EJISDC (2008) 35, 2, 1-15

ANALYSING SOUTH KOREA'S ICT FOR DEVELOPMENT AID PROGRAMME[1]

Heejin Lee
Graduate School of International Studies
Yonsei University, South Korea

Seungkwon Jang
Department of Logistics and Information System
Sungkonghoe University, South Korea

Kyungmin Ko
Department of Political Science & Diplomacy
Cheju National University, South Korea

Richard Heeks[2]
Institute for Development Policy and Management
University of Manchester, UK
richard.heeks@manchester.ac.uk

ABSTRACT

Since the year 2000, there has been a significant growth in the ICT4D component of South Korea's aid programme. Given Korea's ICT capabilities and demands for ICT4D support from developing nations, this may make good sense. In this paper, though, we analyse a little deeper, starting to ask some initial questions about underlying perspectives and actual performance. We provide an overview of ICT4D expenditure levels, programmes, and key actors. We then reflect field data to date, which suggests some question marks over Korea's telecentre projects, some potential inequity in impacts, and a focus on Korean production of ICT goods and services. We analyse Korean ICT4D in terms of some basic concepts to find it associated with technological-determinism and techno-optimism, with the modernisation paradigm, with tied aid, and with the potential for creating dependency. However, Korea may not be unique among ICT4D actors in this and, in some ways, its techno-optimism may be a useful counter to the techno-pessimism that seems to have infected some Western donors. We conclude by noting some recommendations for Korea's ICT4D programme, and reflecting that Korea may be representative of a wider new wave of ICT4D donors such as India and China which may not follow quite the same line as Western donors.

Keywords: Information and Communication Technologies (ICTs), Donor Aid, Aid Projects, Korea, Official Development Assistance.

[1] An earlier version of this paper was presented at the International Conference on Asian Development Issues and Models, Ewha Womans University, Seoul, Korea, March 5-7 2008

[2] Corresponding author: richard.heeks@manchester.ac.uk; Development Informatics Group, IDPM, University of Manchester, Arthur Lewis Building, Manchester, M13 9PL, UK

1. INTRODUCTION

South Korea's[3] official development assistance (ODA) has been increasing and will continue to do so (KOICA, 2006; Lumsdain and Schopf, 2007). Within Korea's overall aid programme, ICT4D is recognised as one of the key areas. Korea has achieved the status of a world-leading ICT capability, and it is said that developing countries demand ICT when they are asked what they want from Korea. Therefore growth in the ICT component of Korea's aid programme may appear appropriate in terms of both the donor's capability and recipients' demands.

Nevertheless, we can seek to analyse Korean ICT4D because, more generally, we find mixed views and evidence about ICT4D. On the one hand, for example, there has been great enthusiasm about the potential contribution of ICT to development across many development organisations (Wade, 2002). Actors in these organisations see ICT as an enabling meta-technology that can help developing countries to leapfrog institutional and infrastructural obstacles. They see great dangers of growing global inequality if ICTs are not supplied to developing countries. Therefore ICT investment is considered a "must"; something that is without question a priority for donor aid interventions.

On the other hand, however, we hear also of many failures of ICT4D projects (Heeks, 2005). We find significant concerns that, despite a decade or more of "ICT4D", there is a lack of hard evidence about its impact on economic and social development (Souter, 2007). And we find concerns that where impacts are seen, they are not universally beneficial (Heeks & Kenny, 2002).

This paper therefore aims, on the basis of secondary sources, to review Korea's interest in ICT4D aid in the light of broader issues and evidence. This paper consists of four sections. In the following section, some basic questions and concepts are presented that can be used to analyse the perspectives within Korean ICT4D. South Korea's ICT4D investments are briefly described, examined based on what impact data is available, and analysed according to the questions presented in the previous section. Finally we suggest implications for future Korean ICT4D priorities, and also for further research.

