Public Participation GIS:
theory, methods & applications

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Jack Dangermond (President of ESRI)

*"I am frequently asked my opinion of where GIS is going in the future. Everywhere is the short answer. As GIS technology evolves, geographic information will become embedded in most information applications and services used in society. In fact, GIS will become the link between you as an individual and the world. And with further development of the Internet, **GIS will be the key mechanism for citizens to take an active role in local government** as we continue along the information super highway to a true societal GIS."*
(GeoEurope, 1999)

Session format

- Theory
  - some background and history
  - why PGIS?
- Methods
  - how can you/we do PPGIS?
  - soft issues (people/process) / hard issues (technical)
- Applications
  - local, regional, (inter)national

History

- GIS dates from the late 1960s
  - development of Canada Geographic Information System commences
  - system was needed to analyse Canada's national land inventory and pioneered many aspects of GIS
- Rapidly developed throughout the '70s & '80s
  - first user-friendly versions appeared in early 1990s
  - increasingly widespread use by decision makers in Government and commercial organisations
- Becomes fairly mainstream in the mid to late '90s
  - ESRI and MapInfo develop easy to use software

Criticisms of GIS

- Led to a debate between quant / qualitative social scientists about its merits
- Openshaw paper on GIS *crime*
  - misusing GIS
  - poor understanding of the science
  - see Openshaw (1993)
- Monmonier
  - ridicule as a weapon against GIS (1996)
  - lack of tools and knowledge leads to public being at a disadvantage

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Criticisms of GIS

- Promoted as a very useful tool for *assisting* decision making
- **BUT…**
  - criticised by Pickles (1995)
  - accused as being an elitist technology
  - gives increasing power to those who already have power
  - is used in public decision making to undermine non-technical approaches to decision making
  - is extremely expensive and requires a high level of technical understanding and skill to use it properly

Slide 1

This is not new…

- Openshaw's 1986 pioneering work on the use of multimedia GIS by spearheading the BBC's Doomsday Project
  - videodisc, consult a map of Great Britain and open windows with video clips, aerial photographs, ground images and natural sounds from certain localities
  - Trans. of IBG, 11(3), pp. 296 -304

- *"they can design GIS primarily for expert use or they can make them accessible to the lay professional and even to the general public"*
  Innes and Simpson (1993)

Slide 2

The response

- I-19 GIS and Society (1996)
  - Social Implications of How People, Space, and Environment are Represented in GIS
- Project Varenius (1998)
  - Empowerment, Marginalization And Public Participation GIS specialist meeting
  - led to the development of a PPGIS research agenda (Craig et al 2002)

Slide 3

So how can we engage stakeholders?

- Many models of participation
  - Ladders (Arnstein, 1969)
  - Spectrums
  - Circles
- Many forms
  - Planning for Real
  - Visioning
  - **BUT**
    still a lot of DAD

Slide 4

Types of PP approaches

Decide – Announce – Defend

Top-down
Big government
Formal &
Centralised

Bottom-up
Small
Informal
decentralised

Citizen-led active participation from the grassroots

Slide 5

Citizens as partners, OECD 2001

1	Information & transaction	government informs citizens (one way process)
	Government → Citizens	
2	Consultation	government consults with citizens (citizen's responses generally predetermined by government via multiple-choice, closed – question options)
	Government ⇄ Citizens	
3	Deliberative Involvement	government engages citizens in consultation process (citizens encouraged to deliberate over issues prior to final response)
	Government ⇄ Citizens	
4	Government – led active participation	government instigates consultation and retains decision-making powers
	Government ⇄ Citizens	
5	Citizen-led active participation	citizens are actively engaged in decision-making processes, alongside government; citizen decisions become binding; citizens share ownership and responsibility over outcomes
	Citizens ⇄ Government	

Slide 6

Fixed vs. Fuzzy maps

- People don't work along the neat lines, polygons of OS
- Require tools to elucidate non-standard geographical entities
  - 'over there', 'behind the houses'
  - fuzzy maps
  - spay can approach
  - Waters & Evans (2003)

Principles of PPGIS

- It's about participation
- Should the focus be on technology or process?
- As GIS 'experts' some of you are possibly(?) more interested in the technology
- **BUT…**
  - it is the process which is the most important and difficult aspect to get right

Why process?

"I am putting to together a participatory research bid which will include some PGIS work.

I come from a 'traditional' GIS background, and have a grounding in using the ESRI Arc range of products. What I am interested in knowing is what programs are people using for PGIS?

Are there any specific GIS programs that have been developed for PGIS work, or extensions on more 'mainstream' applications – like IDRISI or MAPINFO?

