

GLOBAL INFORMATION SOCIETY WATCH 2008

Focus on access to infrastructure



Global Information Society Watch

2008



Global Information Society Watch 2008

Steering committee

Karen Banks (APC)
Roberto Bissio (ITeM)
Anriette Esterhuysen (APC)
Paul Maassen (Hivos)
Loe Schout (Hivos)
Magela Sigillito (ITeM)

Coordination committee

Pablo Accuosto (ITeM)
Inés Campanella (ITeM)
Monique Doppert (Hivos)
Karen Higgs (APC)
Natasha Primo (APC)

Editor

Alan Finlay

Assistant editor

Lori Nordstrom

Publication production

Karen Higgs

Graphic design

MONOCROMO
Myriam Bustos, Leticia da Fonte, Pablo Uribe
info@monocromo.com.uy
Phone: +598 (2) 400 1685

Cover illustration

Matias Bervejillo

Proofreading

Lori Nordstrom
Lisa Cyr

Website

www.GISWatch.org
Andrea Antelo
Ximena Pucciarelli
Monocromo

Printed by

CinnamonTeal Print and Publishing
Printed in India

Global Information Society Watch 2008
Published by APC, Hivos and ITeM
2008

Creative Commons Attribution 3.0 Licence creativecommons.org/licenses/by-nc-nd/3.0
Some rights reserved
ISBN: 92-95049-65-9
APC-200812-CIPP-R-EN-P-0058

Institutional overview



Institutional overview

David Souter

icf Development Associates Ltd
www.ictdevelopment.co.uk

This overview chapter is concerned with ways in which global institutions have addressed access to infrastructure since the World Summit on the Information Society (WSIS), particularly during the last year (2007-2008). The policies and practice of global institutions usually change gradually rather than dramatically. The chapter therefore seeks to put their role in context. Its first section reviews key issues in recent debate about access to infrastructure. The second section considers recent developments in institutional policy and future access challenges.

The access debate

The starting point for this discussion is an understanding of access and the relationship between infrastructure and the access challenge. This section reviews the WSIS access objectives and then considers institutional approaches to three issues: the relationship between supply- and demand-side aspects of access; types and levels of service provision; and types and levels of infrastructure.

WSIS access objectives

The WSIS outcome documents stress perceived benefits of access to information and communications technologies (ICTs) and the desirability of universal access to high-quality (fast, cheap and reliable) ICT services and equipment. The Geneva Plan of Action, dating from November 2003 but largely agreed in earlier preparatory WSIS meetings, sought to define what access meant here through a list of targets, modelled on the Millennium Development Goals (the internationally agreed objectives in mainstream development areas such as health and education). These targets are set out in Box 1.

The targets present two analytical challenges:

- Firstly, they are imprecise. It is unclear what level of access/connectivity is intended (from a single telephone per village to widespread broadband deployment). This leaves them, effectively, non-measurable.
- Secondly, they are of their time. The pace of change in ICT technology and usage is such that targets need regular revision to retain contemporary meaning. Recent mobile telephone access targets, for example, have been rapidly exceeded and required revision everywhere.

The institutional framework established by WSIS to monitor progress towards its targets has also been weak:

- Action line meetings to review WSIS outcomes are held in Geneva each May. One session, coordinated by the International Telecommunication Union (ITU), is concerned with “information and communication infrastructure: an essential foundation for an inclusive information society”. However, in practice, this enables information exchange rather than coordination of policy or implementation plans.
- Overall review of WSIS implementation is undertaken by the United Nations Commission on Science and Technology for Development (CSTD). This also lacks any strategic role on infrastructure plans.
- “Access” is a key theme of the annual Internet Governance Forum (IGF), established on the recommendation of WSIS. This meets annually, most recently in Rio de Janeiro in November 2007. It provides a forum for multi-stakeholder discussion about internet issues, including access, but has no decision-making powers.
- The WSIS follow-up framework, in short, merely provides discussion fora. Global institutional activity in relation to access and connectivity is largely developed, as before WSIS, within individual institutions rather than in global fora, though there has been some increased coordination (see examples below).

Supply- and demand-side approaches to access

Much literature about access to ICTs, particularly from development banks and international financial institutions (IFIs), focuses on the supply side – especially the supply of large-scale infrastructure. This top-down approach reflects approaches in other infrastructure sectors such as power, transport and water. IFIs particularly emphasise the value of infrastructure in enabling economic growth at a macroeconomic level.