Although focused solely on the South Korean experience, we believe this paper will have wider resonance. An increasing number of countries – particularly in Asia – are either turning from aid recipients to aid donors (such as South Korea and China) or, like India, are becoming simultaneously recipients and donors. As a simple generalisation, one may say that this new wave of donors seems to have less reticence about, and gives greater priority to, ICT4D than traditional Western donors. An investigation of the South Korean experience

[3] Henceforth mainly referred to simply as "Korea".

may therefore point us towards some new trends in ICT4D development assistance more generally.

2. ANALYTICAL FRAMEWORKS

This is a first foray into analysis of Korea's ICT4D programme. It must, necessarily, be based on relatively limited data. Therefore, in framing our analysis, we will take a relatively light touch, focusing on just four issues of relevance at this stage (although some additional ideas from the literature will be introduced later in our discussion).

2.1 What View of ICT?

We can contrast two different views of ICTs in the development process (Heeks, 1999). On the one hand, there are those who see "technology is technology". They take what may be called a technologically-deterministic or techno-centric perspective, which focuses on the ICT artefact – principally the hardware and the software. Alternatively, there is the socially-deterministic view, which regards the technology itself as relatively unimportant. This view sees outcomes as determined largely by pre-existing social structures.

Somewhere in between is what we might refer to as an information systems view (Land & Hirschheim, 1983). This sees technology at the heart of ICT4D but then conceives the technology as surrounded by a shell of people and processes within a context of social, economic and cultural factors. This view, for example, explains the failure of some ICT4D projects in terms of a mismatch between the technology design and the social context (Heeks, 2002).

2.2 What View of Development?

Views on development have changed over the decades (Madon, 2000). Modernisation theory was dominant in the 1960s. Development was associated with economic growth and was seen as a universal linear path in which the industrialised countries were ahead and the developing countries were behind. The latter's "underdevelopment" was due to lack of capital, of modern technology, and of modern social values (with modern defined according to industrialised country norms). The transfer and acquisition of modern technology was therefore a central part of the development process.

Modernisation has been challenged as a development paradigm. In the 1970s it came under attack from dependency theory (Amin, 1976). Dependency theory argued that linkages between the rich (core) and poor (periphery) countries were the cause of underdevelopment. The solution was for the poor countries to break away from the world system and seek their own self-reliant path. More recently, the human development paradigm has come to the fore

(Sen, 1999). Here the emphasis is on building "freedoms": the capacity of individuals to make and implement choices that expand their quality of life.

The role of technology in both dependency and human development paradigms is rather less clear than in modernisation. In any case, modernisation remains a strong theme in development. It was arguably reinforced with the neo-liberal thinking that still dominates some parts of the development community, and which sees open access to foreign technology imports as an important recipe for development success.

2.3 What Economic Impact of ICTs in Development?

As noted above, there is a strand of "techno-optimism" within development thinking. This is sometimes expressed in terms of "leapfrogging" – the idea that developing countries can access the latest-generation ICTs and thereby skip over some intermediary stages of development and growth (for example jumping straight from an agrarian to a post-industrial society) (Bezmen & Depken, 2004). Even if leapfrogging is too much, as noted above, there has still been a general optimism about ICTs within a number of development organisations (UNDP, 2000).

By contrast, there are more "techno-sceptic" views of ICTs. At their strongest, they turn right away from "ICTs=development" optimism. Instead, they question how ICTs can deserve investment when there are such pressing basic human needs in food, shelter and health (Bezmen & Depken, 2004). Further towards the centre of this continuum are those who see ICTs as an essential part of economic development, but who also see it as creating economic divergence, not convergence (Heeks & Kenny, 2002). Forestier et al. (2001), for example, find ICT roll-out in developing countries to be "sub-pro-poor" in that it increases economic growth but at the expense of economic equity.

2.4 ICTs and Dependence or Independence?

Wade (2002) develops on some of the ideas presented above to look at the impact of ICT4D from a more political economy angle. He notes that ICTs may become an increasingly integral and essential part of economic growth. But he sees the potential for developing countries to find themselves locked into a form of "e-dependency" on the West. This will arise because developing countries lack the capabilities to produce or even adapt ICTs; and because they have limited say in the international institutions that set the standards and rules for use of ICTs. Where such dependencies exist, then benefits may flow disproportionately to Western multinationals and Western nations.

