be noted that native people in North America have a strong GIS user community. This Cree community already has a GIS program.
Therefore, a companion to this work will be to develop spatial data layers of their municipal infrastructure and to create a dataset of Cree place names using the Cree symbol sets.

Renee

First, on the question of "real" maps vs. "sketch" maps (to summarize and perhaps mislabel one subthread) -- I would suggest they are different tools for different purposes. To criticize a sketch map (derived through mental mapping or whatever technique) for scale inaccuracies etc. is like complaining that a novel doesn't rhyme! For those academically oriented, I suggest treating sketch maps as a graphical type of qualitative data, where cartographic maps are inherently quantitative.

Then, to agree w. Renee's comment, there is no inherent problem in utilizing "sketch" maps as data in a GIS -- if the GIS database is explicitly designed to hold them. The simplest approach is to follow her suggestion and link them in toto or via extraction of important element to a locator graphic, much as one might include photographs or text documents or do annotation over a base map.

More interestingly, one can use technical approaches such as Niem's thesis project to register the sketch map to a cartographic framework of representation -- then transfer and consolidate (at least some of) the contents of the "sketch" into a consistent layer within a GIS and use this in more "positivistic" discourse on a par with mainstream GIS layers. The example application that comes to mind for me is eliciting residents'
concept(s) of a neighborhood and overlaying those with the city's parcel map and "official" neighborhood areas. Multiple, partial concepts (perhaps between long-time residents and new arrivals) can be accommodated by multiple layers of data (with necessary metadata).

However, I would note strongly that doing such integration cannot be simply a technocratic exercise. I would encourage a participatory and iterative process of collecting, integrating, and revising the results. Also, I do not claim that every kind of data can be incorporated into a GIS -- but the technology is more flexible and accommodating than it is usually critically portrayed, in the hands of skilled and conscientious practitioners.

Michael D. Walls, AICP, PMP

I agree with Renee that mental mapping need not be seen outside of conventional GIS technology.

We in India have used mental maps with slum dwellers, although we call them community resource maps, to understand people's access to basic services of water supply, toilets, schools, health centres. These maps are essentially sketches of the area, not to scale, but help to engage the community in a dialogue on their perceptions of the problem and their solutions. Seeds, stones, sticks etc are used as symbols on the maps.

Mental maps are essential because they do not demand knowledge of technology which distances us from them Besides these are people's maps not made by technologists to suit their purpose which means that the ownership rests with the entire community.

Community maps are then scanned and attached to the city base maps at the appropriate locations. Although they do not necessarily make a good fit, they contain valuable information on the informal layouts inside the slum settlements which are not normally mapped by

government departments such as network extensions into homes or broken drains, choked toilets etc.

It is upto the technologists on how to convert these into maps that can be used universally outside the community.Planners need training to read mental maps and gain useful insights for their work.

We have also created household maps using the same process and have quickly gathered large amounts of information both spatial and demographic, which is then attached to settlement location boundaries. This information can be querried by the planners/administrators to take decisions that are relevant for the poor and respond to their needs.

Renu Khosla, Centre for Urban and Regional Excellence New Delhi

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after reading the latest postings I felt it necessary for all of us to get a common understanding on terms used, specifically on what is understood as "mental maps" (Barbara, please correct me if I am wrong in citing what follows)

"Cognitive maps are internal representation of the world and its spatial properties stored in memory. Frequently referred to as mental maps, they allow us to know 'what is out there, what its attributes are, where it is and how to get there'. Cognitive maps are distinctive to individuals. They are not inclusive like a cartographic map with a constant scale, but consist of discrete, hierarchically-organized pieces determined by physical, perceptual or conceptual boundaries." (Montello 1997)

Community-, Participatory-, Cultural-, Tenure-, or Community-based Mapping (broadly: PGIS practices) strongly depend on people's spatial knowledge. Such inputs are based on recollections of individual mental maps which are depicted via different means like leaves and pebbles (ephemeral maps), pencil and paper (sketch maps), paint, pins, yarns and carton board (3D models), GPS, stylus and palmtops, etc. The results are 2 or 3-dimensional, virtual or physical representations of space (maps and/or terrain models).

Giacomo

Thanks, Giacamo, and thanks to everyone who's participated. As a laboratory person using sketch maps and other techniques to find out how people think about space, I am fascinated to hear your experiences and views.