Infrastructure is essential for access: without it, people cannot use the services that networks make available. However, meaningful access – at community or individual level – requires more than infrastructure. People also need the funds to afford access, the skills required to make use of services and equipment, and the availability of content which is of value to them. Broader understandings of access – more commonly found in literature from development agencies such as the United Nations Development Programme (UNDP) and the Canadian International Development Research Centre (IDRC) – stress demand-side factors which focus on enabling communities and empowering citizens.

The enabling policy and regulatory framework for communications is of concern to both IFIs and social development

institutions. Strategies concerned with liberalisation and interconnection, for example, affect both the pace and nature of infrastructure deployment and the price and quality of services to end-users. Meaningful analysis of access therefore needs to consider both supply- and demand-side factors *and* the enabling framework which is created by governments and business. Since the 1980s, global institutions have emphasised this enabling framework while leaving financial investment largely to the private sector.

Service provision

There is ongoing debate amongst global institutions about the relative importance of access to basic telephony and internet/broadband services in developing countries. The context for this debate has shifted significantly this past year, because of technological and market change.

The availability of voice telephony has been transformed during the last decade by the advent of mass mobile cellular markets. Until the late 1990s, there was a large and growing gap in access to voice telephony between industrial and developing countries. Fixed-line teledensity in highly industrial countries had reached over 90% of households, while in least developed countries (LDCs) it languished below 1%. Most telephone companies believed they could not recover fixed-network deployment costs in low-income communities, particularly in rural areas, and so networks were concentrated on urban areas and inter-urban routes.

The advent of mobile networks has changed the economics of communications infrastructure. Wireless networks are cheaper to deploy and have a lower proportion of fixed costs – making it possible to recover investment costs more quickly. Mobile voice networks have therefore been widely deployed in low-income countries, through private investment. Teledensities in much of Africa have now reached 25% or more. The GSM Association (GSMA) – the leading association of cellular mobile companies – believes mobile networks can cover 95% of the global population on commercial terms. The World Bank, too, expects 90% of Africans to be provided with telephony by commercial networks. The “digital divide” in voice telephony is therefore narrowing rapidly, with little financial involvement by IFIs or development agencies.

Global institutions disagree about the sufficiency of this rapid growth in voice telephony. Some have argued that rapid growth in access to telephony – which requires few skills for use and delivers rapid benefits to all – should be prioritised, and that internet access will develop organically from this. Others argue that the important “digital divide” between societies and communities depends on access to the internet and broadband networks, which offer greater

economic and empowerment value and which should therefore be prioritised.

This institutional debate is important because it affects decisions about the need for financial investment, particularly the use of public or IFI/development agency funds, and the need for fixed as well as wireless access networks. The debate is also changing as technology and markets evolve:

- On the supply side, past assumptions that expensive fixed networks are required to provide broadband access are being challenged by new wireless technologies like Wi-Fi and WiMAX.
- On the demand side, the prevalence of mobile phone access vis-à-vis fixed broadband networks suggests that most users in LDCs will gain internet experience through upgraded (third generation) mobile devices rather than fixed lines.

ICT businesses have responded more quickly to these technological and market changes than global institutions. Many businesses are now planning on the assumption that mass access to broadband in low-income countries will develop first through wireless, not fixed infrastructure. Global institutions are beginning to follow, but there is a need for sharper dialogue between ICT, funding agency and development professionals.

Infrastructure tiers

There are many ways of illustrating layers of ICT supply. Many readers will be familiar with the distinction commonly made between transport, services, terminal and content layers. Here, we are concerned with tiers within the transport (transmission or infrastructure) layer, of which three are particularly significant:

- International infrastructure
- Regional or national infrastructure
- The local access network.

All three tiers are required for access to global telephony or internet to be available in a community.

- The *quality* of access, in particular its bandwidth, will be primarily determined by the lowest quality amongst these tiers. For example, a high-bandwidth local access network which accesses the internet through low-bandwidth international infrastructure will provide low-bandwidth access to end-users.
- The *cost* of access, meanwhile, will depend on cumulative costs incurred. High-quality, affordable internet access will only be available to end-users if cheap, high-

Box 1: Geneva Plan of Action connectivity targets

- To connect villages with ICTs and establish community access points
- To connect universities, colleges, secondary schools and primary schools with ICTs
- To connect scientific and research centres with ICTs
- To connect public libraries, cultural centres, museums, post offices and archives with ICTs
- To connect health centres and hospitals with ICTs
- To connect all local and central government departments and establish websites and e-mail addresses
- To adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances
- To ensure that all of the world's population have access to television and radio services
- To encourage the development of content and to put in place technical conditions in order to facilitate the presence and use of all world languages on the internet
- To ensure that more than half the world's inhabitants have access to ICTs within their reach.