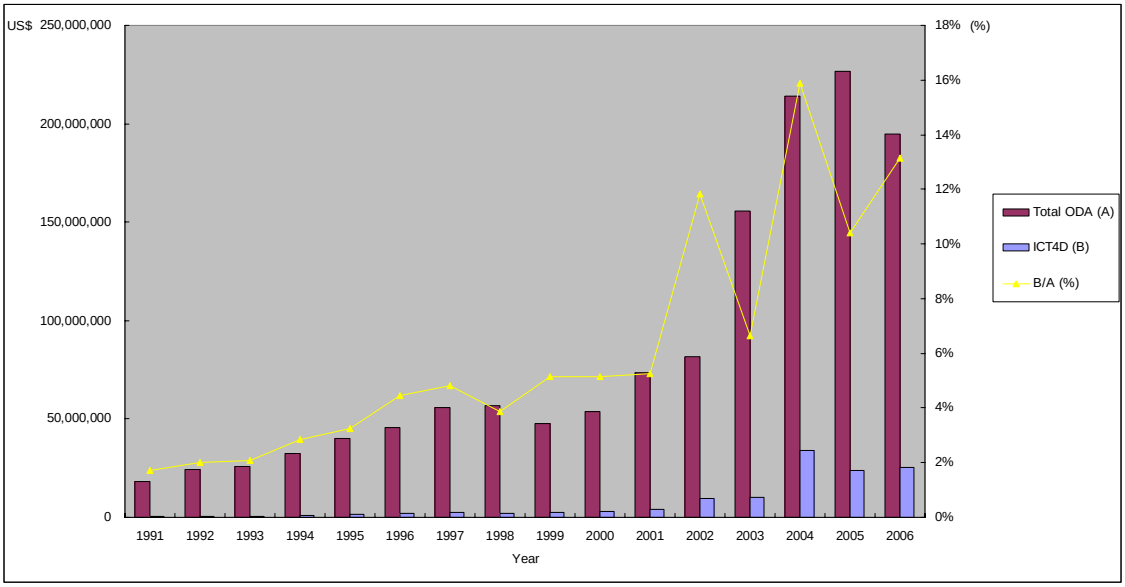
3. KOREA'S ICT4D PROGRAMME

3.1 Korea's ICT4D Spending

The year 2000 marked a change point in both Korean overseas aid and in spending on ICT4D within the overall aid budget. Expenditure statistics for KOICA – the Korea International Cooperation Agency which acts as a focal point for Korean development assistance – are presented in Figure 1 and Table 1. They show that annual expenditure on ICT4D was less than US$3m up to year 2000. After that point, expenditure grew significantly. In addition, even though overall aid spending grew strongly, ICT4D as a proportion of overall development assistance also increased.

In part, this has been a supply-driven phenomenon. The ICT sector is a strong component of both the Korean economy overall and also of Korean exports. Hence, ICT forms one of the seven strategic components of Korean ODA (Kwon, 2006)[4]

Figure 1: KOICA's ODA and ICT4D Expenditure



Source: KOICA (2008)

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total ODA (A)	18.3	24.4	25.9	32.4	40.0	45.5	55.6	56.6	47.5	54.0	73.4	81.8	155.7	214.1	226.4	194.6
ICT4D (B)	0.3	0.5	0.5	0.9	1,.3	2.0	2,.7	2.2	2.5	2,.8	3.9	9.7	10.4	34,.0	23.6	25,.5
B/A (%)	1.7%	2.0%	2.1%	2.9%	3.2%	4.5%	4.8%	3.9%	5.2%	5.2%	5.3%	11.8%	6.7%	15.9%	10.4%	13.1%