Don Montello is a colleague and friend, and I almost agree with his definition; but cognitive map is one of those concepts on which there isn't agreement.
I would agree that cognitive maps are whatever internal representations of environments people form, but that they are constructed on the fly to answer a particular question or questions, using whatever information is available and relevant, e. g., memories of maps viewed, of traveling in the environment, of descriptions in language. They are not prestored in some place in the mind or brain, to be consulted, like an atlas. They are not necessarily consistent, and they are likely to have error, because the knowledge that people have is not complete and may be erroneous.
We also need to distinguish a cognitive map, which is an internal mental representation, from a sketch map, an external representation. They are not necessarily the identical. For example, sketching a map forces a degree of consistency (on a 2D piece of paper, or perhaps a 3D model).
For another, there's information on environments that might not be easily produced externally.

Barbara

Hi Giacomo,

After almost 20 years since participatory land use planning and 3-D model were first initiated in the project funded by the Ford Foundation in Chiang Mai, there grow many efforts and then too many terms with overlapping techniques. Sketch mapping, scale mapping, 3-D model and with links to GIS have been used and resulted differently in different conditions. Many of us have tried to do to justify for multi-purpose objectives and claimed results!! I believe there is no blue prints and one- fit- all tool. All of us, we have been testing to find well fit- conditions, meanings, and results from mapping and interactive communication and learning. Least discussion is a process of people and impacts on people. it seems to me there is a bit too much of discussion for resulting in academic and professional games and names.

Thank you for mentioning a key meanings of " empowerment"! It would be more interesting to share with us techniques, developed process, and impacts.
Then, we would feel your products are interesting. This should be the our objectives. So I will not feel that " technologies" are on-line marketing now. Well, it they are, what impacts we have made? how people use to make changes for themselve?? improved land claims? reduced conflict? improved biodiversity? improved land use/ landlandscaped?, recovered their lives and mental? reduced carbon sequestration? increased people representation, increased shared decisions?.... I am interested what technologies as tools for our choices, and how I hope we should get back on the track to support empowerment of groups, people, and self of those we are working with/ working for.

Uraivan Tan-Kim-Yong,

Dear Dr. Uraivan,

This forum has been established to stimulate exchange on progress made in bringing the power of spatial information management practices at community level with the objectives of providing disadvantaged groups in society added skills and resources to better communicate and interact with higher-level institutions and economic forces, to be more authoritative in negotiating territorial issues, to actively participate in land and resource use planning and management, to be more informed in decision-making, in the position to influence policy-making and address conflict.

So far the discussion threads have touched several topics which are related to community mapping and Participatory GIS. I think that what is relevant is that this forum is establishing links between practitioners and researchers operating in different socio-cultural and technological environments: Renee Sieber is supporting a Cree community in Northern Quebec with GIS applications; Anil has done work in the Himalayas using 3D models; Altaf Hussain in Pakistan works in remote areas using sketch maps. Barbara and other researchers study the way humans store space in memory and the mechanisms which lead us to recompose and visualize it. In all this, I see an interesting link between research and practice and a great opportunity for bridging a gap. I think that a better understanding on how humans deal with space may be useful for all those involved in community-based mapping activities.

As you were correctly saying there is no blue-print approach in terms of facilitating spatial learning and visualizing local knowledge, but a case to case choice of methods and tools which should take into consideration local conditions, capacities and the purpose of the endeavour.

You would welcome more discussions on failures and successes. I agree and I hope the members of this forum will do so in the future. Last October (see posting by reefmap) Duncan told us about his experience in Nicaragua where he has been involved in mapping coastal areas with local communities. He called for comments and suggestions and got some feedback.

Last week, I kindly asked Dr. Jefferson Fox to contribute to the discussion and to share with us his critical views on the risks of bringing spatial information technologies at community level. He was on mission and promised to do so when back in Hawaii.

The on-line survey I conducted at the beginning of December confirmed that members of this forum would like to have access to case studies. Dr. Stephane Roche and others at the Laval University are working on developing an on-line repository of case studies and will design the system with the contribution of all those on this list.

Nonetheless the best way for sharing and learning is often face to face interaction. With this in mind a number of researchers and practitioners from around the world have been working for the past 10 month on the organisation of an international conference which will take place in Nairobi, Kenya on September 7-10, 2005. The title of the event is the following: Mapping for Change: International Conference on Participatory Spatial Information Management and Communication. More will follow on this. I hope all of us will have the opportunity to meet there.