Source: WSIS Geneva Plan of Action, para. 6: www.itu.int/wsisis/docs/geneva/official/poa.html

quality infrastructure is available in all three tiers. Data from 2006, for example, suggest that the average retail price for (generally lower quality) broadband access in sub-Saharan Africa was USD 366 per month, compared with between USD 6 and USD 44 for (generally higher quality) access in India (Williams, 2008).

Each tier poses different access and infrastructure challenges to policy-makers in governments and global institutions. Some of the key issues are as follows:

- The availability of international infrastructure varies greatly by geography. Very high traffic volumes can be conveyed by highly competitive submarine cable networks linking North America, Europe and the Pacific Rim, resulting in very low transit costs. Where submarine cables are non-competitive or non-existent (as in West and East Africa respectively), they offer much more limited (and so much slower) connectivity at much higher prices. Landlocked countries are also affected by the additional cost of cross-border connectivity to reach international cables, or the high cost and low capacity of satellite infrastructure.
- The availability, cost and quality of regional and national “backbones” – high-capacity infrastructure between local access and international networks – also varies substantially. In industrial countries, there is typically competition between backbones owned by fixed and mobile service providers and other carriers selling wholesale network capacity. These backbones usually rely on fibre-optic cable, which offers high capacity, but whose deployment involves significant fixed costs
- In the past, telephone companies in developing countries assumed that demand in rural areas was insufficient to make (fixed) local access networks viable without subsidy. Recent private investment in (mobile cellular) networks suggests that only the remotest rural areas are commercially unviable, and universal access subsidies are now rarely needed for basic voice telephony. The economics of broadband networks are more challenging. There is therefore discussion in institutions about whether subsidies are required to facilitate higher-capacity fixed networks, and about the implications of possible broadband network monopolies.

The response of global institutions

The issues above raise questions for global institutions in two main areas:

- The technology and financing of infrastructure deployment, which primarily determine the *availability* of access.
- The regulation of infrastructure and markets, which primarily determine the *affordability* of access.

Since the early 1980s, global institutions have considered a willing private sector the primary source of investment for communications infrastructure, releasing IFI funds for more difficult infrastructure funding challenges like transport, power and water. This approach has seemed increasingly appropriate to them as wireless networks have been deployed, reaching much larger geographic areas and populations. Institutions have therefore focused on influencing policy and regulatory frameworks in order to encourage private investment and promote competition – in particular through liberalisation, the opening of markets to foreign investment and the removal of restrictions on the use of infrastructure and technology.

The scale of investment in ICT infrastructure in recent years is impressive. Between 1996 and 2006, some USD 23 billion was invested in telecommunications infrastructure in sub-Saharan Africa alone, the large majority by private sector telecommunications businesses. The geographic reach of telephone networks (in terms of the proportion of citizens enjoying access, public or private) has risen to 75% or more in many countries. The comparable 2006 figure for electric power – which has seen much greater public investment by IFIs and development agencies – was 40% or less.¹ Even higher levels of private investment are anticipated for the future. At the ITU's Connect Africa conference (Rwanda, October 2007), the GSMA "committed" its members to investing a further USD 50 billion between 2007 and 2012, entirely on commercial terms (ITU, 2007).

IFIs will not normally invest where private investment is available. However, as noted above, recent years have seen debate about the relative economics and developmental value of basic telephony and internet/broadband services and networks. Two issues have been prominent:

- While voice telephony may be commercially viable in almost all contexts, there will be some remote rural areas and small islands where it is not and where access infrastructure will require public investment or subsidy.
- The range of areas in which internet/broadband access may not be commercially viable is likely to be higher than that for voice telephony, and will include many more low-income rural areas. This is especially so if fixed infrastructure is required for broadband.