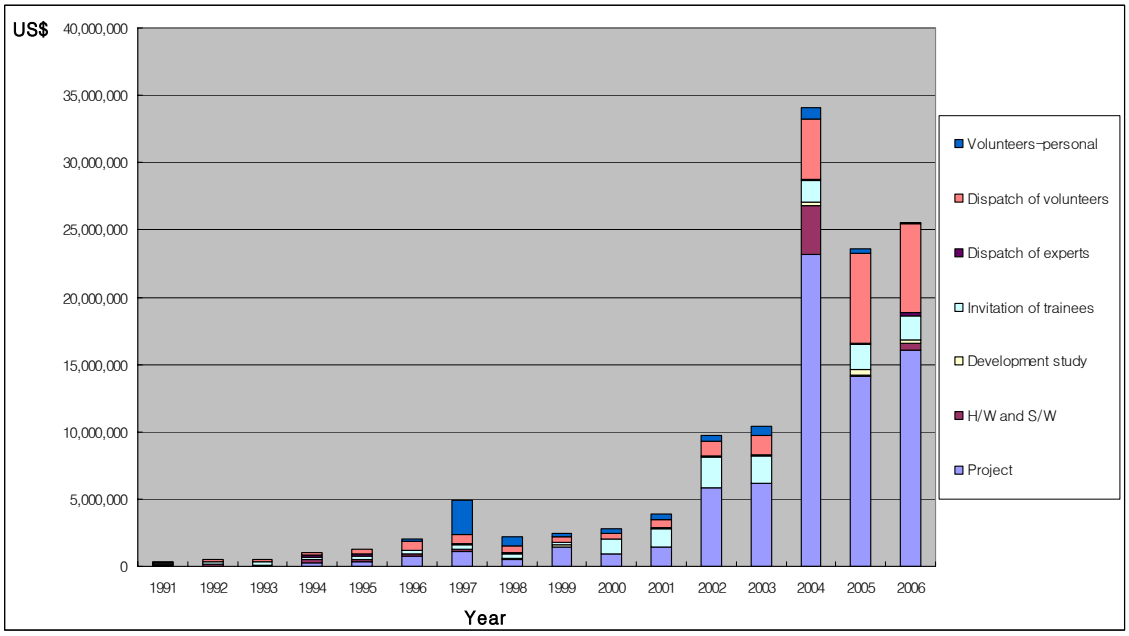
Source: KOICA (2008)

Table 1: KOICA's ODA and ICT4D Expenditure (US$m)

[4] Alongside education, environment and gender, health, governance, industry and energy, and rural development.

Figure 2 and Table 2 show a breakdown of this expenditure by type of spending. They indicate that projects are the largest expenditure component of KOICA's ICT4D assistance, taking more than half the total since 2002. For KOICA, "project" means a combined activity which includes building facilities, hiring experts, implementing the information system, and training. The second biggest component is the dispatch of volunteers such as youth Internet volunteers; the third is ICT training programmes which invite trainees to Korea.

Figure 2: Breakdown of KOICA's ICT4D Expenditure



Source: KOICA (2008)

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Project	0.116	0.000	0.116	0.263	0.358	0.800	1.137	0.474	1.453	0.937	1.432	5.800	6.179	23.211	14.137	16.084	72.495
Dispatch of volunteers	0.032	0.147	0.168	0.221	0.337	0.684	0.737	0.505	0.347	0.453	0.621	1.074	1.442	4.495	6.621	6.611	24.505
Invitation of trainees	0.095	0.189	0.253	0.211	0.221	0.253	0.337	0.295	0.179	1.053	1.400	2.295	2.042	1.621	1.842	1.800	14.053
H/W and S/W	0.074	0.137	0.000	0.211	0.168	0.137	0.158	0.000	0.000	0.000	0.000	0.000	0.000	3.558	0.042	0.505	4.989
Volunteers-personal	0.000	0.000	0.000	0.000	0.053	0.137	2.484	0.674	0.295	0.326	0.358	0.368	0.642	0.821	0.389	0.084	4.400
Development study	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.147	0.137	0.000	0.000	0.000	0.000	0.253	0.442	0.232	1.211
Dispatch of experts	0.011	0.011	0.000	0.126	0.168	0.021	0.021	0.116	0.042	0.032	0.042	0.147	0.063	0.084	0.137	0.242	1.147
Total	0.326	0.495	0.537	0.926	1.295	2.032	2.674	2.200	2.453	2.789	3.853	9.674	10.368	34.042	23.600	25.547	122.789

Source: KOICA (2008)