Any thoughts/advice would be very gratefully received."

- PPGIS in principle is much more about how one approaches the project, whose interests are being served, and who is involved in it than it is with the underlying technology
- *"Consider using spatial information technologies that can be mastered by local people (or local technology intermediaries) after being provided sufficient training - The use of GIS is not a must: it is an option. As technology complexity increases, community access to the technology decreases"* (Fox, 2005)
- Ask yourself: is a GIS really necessary?
- Would GIS add anything that cannot better be achieved through other participatory mapping methods?

Types of participation (OECD 2001)

- Information and transaction
  - government informs citizens (one way process)
- Consultation
  - government consults with citizens (citizen's responses generally predetermined by government via multiple-choice, closed – question options)
- Deliberative Involvement
  - government engages citizens in consultation process (citizens encouraged to deliberate over issues prior to final response)
- Government – led active participation
  - government instigates consultation and retains decision-making powers
- **Citizen-led active participation**
  - citizens are actively engaged in decision-making processes, alongside government; citizen decisions become binding; citizens share ownership and responsibility over outcomes

Any questions?

- Break-out 15 minutes
- In 3/4 groups explore why you are using PGIS in your research or project
  - What is the 'problem' or question you are tackling?
  - Is this bottom up or top down?
  - Who are the stakeholders in the project?
  - Is PGIS what you really need?
  - What led you to that decision? (you will need to justify your approach in your methods)

Part 2: methods

- How can you/we do PPGIS?
- Soft issues (people/process)
- Hard issues (technical)

Participants?

- What is it the problem you are trying to address?
- Who/what does it impact upon?
  - specific groups (humans/animals/environment)?
  - specific processes (policy, practice etc.)?
- Bottom-up or top-down?
  - who is initiating the process?

Participants

- Key questions
  - how do you give everyone a voice?
  - ability to participate in a meaningful way
  - digital literacy
  - usual suspects
  - Who's view counts the most?
    - e.g. Boaty McBoatFace

Technical 'stuff'

- What sort of data is involved?
  - qual/quant
  - user generated / crowd sourced / VGI
  - open / closed
  - official / fuzzy / soft
  - who owns the data / copyright
- Tools & technology
  - paper based input
  - web-based input
  - open source tools / proprietary
- Cost?
  - who is paying for this?

Technical (cont.)

- Does the team have the skills?
  - Is there an API
    - **A**pplication **P**rogram **I**nterface
  - will these tools become too complex for PP?
  - who are the users?
- Can you use an online product?
  - e.g. Maptionnaire?
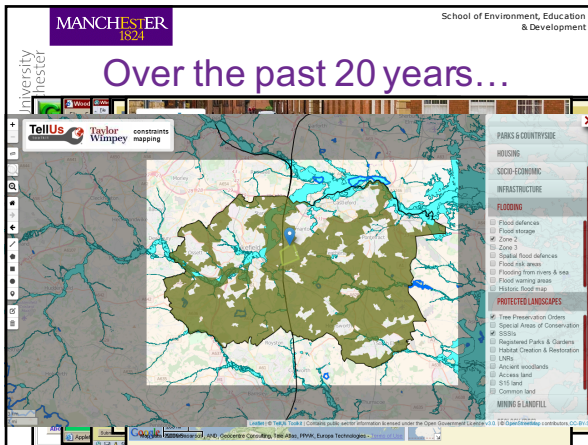 - (other products are available!)

Any questions?

- Break-out 15 minutes
- Who are you engaging with?
  - technical / non-technical participants?
- How do you deal with high-jacking the process?
- Have you considered what other technologies might be useful?
- Are you using specific software?
- Do you need to 'build' your own application?

Part 3: applications

- Local
- Regional
- (inter)National

Over the past 20 years…

Some live examples

- http://sed-gis1.humanities.manchester.ac.uk/sm-ppgis/stage2/map.php

- http://www.ppgis.manchester.ac.uk/climatejust/

- http://www.ppgis.manchester.ac.uk/housing/#11/53.6500/-1.3800

Core themes

- By providing better access to spatial data we/you have the ability to
  - explore data
  - interrogate data
  - form opinions
  - make better informed decisions
  - feed in to the decision making process
  - start making your own decision making to lobby for change
    - e.g. Neighbourhood Planning (in England)

Group feedback & Questions

- Each group to present a summary of key points from their discussions

- Finish off with discussion points

Further details from:
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Publications and on-line PPGIS case studies
@
http://www.ppgis.manchester.ac.uk/

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