This debate focused during WSIS on the work of a Task Force on Financial Mechanisms (TFFM). Key conclusions of the Task Force, which were adopted by WSIS, included agreement amongst global institutions that:

- Investment in ICTs should come primarily from the private sector. Regulatory reform – including the promotion of liberalisation and open communications markets – should continue to be the foundation for institutional engagement with the sector.
- Nevertheless, there was scope for more public-private partnerships and the creative use of short-term public funding for capital investment where commercial viability was uncertain or unlikely. This might include both remote rural areas *and* the more general deployment of higher-capacity networks.
- There might also be scope for public participation, alongside the private sector, in major infrastructure investments such as regional backbones.
- Existing institutional funding mechanisms were sufficient to enable this additional investment. No new mechanisms were required.

Recent developments

The approach set out by the TFFM continues to provide the framework in which global institutions address access infrastructure. Their primary focus is on policy and regulatory reform.

However, some institutions also provide investment support where private finance is not sufficiently forthcoming. Since WSIS, this has led to some loosening of constraints on financial support for major infrastructure investments – for example, the International Finance Corporation's support for the Eastern Africa Submarine Cable System (EASSy) and agreements between African nations and the European Union (EU) on future infrastructure investment. There has also been some cooperation between funding institutions. While institutional interventions are usually piecemeal and do not form part of a global strategy for access development or for the use of infrastructure in development, the following paragraphs briefly illustrate examples of current interventions.

The best-known instance concerns the deployment of fibre-optic cable along Africa's east coast, the last major stretch of coastline without submarine cable access. For years before 2008, proposals to lay the EASSy cable, linking East African countries with South Africa and the Middle East (and thereby global cable networks), were mired in controversy. Amongst other things, there were fears that without appropriate regulatory intervention, EASSy's owners (mostly state-owned fixed network operators) would charge monopoly prices for cable capacity to their competitors. The World Bank Group offered financial support for EASSy on condition that it adopted open access principles (see below). By the

¹ The World Bank (2007) says that only 25% of African households have "access to modern energy".

time EASSy resolved structural and management disputes in 2008, at least two competing private-sector-led initiatives were underway to lay alternative cables linking East Africa to global networks. These reflected new assessments of commercial viability and suggested that competition rather than institutional investment would stimulate new infrastructure.

The New Partnership for Africa's Development (NEPAD) initially saw EASSy as part of an institutionally led ICT Broadband Infrastructure Network for Africa. NEPAD's e-Africa Commission has promoted this large-scale programme, which envisages undersea cables along the East African coast and beyond Africa as well as new cross-border regional backbone infrastructure designed to address capacity problems within the continent. Broadband infrastructure is treated as a "public good" in this proposal, with ownership of infrastructure separated from use and also subject to open access principles. NEPAD believes that a comprehensive approach like this will attract the best mix of institutional and private funding. However, the complex design, financial and management arrangements required have caused problems, including the loss of EASSy from the project.

Another poorly served region with a major infrastructure renewal plan is the Pacific, where small low-income populations are dispersed over very large areas of ocean. Here, a regionally agreed Pacific Plan Digital Strategy aims to address the access challenge by improving local access to ICTs, particularly in remote and rural areas; increasing international bandwidth; reducing costs; removing inappropriate regulation; and strengthening capacity to make use of ICTs (thereby increasing demand). The strategy includes both new international submarine infrastructure (to reduce international transit costs) and an Australian-funded satellite network to improve local access in remoter islands.

These examples involve institutional participation within mixed (public/private) funding structures. Although there has been some shift in international institutions' thinking about financial engagement with ICT infrastructure, their primary approach continues to emphasise policy and regulatory reform. An important example of new thinking in this area can be found in a paper concerned with regional and national backbones, which was published by the World Bank and the associated ICT for development agency *infoDev* in August (Williams, 2008).

Wireless networks, which have low fixed costs and are readily scalable, are generally cheaper in the short and medium term where demand is relatively low. Fixed networks, with higher fixed costs, are generally cheaper in the medium and longer term where demand is high. This is as true of backbone networks as it is of local access networks. In most countries, core backbones have been implemented by fixed network

incumbents, which have predominantly installed fixed (cable) infrastructure. In Africa, however, fixed networks were much less pervasive before the "mobile revolution", and so most backbone capacity is owned by mobile operators rather than incumbents. Much of this mobile network backbone is made up of microwave rather than cable infrastructure.