Table 2: Breakdown of KOICA's ICT4D Expenditure (US$m)

KOICA is the biggest player in development assistance in Korea. However, it is by no means alone in the ICT4D field. As shown in Table 3, various other ministries and government agencies are involved. Korea's ICT4D programme consist of two major parts – human resource development and infrastructure building – and one minor part – advisory

work. Each ministry develops its own ICT4D programmes. For instance, MOGEF (Ministry of Gender Equality and Family) operates programmes for women such as the "ICT education and training programme for APEC women"; MOE (Ministry of Education and Human Resource Development) supports projects for utilising ICT in education, notably e-learning; MOGAHA (Ministry of Government Administration and Home Affairs) provides e-government system training courses for developing countries' government officers. Among those ministries and agencies which have ICT4D programmes, KADO (Korea Agency for Digital Opportunity and Promotion) under the MIC (Ministry of Information and Communication) has a dedicated unit for ICT4D called Division of Bridging International Digital Divide. The unit runs three programmes: Information Access Centre, Korea Internet Volunteers and Korea IT Learning Programme (KADO, 2007a; 2007b; 2007c).

Table 3: Major ICT4D Programmes and Executing Organisations in Korea

Main parts	Major programmes	Executing organisations
Human Resource Development	Dispatch of Internet youth volunteers and ICT experts	• KOICA (Korea International Cooperation Agency) • MOFAT (Ministry of Foreign Affairs and Trade) • KADO (Korea Agency for Digital Opportunity and Promotion) • MIC (Ministry of Information and communication)
	Invitation of trainees (inc. ICT technical and policy training)	• MOFAT • MIC • MOGEF (Ministry of Gender Equality and Family)
Infrastructure Building	Computers, communication networks, and e-government systems	• MOFAT • EDCF (Economic Development Cooperation Fund) • MOFE (Ministry of Finance and Economy) • MOGAHA (Ministry of Government Administration and Home Affairs)
	ICT centre and ICT training centre	• KADO – MIC • KOICA
	ICT hardware and software	• KADO – MIC • MOE (Ministry of Education and Human Resource Development)
Advisory	Advising on ICT policy and institutions	• KISDI (Korea Information Society Development Institute) • NIA (National Information Society Agency)

Source: Cho (2006)

3.2 Korea's ICT4D Projects

In this section, we examine Korea's ICT4D aid projects. This is not particularly easy because relatively little impact assessment appears to have been done (or, at least, presented in the public domain).

In general, and not unexpectedly, Korea's ICT4D aid is reported as being well-received within recipient developing countries (KADO, 2007a; 2007b; 2007c). The scale of ICT4D in Korea is too small to evaluate its impacts on the national economic and political development of recipient nations[5]. However, a little work has been done assessing impacts at the more micro-level of individual projects.

ICT centres or Information Access Centres (equivalent to what are more widely called "telecentres") are one of the key ICT4D activities undertaken by Korean agencies along with human resources development programmes. Evaluations of these Korean ICT4D projects point out that once the centres and their attendant infrastructure have been built, integration with subsequent projects for sustainability needs more attention (KADO, 2007a). Scores for user satisfaction and usage rate are lower than expected, and lower than scores for other evaluation items (KOICA, 2007).

Why does this happen? One of the reasons, we believe, is that these projects tend to be seen as technical projects, not as social projects. As we have seen above, information systems are social systems. ICTs should not be seen simply as a sum of hardware and software, but something which interacts with users and their social/cultural context. For an ICT project to be successfully transferred and to be sustainable, it should be connected and embedded in the context of the recipient's institution and culture (Walsham et al., 1990). Because ICT transfer is a 'social process' rather than an 'isolated technical event', the involvement and cooperation of the recipient community are essential for successful ICT4D. Therefore one needs to pay attention to the needs and conditions of the recipient, and try to understand them when planning an ICT4D project.

To date, this social sensitivity has not occurred, with technology, instead, taking centre stage. This is exacerbated by a tendency within Korean aid for programmes to be focused too much on donor interests, and too little on recipient needs (Cho, 2006). Putting these together, we see echoes within the Korean aid programme of the "technonationalism" found in many parts of East Asia – a belief in the power of technology combined with a desire to have mastery over technology in order to further national interests (Kang & Segal, 2006).