Giacomo

I've been watching the growing debate on Mental Mapping with growing interest as this is an area I very much want to explore in my own areas of research; not just PPGIS but how these approaches can be used toquantify and describe spatially those human constructs that describe our relationships with space, place and locality and the values or attributes we ascribe to them. From a PPGIS perspective, policy makers and managers like pretty coloured maps, so isn't it a good idea to try to map people's ideas about space/place/locality in a manner that is easily integrated with standard GIS data layers? To give an example, I am very much interested in the concept and geographical definitions of wilderness and have used GIS models based on Multi-criteria Evaluation methods to allow for different people's perspectives on this topic in creating maps of wilderness quality indices (see http://www.ccg.leeds.ac.uk/teaching/wilderness/). Build up enough of a sample and we can perhaps star!
t to identify commonality in responses, areas of conflict, patterns between and within different stakeholder groups, etc. We have tried to incorporate fuzzy concepts into standard GIS mapping wherever appropriate (see http://www.geog.leeds.ac.uk/papers/99-12/).

Another approach developed by my colleagues has been to create a kind of spray-can tool where users can express fuzzy areas onto base maps within an online PPGIS environment. This has so far been applied to perceptions of crime rates and spatial awareness in Leeds City (see http://www.ccg.leeds.ac.uk/software/tagger/ and http://www.geocomputation.org/2003/Papers/Waters_Paper.pdf). I'd kind like to use these tools (and maybe others like them) to explore social and cultural differences in wilderness perception further. Any thoughts welcome.

Steve

Questions

A few questions for GIS practitioners for my thesis entitled:
GIS Maps vs. Text Documents, a Comparative Analysis of their Efficiency as Environmental Communication Tools.

1.) What are the communication features of a GIS map?
2.) How do average people respond to GIS maps when they are presented to them?
3.) What are the communication problems associated with this type of communication tool? What are its advantages?
4.)Does it appeal to grassroots communities? Why?
5.) What are the major societal issues when GIS is discussed?
6.) Is it practical for a developing nation such as the Philippines?

Maria Angela Flores

Handling Sensitive information

Question for debate: Aren't community mappers and PGIS practitioners always working at the edge of divulging "sensitive" information by the simple fact that depicting and geo-referencing community/ popular/ indigenous knowledge makes it explicit and visible?

The question for debate is very relevant for indigenous peoples. Our community is proposing for a mapping or the ancestral domain including geo-referencing as you call it. The intention is to have a planning and negotiation tool. Part of the community exercise is resource inventory. This is really a dilemma. One of the views of our elders is that when things are put into paper, they become market instruments - negotiable and therefore can be alienated from the original owners. At this point in time though, mapping is being done by the state and corporations or groups/individuals who are interested in our resources. We see community-initiated and managed mappings then as a means to have our own methodologies and ownership of the process, including appropriating what these corporations and the state has on us, in order to reclaim our heritage and territory. It will become a public document but the ownership will be in the hands of the community. By owning the process and the outcomes, the knowledge then will be communal and can be a reason to defend the territory and heritage. It really is a dilemma but whether we do it or not, those who have access to all these technologies will and can do it for their own interests, even without our knowledge.
I guess what is important is a collective decision to undertake a mapping initiative and community ownership of the processes and outcomes.

Bernice A. See

The comments about First Nation/aboriginal digital knowledge use, security and safety are very important.
In British Columbia, Canada I work with communities to apply best practices and government standards to create GIS data on traditional use and occupancy. These studies produce both specific and detailed data for internal community use, as well as buffered and randomized "public" versions. This latter version hides the exact locations of traditional villages, hunting areas, etc., yet provides the community a safe way of sharing their story during discussions surrounding use of their traditional lands. Discussions of land/water control in traditional territories need to be directed by traditional knowledge/use. When GIS/GPS data is applied to document and represent the stories expressed by TK it is an important political/planning tool. The power of knowledge is realized only when the information supporting it is shared.

P.S. Similar issues of sharing sensitive data have surrounded the rare and endangered species organisations for years, and they have developed reliable ways of sharing sensitive species digital information. See www.natureserve.org for starters.

Greg Kehm, Ecotrust Canada

How to link Participatory 3D Models to GIS?

Extracting data from physical scaled 3D models and importing these with minimum errors into a GIS environment has been a challenge faced by many practitioners using Participatory 3D modelling (P3DM) in South-east Asia. For examples please refer to http://www.iapad.org

The following methods have been used so far:
(i) extraction by the use of transparent plastic sheets laid on the top of the model and marker pens, followed by (ex-situ) tablet digitising;
(ii) extraction by the use of transparent plastic sheets laid on the top of a Plexiglas fixed horizontally over the model, and marker pens, followed by (ex-situ) tablet digitising;
(iii) Image acquisition with digital camera (strips of images taken sequentially) followed by (on or ex-situ) on-screen digitising. Images overlap within a strip and between neighbouring strips.