The World Bank paper is consistent with established institutional thinking about access infrastructure in that its policy prescriptions rest on two complementary components: creating an enabling environment for competition, and stimulating roll-out in underserved areas. The Bank thinks it "likely" that some rural areas will continue to require public funding – through subsidies, shared infrastructure or incentives – but envisages most access challenges being addressed through measures to promote investment, stimulate downstream (service) competition, and reduce political and commercial risks.

The continued emphasis on policy and regulatory reform, and the relationship between ICTs and other infrastructure, are also well illustrated by the EU-Africa Infrastructure Trust Fund, agreed between the European and African Unions in 2007. This aims to support infrastructure development in energy, transport, water and communications. In the ICT context, it aims to "develop connections with continental and regional networks while opening up the telecommunications sector to competition for efficient and low-cost provision of ICT services." In its first year, the Fund allocated EUR 109 million to initiatives, but only 5% of this, concerned with regulatory reform, addressed communications.

A final word in this context about community networks. There is interest in some development agencies in the possibility of building access outwards from remote or marginal communities, rather than relying on established national networks to overcome the access challenge. A number of examples of community networks have emerged, in both urban and rural areas, sponsored by local authorities or development agencies. Some of these are using new technologies such as Wi-Fi. Many have leveraged other funding sources, such as development finance for other infrastructure and/or volunteer labour, to reduce costs and so enable cost-effectiveness. Further research is needed on these initiatives, but they may provide a way of facilitating higher-quality affordable access in remote communities before this is likely to be offered by the mainstream communications sector.

Regulatory issues

The influence of regulatory choice on infrastructure deployment is considerable and much debated within global institutions, including the World Bank and ITU. Rapid changes in technology and markets mean that regulatory choices

are inherently obsolescent. International institutions are exploring the regulatory opportunities of new technologies and network types (notably Wi-Fi and WiMAX), and of changing market demand, as part of their overall thinking about the industry.

Open access is one regulatory approach which has been backed, amongst others, by both the World Bank and by APC. Open access requires infrastructure owners to make downstream access to their networks available to competitors on non-discriminatory terms. It is particularly relevant where there are only one or two available routes which downstream network and service providers can use to connect customers to global networks, and where there is therefore a risk that owners of “bottleneck” facilities will extract monopoly prices which raise the cost of access to end-users. It has been an important issue in the debates about African submarine cable infrastructure.

Another example of regulatory impact on access and access prices arises from restrictions which some governments place on the wholesale market for backbone infrastructure. Where fixed networks are limited in geographical extent, the majority of national backbone infrastructure is likely to belong to mobile cellular companies. Regulations designed to protect fixed network incumbents sometimes prevent mobile operators from reselling capacity on their backbones. There may be similar constraints on the communications infrastructure owned by other utilities, such as electricity or rail operators (co-called “alternative infrastructure providers”). This not only results in underutilisation of infrastructure, but also acts as a disincentive to new network investment. Companies that cannot sell surplus capacity will tend to install less in the first place.

On the whole, global institutions believe that they can have greater impact on access outcomes by addressing regulatory constraints like these, and otherwise enabling competition – so unlocking private investment – than they can by investing funds directly in new communications infrastructure.

New issues

It is worth drawing attention, finally, to three new issues which are beginning to emerge.

The first concerns the interaction between different tiers of infrastructure, and the relationship between infrastructure and other factors influencing “real access” (such as user incomes and capabilities). The large majority of interventions by global institutions address only specific tiers of infrastructure (e.g., international connectivity or local networks) or particular aspects of the access challenge (such as the problem of high international bandwidth costs).

Assumptions are often made about the relationship between different tiers of infrastructure (e.g., that lower international bandwidth prices will enable greater and more equitable local access). Likewise, assumptions are often made about the relationship between communications access and development outcomes which pay too little attention to the non-communications constraints in development contexts. At present, there is little holistic thinking in institutions’ approach to the communications market as a whole, or about the interactions between it and development.

The second issue concerns the integration of communications access with access to other infrastructure-based resources. Communities in developing countries which lack affordable communications access also typically lack affordable (or any) access to other network infrastructures (such as transport, clean water and electric power). Such communities are thereby multiply disadvantaged. Surprisingly, however, almost no country has structured its response to such infrastructural deficits by integrating different infrastructure deployments and so leveraging economies of scope and scale.² IFIs and other funders have been reluctant to take an integrated network approach, preferring to deal with funding proposals at a sectoral or programme, even project level. There is a growing sense among some observers that, here too, a lack of holistic thinking may be curtailing investment and costing synergies.