Another concern is that Korean ICT4D projects serve only the elites of the recipient community (KADO, 2007d). Thus, for example, it is those who are literate and those with some income who benefit. Similar findings are reported for other parts of the Korean ICT4D programme. In Bangladesh, KOICA set up a project to build local IT skills by bringing young

[5] This is an issue of significance for separate discussion. Rather than allocating such a small budget to many countries, if it is concentrated on a small number of selected countries, more meaningful contributions may be made to the countries or regions which receive the aid.

people to IT training centres (Rahman, 2007). After training, most participants then left Bangladesh to work overseas. This can provide remittance of funds to help poverty reduction in local communities. However, it does not help in the build-up of skills that can be applied locally to satisfy local needs. More generally, given the profile of those selected to go for training – and as for the findings about telecentres – it suggests at least some Korean ICT4D projects may be increasing inequalities by widening the gap between community elites who do benefit from such projects, and the poorer members of such communities, who do not.

Putting these two concerns of context and equity together, Korean development staff seem not to ask following questions (Morales-Gómez and Melesse, 1998) when designing, developing and implementing ICT4D programmes:

> "who benefits and who loses from the introduction of these technologies; how can ICTs be made useful and meaningful to the developing countries' poor majority who are struggling to meet their basic needs; what are the social and cultural opportunities and risks they present; and how can developing countries meaningfully adopt these technologies while lessening their undesirable social and cultural consequences" (p4)

Finally, we can analyse Korea's ICT4D projects in terms of Heeks' (2005) division of ICT4D activities into ICT consumption and ICT production. The former refers to the use of technology in applications like e-commerce and e-government; the latter to the creation of hardware, software and other components of the ICT infrastructure. He suggests that ICT production elements have, to date been rather ignored within ICT4D activities, compared to ICT consumption. Yet the developmental gains from ICT production may be as great, if not greater, and more direct than those from ICT consumption. For example, when implementing an e-government system, he suggests there should be at least as much focus on who builds that system as on who uses the system.

This suggestion appears quite relevant for Korean ICT4D. Analysing the content of projects to date, it seems that the developmental focus has been on the consumption side. This has two aspects. First, that citizens in poor communities are seen as relatively passive consumers of information and services provided by ICT4D projects, not as potentially active producers of information and services. Second, that in the production of ICT4D elements like hardware, software and services, most of Korea's ODA programmes involve tied aid. In other words, it is Korean firms that are contracted to build the telecentres, the e-government systems, and so forth. Recipient nation firms are excluded from participation. As a result, these ICT4D projects make much less contribution than they could to economic development and the development of new livelihoods in the recipient countries.

At worst, then, firms, communities and individuals in the developing countries are being seen as objects to serve the consumption of goods and services produced in Korea – a

mere extension of the commercial focus of existing Korean exporters. Far from being a "new wave" of donor activity, Korea's ICT4D programme may instead resemble more of a throw-back to activities of Western donors in the 1970s and 1980s. In those years, there was a strong linkage between aid and trade agencies in government. Aid projects were specifically used as a means to "shift kit" for Western ICT firms; sometimes kit that was rather outdated (Odedra, 1993). Following such a path would, of course, be consistent with the idea of technonationalism.

3.3 Analysing Korea's ICT4D Assistance

We can now look back at the frameworks presented earlier to analyse Korea's ICT4D assistance programme. In terms of its view of ICT, Korea's programme seems to take a largely technologically-deterministic view. It has focused mainly on the technology, and has been relatively poor to date in recognising the importance of the human and social context in which the technology sits and must act in order to create developmental outcomes.

The Korean view of development seems to fall fair and square within the modernisation paradigm. Put in simple terms, Korea is seen to have developed in part due to large-scale investments in ICTs. Its developing country recipients should therefore do the same in order to move further along the development path.

Because of this view of the role of ICTs within Korea's own development, the Korean ICT4D programme is techno-optimistic. Problems of project failure, unsustainability, and inequitable outcomes will therefore jar with this view; perhaps providing opportunities for revision towards a more balanced perspective.