Note: participatory 3D models are generally constructed at horizontal scales ranging from 1:5,000 to 1:10,000. Vertical scales are usually exaggerated to enhance the perception of slope and increase the 3D effect. This facilitates participants in establishing a relation between the model and spatial information stored in memory.
In view of a series of forthcoming P3DM exercises it would be useful to exchange opinions on how best to import data from 3D models into a GIS environment and minimise errors in the process. Please consider that such extractions generally occur at village level, in difficult conditions, with limited access to facilities (e.g. power) and equipment.

Giacomo

I haven't worked with 3D models yet but faced with this, and based on quite a bit of experience with various permanent coral photoquadrat methods, I would go with option iii, but would avoid 2D mosaics. Matching photos within AND between strips is a real challenge, worth it for high resolution airphotos perhaps, but not for a tabletop model. I would place the 3D on its edge and photograph it (and its control points) from as far as my optics would allow. For example, if I used my 600mm Nikkor I would calibrate the 3D from control points in one image. With the combination of optical and digital zoom in most digital cameras I would not expect to have to deal with multiple pictures of a relatively small area.
And if that doesn't suffice then I would place the model flat and photograph it with a kite-borne camera from 100m and avoid any possible radial distortion.
Bottom line - in my opinion use any option that avoids mosaicing multiple pictures

Allan

Before any option in the extraction be decided upon, I think placing the grid lines in the relief model should be placed as accurate as possible. Since the grid lines will be the basis in georefencing the extracted data, it is important that they are placed accurately to minimize errors.

In the 3 methods presented in extracting information from a 3d model, I think making use of image acquisition with a digital camera does the extraction faster and greatly minimizes the errors associated with "human subjectivity" which occurs during the actual extraction when plastic sheets are utilized.
In linking P3D models to a GIS, it is inevitable that errors will be produced. It's really the challenge for practitioners to minimize these. But it also depends on the error of tolerance that practitioners set in their GIS. Methods 1 or 2 or 3 would generate different level of errors and it would depend on the GIS practioner or the end users of the information products generated from a 3D model to choose what is acceptable in their set standards.

bunny

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map requirements for rural gis

i would like to know about the basic thematic requirements for rural/participatroy gis. is there any standard documents exist? or can some one, give me an advice from their experience in the field?

pandian

Dear Pandian,

We at CSDMS, Noida are working on a project called Mapping the Neighbourhood (http://www.neighbourhood-mapping.org). The project involves school children in collecting the spatial and non-spatial data of the Almora town and the rural areas of Almora. At present the programme is being implemented in 10 schools across Almora and 10 schools across Nainital districts.

Satya

I have been doing community based mapping with community groups in Canada for several years now and the approach we have taken at the Community Mapping Network (CMN) http://cmnbc.ca focuses on mapping the water courses and wet lands first. In Canada, especially on the west coast where I am, there is no shortages of wet spots and we always want to build there because they are flat.

CMN's takes a watershed awareness approach and starts with detailed water course inventory and mapping usually involving local streamkeepers or wetlandkeepers and the local government staff.

We promote a method standards called SHIM (Sensitive Habitat Inventory & Mapping) which is a comprehensive published procedure you can access on the CMN web site on the Methods & Standards page
http://www.shim.bc.ca/methods/SHIM_Methods.html

There are lots of examples of how these SHIM data have been collected and presented on the SHIM Atlas
http://www.shim.bc.ca/atlases/shim/shimloginscreen2.htm which is one of many atlases for NGOs on the Atlas Gallery & Data Entry page http://www.shim.bc.ca/atlases/atlas.html

Rob Knight: Ministry of Water, Land and Air Protection, Surrey BC

It is important to note that finding a base set of data layers alone does not create a participatory GIS. Nor does collecting information ABOUT people in the rural area. People have to be involved as active agents in improving their lives. In PPGIS, that involvement includes GIS but the level of involvement can vary, for example, from collecting spatial information that matters to them about place to downloading data from a government website and using that to challenge government policy.
In some communities, people work only with the data; in others, people work directly with the GIS. Some community groups have their own GIS and conduct their own analyses. It's not the data or technolgy that's important, it's the meaningful involvement of people.

I could use a bit more specificity. Which area of the world are you talking about?

Renee

Dear Pandian,

We, at UCLA Center for Neighborhood Knowledge have been involved in developing a web-based community information system (check new version at http://nkca.ucla.edu/beta) that can be used by users in both urban and rural areas. The user group spans from non-profits to concerned citizens, researchers to government officials etc. You can also get idea of some basic themes, interactive GIS capabilities etc.) The significant feature of the system is that it provides tools for users to add and integrate their own content and data as well as save the information in their profile.

Charan