The third issue beginning to emerge in institutional thinking relates ICT access to climate change. This has two facets. On the one hand, the ITU and others argue that the use of ICTs – to manage productive processes, transport networks, etc. – will reduce greenhouse gas emissions (GHGs). These potential carbon savings, however, require large-scale deployments of high-level technology in strategic locations such as factories and power plants. They will result, if they are achieved at all, from decisions taken within energy and industrial sectors other than communications. Increased access to ICTs itself, meanwhile, will substantially increase ICTs’ overall contribution to GHGs, from 0.83 gigatonnes per annum in 2007 to an estimated 1.43 gigatonnes per annum in 2020 – an increase of 6% a year – with emissions from developing countries rising from 0.38 to 0.80 gigatonnes per annum (GeSI, 2008). The environmental impact of increased ICT access was not significantly discussed before the 2007 Internet Governance Forum. Recent discussion – in publications by the ITU and the (industry-funded) Global e-Sustainability Initiative – is largely couched in terms of

² Mauritania is one of the few countries that have introduced an integrated universal access agency (APAUS), which seeks to integrate ICT investment with other rural needs.

trade-offs between emissions due to increased access and carbon savings resulting from potential ICT use in other sectors. This seems likely to become a more important factor in global institutional thinking about ICTs as concern continues to mount about climate change.

Conclusion

Access to ICT services depends on a number of factors, including infrastructure, which are constrained in most developing countries. Global institutions continue to focus on policy and regulatory change, rather than direct investment, in addressing communications infrastructure deficits. Private sector investment remains high and is expected to continue to grow, with mobile communications businesses seeming increasingly likely to lead the provision of broadband access in low-income countries, as they previously led the provision of telephony.

There are important infrastructural challenges at international, national and local levels. Global institutions have shown somewhat more interest, since WSIS, in supporting and leveraging investment in areas which are difficult to serve (such as remote areas) or require high levels of capital investment (such as international cables and regional/national backbones), though their primary focus remains on policy and regulatory change. However, there is still relatively little thought given to the integration of different tiers of access infrastructure, to the integration of communications with other infrastructure, and to the relationship between infrastructure and development. More holistic understanding of access and more attention to the demand side of access supply – in particular, to usage requirements and experience – would help institutions play a more dynamic role in this area. ■

References

- GeSI (Global e-Sustainability Initiative) and The Climate Group (2008) *SMART 2020: Enabling the Low Carbon Economy in the Information Age*. Available at: www.gesi.org
- ITU (International Telecommunication Union) (2003) *WSIS Plan of Action*. Available at: www.itu.int/wsis/docs/geneva/official/poa.html
- ITU (2007) *Connect Africa Summit: Outcomes Report*. Available at: www.itu.int/ITU-D/connect/africa/2007/finalreport.pdf
- Williams, M. (2008) *Broadband for Africa: Policy for Promoting the Development of Backbone Networks*. World Bank and *infoDev*. Available at: www.infodev.org/en/Publication.526.html
- World Bank (2007) *Clean Energy for Development Investment Framework: The World Bank Group Action Plan*. Available at: [siteresources.worldbank.org/DEVCOMMINT/Documentation/21289621/DC2007-0002\(E\)-CleanEnergy.pdf](http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21289621/DC2007-0002(E)-CleanEnergy.pdf)

GLOBAL INFORMATION SOCIETY WATCH 2008 is the second in a series of yearly reports critically covering the state of the information society from the perspectives of civil society organisations across the world.

GLOBAL INFORMATION SOCIETY WATCH or **GISWatch** has three interrelated goals:

- **Surveying** the state of information and communication technology (ICT) policy at the local and global levels
- **Encouraging** critical debate
- **Strengthening** networking and advocacy for a just, inclusive information society.

Each year the report focuses on a particular theme. **GISWatch 2008** *focuses on access to infrastructure* and includes several thematic reports dealing with key access issues, an analysis of where global institutions stand on the access debate, a report looking at the state of indicators and access, six regional reports and 38 country reports.

GISWatch 2008 is a joint initiative of the Association for Progressive Communications (APC), the Humanist Institute for Cooperation with Developing Countries (Hivos) and the Third World Institute (ITeM).

GLOBAL INFORMATION SOCIETY WATCH

2008 Report

www.GISWatch.org

