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First the Proper Questions

Geo-information infrastructures (GII) are widely promoted as the geographic realm of public electronic governance (e-governance). Although GIIs have been hailed as a resounding success, researchers and others seem to agree that 85% of e-governance initiatives in developing countries are either a complete or partial failure. So it is pertinent to challenge the use of geo-ICT in public-governance processes. We asked this monthâ€™s interviewees to reflect on this and received in return clarification on the open issues.

Much effort has been invested over the past decade in establishing geo-information infrastructures (GII) at (inter-)national, regional and local level to support processes of governance. What are your comments on the present status, especially in developing countries?

That is an easy question, but a difficult one to answer. Governance refers to the processes, rules and rationality that affect the way in which power is exercised at different levels of jurisdiction, particularly regarding openness, participation, accountability, effectiveness and coherence. Governance processes include inter-governmental processes, public-policy formulation, and provision of relevant information services to citizens; it is well known that these processes include a geographic component. When governance is mediated by flexible information infrastructures it becomes electronic governance (e-governance). GII, properly embedded within the overall information infrastructure, is assumed to be crucial for improved electronic governance. Building a geo-information infrastructure in such a context is a Herculean task. Despite the failures of GII initiatives in the developing world to provide citizens with relevant geo-information services, some GIIs have been hailed as a resounding success. However, researchers and leading development officers seem to agree that 85% of e-governance initiatives in developing countries are either a complete or a partial failure.

Why is the establishment of a GII so problematic?

A popular assertion in our community is that when GII becomes available we will be able to concentrate on the real issues of food security, water supply, environmental regulations, law enforcement, national security, poverty alleviation etc without worrying about the availability of geo-information. With GII, geo-information will be available to people who need it, when they need it and in a form in which it may be used to make decisions. However, building a GII assumes the alignment of government organisations concerned with geo-information, such as national mapping agencies (NMO) and cadastres, with national e-government strategies, national ICT policies and supra-national directives, and with each other, across organisational and sometimes also national boundaries.

What do you mean by alignment in this context?

Aligning multiple government agencies with different business models, different workflows and diverse technology strategies and systems means harmonising their business models, integrating their workflows and making their systems and services interoperable. Even within a single government agency the task of aligning agency business with technology strategy has proved daunting, fraught with difficulties and sometimes failure. A common ‘business-technology alignment’ schema enables visualisation of how business strategy and processes, technology strategy and systems relate to each other within a single agency. The schema is extended to relations between these four aspects across several agencies, as in Figure 1. Pertinent questions relating to alignment are how do harmonisation and integration processes evolve over time? How do human agents strike a dynamic, often precarious, balance between global uniformity and local conditions? How do large-scale and densely interconnected geo-ICT artefacts co-evolve with the various social institutions and communities (both local and global) that develop, regulate, use and change them? Are protocols available for transparent information flow between government organisations? How exactly is the GII in a certain country now different from that of the 1990s, how do these differences shape contemporary uses of GII and what do they bode for the future in that same country?

Successful implementation of an effective GII depends on senior government officials and key decision-makers in the political arena. Could lack of co-ordination between policy-makers, geo-information and spatial research be a bottleneck?

It is a popular belief that the relationship between high-quality geo-information and public policy is unproblematic, linear and direct. We often assume that research either leads policy, and hence policy is evidence driven, or that research follows policy and is hence policy driven. However, high-quality geo-information and spatial research appear to have at most an indirect and, even, an ad hoc impact on public policy. In many cases public-policy formulation requires geo-information that is not available or at least not timely enough to be relevant for resolving issues of the day. Also, policy problems require a particular kind of evidence typically not immediately to hand. The policy-making and information-generation processes have quite different dynamics. While high-quality information generation has a relatively long gestation period, policy formulation tends to be less predictable and is often heavily influenced by events of the day. In addition, policymakers do not always know the best way to access high-quality geo-information. Although high-quality spatial research and geo-information do feed into public-policy formulation in western liberal democracies, science-based politics is an illusion. Political arguments remain more important than scientific ones in choosing between public-policy options. Spatial research, in western nations usually provided by spatial-research think-tanks, has only an 'enlightenment' function for policy-makers; it clarifies their values, goals and instruments…

… I think everybody will agree on this…

But the point is what are the implications and resulting issues that we as a geo-information community need to address? How exactly do policy-makers use geo-information and spatial research? Is high-quality geo-information transparently available to policy-makers at low (or no) cost? Do 'policy maps' require a different cartographic language than that employed by traditional maps, a language that can deal with the fuzziness, the vague borders and intentions of policy-makers? What happens in nations lacking spatial-research thinks-tanks, nations with younger democratic traditions, more constraints on resources, less equitable welfare distribution and less available factual evidence? Can civil society be empowered with geo-information and play a role in public-policy formulation? Do GII meet the information needs of citizens and empower them?

To concretise your point, please give an example.

A case in point is the Bhoomi (meaning land) land-records information infrastructure implemented in the southern state of Karnataka in India in 2001. You published an article on this e-Conveyance system (GIM International Vol. 19, No. 11, November 2006, pp 36-39) which by October 2004 had been accessed by over 22 million farmers. Copies of land records can be obtained on payment of about thirty US cents, without long waiting times or the need to make several visits, and without 'unofficial payments' to intermediaries. The payments are made at decentralised locations (kiosks), where operators run and maintain the system at local level. Kiosk operators, acting upon farmers' requests for a certificate, authenticate themselves using bio-logon metrics at Indian-made machines that look a lot like ATM machines and are easy to use. The Bhoomi project has improved the quality of service to citizens, rendered easier land-records administration, achieved financial sustainability and curbed corruption. It has been deemed so successful that other Indian states have decided to replicate it. Citizens as consumers of geo-information are well served, but are they also empowered politically and socially through access to information? It seems not. Bhoomi seems to have failed to increase the political freedom of citizens, to enhance their security or to increase transparency in their dealings with government.

Will the benefits of GII not end up in the hands of the few powerful and knowledgeable enough to understand the nitty-gritty of the systems and laws, and smart and affluent enough to (mis)use their power?

An important issue is indeed whether GII enlarges the gap between citizens capable of using geo-ICT tools and those who are not. And related to this are such pertinent questions as how power is redistributed between actors when building a GII? Who pays the, sometimes invisible, costs, and who benefits? How should GII be assessed analysing the needs of all stakeholders, including the ones whose situation deteriorates thanks to the GII? Do GIIs automate the status quo of processes of governance, freezing organisations into patterns of behaviour and operations that are difficult to change once they have been computerised?

Many questions, few answers…

…Finding proper answers starts with putting forward the right questions… In December 2006 we held a seminar on "Geo-ICT within an e-governance context". The audience was made up of senior managers from national mapping organisations (NMO), and executives from Bangladesh, Burkina Faso, Chile, Ghana, Indonesia, Kenya, Malawi, Nepal, Peru, Senegal, Sri Lanka, Tanzania, Zimbabwe, Zambia and Pakistan. Invited speakers from western and non-western nations presented cases on the actual use of geo-ICT in public-governance processes in Belgium, India, Kuwait, the Netherlands, Nigeria, Rwanda and Spain. The seminar was very fruitful; we gained a lot of insight into open issues in the actual use of geo-ICT in public governance processes in countries attending the seminar.

So the question of how geo-ICT is actually used in public governance processes is still associated with a long list of open issues?

Yes, it is. First the proper questions, then the proper answers. All the pertinent questions posed here will help the geo-information community to define research and education.

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