It is, lastly, unclear what view of Wade's (2002) dependency hypothesis would be taken by Korean ICT4D actors. Whether or not they recognise the issue, it is arguable that their actions are – purposefully or not – increasing the e-dependence of their recipients. This happens both by the tying of aid to sales of Korean ICT goods and services, and by the limited investment provided in local ICT production.

On the basis of relatively limited data, then, we are associating Korea's ICT4D programme with technological-determinism and techno-optimism, with the modernisation paradigm, with tied aid, and with the potential for creating dependency. All of this might reinforce the sense of "throw-back"; that Korea's approach to ICT4D is rather outdated. That characterisation, however, would be unfair for at least two reasons.

First, because the views found in a number of other agencies involved in ICT4D have been similar (Schech, 2002). Second, because we see a value at least in Korea's techno-optimism: a perspective that may continue to recognise the importance of ICTs – and respond

to the interest of developing countries in ICTs – at a time when some Western donors appear to have lapsed into a post-DOTForce, post-WSIS ICT-pessimism and/or ICT-disregard.

4. CONCLUSIONS AND RECOMMENDATIONS

Korea, probably quite rightly, has placed a significant emphasis on ICTs within its development assistance programme. In this, it reflects not only Korea's own comparative advantage but also the significant "thirst" for ICT4D found in many developing countries: a thirst that some donor agencies from Western nations are failing to address. Korean ICT4D has undoubtedly assisted the diffusion of ICTs in the poorer nations of the world, and brought ICT-related benefits to those nations. Nonetheless, we should still conduct a deeper examination, and can examine Korea's ICT4D programme at two main levels.

Firstly, at the policy level, where the programme shows some signs of following what Heeks (2001) calls the "idolise" approach – that is, placing, technology at the forefront and potentially making some technologically-deterministic and –optimistic assumptions about ICTs linearly delivering development.

Where Korean agencies go from here is a matter of policy choice. They may take an "integrate" approach that sets development goals first, and then integrates ICTs as one part of a multi-technique approach to achieving those goals. Such an approach would also recognise the potential downsides associated with ICTs:

- ICTs, like all technologies, foster inequality. How will Korea's ICT4D programme attack such inequalities in a meaningful manner? At a global level, it may mean moving towards untied aid, supporting the ICT industries of developing countries, and helping strengthen the voice of those countries in international ICT institutions. At a national level, it will mean giving more thought to reaching the socially excluded.
- ICTs, like all technologies, are placed within a broader social context; a context that shapes outcomes as much – if not more – than the technologies themselves. Because of this, and as we have seen above, ICTs may not be "structurally transformative". Instead, they may reinforce existing social structures. How Korea's ICT4D programme will recognise and address this relative conservatism of ICT remains an open question.

However, an alternative to the "integrate" approach is starting to emerge (Heeks, forthcoming). This is the "innovate" approach that draws from three different perspectives in seeking to get the most from ICT4D – asking what is possible with ICT4D from a computer science perspective; what is feasible with ICT4D from an information systems perspective; and what is desirable with ICT4D from a development studies perspective. By comparison with an integrated approach, this recognises ICTs as a cross-cutting force in development;

avoids the dangers of ICTs being "mainstreamed" into obscurity; and allows new development goals to be identified. As an emergent concept, the nature of an "innovate" approach is not yet totally clear, but it may well be more fitting to Korea's techno-optimism.

Secondly, we can examine Korea's ICT4D programme at the project level. From this perspective, we can argue that Korea – like other donors – has undergone some years of what we might call "ICT4D 1.0". Now it is time for projects to enter "ICT4D 2.0" – a new phase that learns from the past and sets new technological and process priorities (Heeks forthcoming).

From our analysis above, Korea's ICT4D 2.0 projects could include some of the following:

- A greater recognition of the social and cultural context that, as noted above, is an important determinant of ICT4D project success and failure. This has a number of implications but one will relate to the human resource competency profile sought by KOICA and other development actors. There will need to be less emphasis on pure technical skills, and more emphasis on seeking out "hybrids" – those who combine an understanding of the technology, with an understanding of human, organisational and developmental context. Put another way, KOICA and others need to deal less with information technology experts, and more with information systems experts or, better still, more with true ICT4D experts.
- Less concern about supply, and more concern about demand. All donors begin new fields in supply-driven mode; thinking about what they can provide. But, to succeed, they must then move to a different mode; one that engages far more with their recipient groups; that learns the techniques of participative development; and which talks less about top-down determination of recipient needs and talks more about bottom-up determination of recipient wants.
- A rebalancing of the relative weight given to ICT production vis-à-vis ICT consumption. As noted above, Korea's telecentres and similar ICT4D projects have focused too much to date on a model that sees them as supplying information to be consumed by poor recipients. But, if asked, the poor will always cite their top priority as being new livelihoods, jobs and incomes. An ICT production perspective provides this; looking on ICTs not as tools for information provision, but as tools for productive enterprise. One recent outcome has been the upgrowth in "social outsourcing", which finds ways to outsource ICT work from large organisations into poor communities.

- A greater commitment to impact assessment. Most international organisations active in ICT4D now recognise some essence of phase change (regardless of whether or not they use the terminology of ICT4D 1.0 to ICT4D 2.0). An essential element of successfully making this change is learning from phase 1.0; and the major element of that learning will be learning what impact ICT4D projects have had. Hence, the large-scale investigations being run by donors like IDRC (International Development Research Centre, Canada) and the Gates Foundation to assess the impact of ICT4D projects to date; something that Korean donors would do well to emulate.

In summary, the contribution of the paper lies in examining Korean ICT4D, an area that remains under-researched despite its growth and its potential epitomising the ICT4D activities of a new wave of donors. The paper's key limitation is its reliance on secondary sources such as reports from Korean agencies. Primary field study is now required. This will work with Korean ICT4D actors to understand their perceptions and motivations, and with recipient stakeholders to understand more fully the impact of Korean ICT4D projects on development.

5. REFERENCES

Amin, S. (1976) Unequal Development, New York: Monthly Review Press.

Bezmen, T.L. and Depken, C.A. (2004) The Macroeconomic Impacts of Information Technology Transfers: Empirical Evidence and Policy Implications, Dept. of Economics, University of Texas at Arlington, TX http://www.uta.edu/depken/P/intdiff.pdf

Cho, W. (2006) DB for International Co-Operations in Korea and the Development of New Business Models, Research Report 06-24, Korea Agency for Digital Opportunity and Promotion, Seoul.

Forestier, E., Grace, J. and Kenny, C. (2002) Can Information and Communication Technologies Be Pro-poor?, *Telecommunications Policy*, **26**, 11, 623-646.

Heeks, R. (1999) Information and Communication Technologies, Poverty and Development, IDPM Development Informatics Working Paper no.5, IDPM, University of Manchester, UK, http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/di_wp05.htm

Heeks, R. (2001) Reinventing Government in the Information Age, London: Routledge.

Heeks, R. (2002) Information Systems and Developing Countries: Failure, Success, and Local Improvisations, *The Information Society*, **18**, 2, 101-112.

Heeks, R. (2005) ICTs and the MDGs: on the Wrong Track?, *i4d*, February, http://www.i4donline.net/feb05/perspective.asp

Heeks, R. (forthcoming) ICT4D 2.0: the Next Phase of Applying ICTs for International Development, *IEEE Computer*.

Heeks, R. and Kenny, C. (2002) The Economics of ICTs and Global Inequality, Development Informatics Working Paper no.10a, IDPM, University of Manchester, UK http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/di_wp10a.htm

KADO (2007a) Report on 2006 Information Access Center Project, Korea Agency for Digital Opportunity and Promotion, Seoul.

KADO (2007b) Report on 2006 Korea IT Learning Program, Korea Agency for Digital Opportunity and Promotion, Seoul.

KADO (2007c) Report on 2006 Korea Internet Volunteers, Korea Agency for Digital Opportunity and Promotion, Seoul.

KADO (2007d) The Development of the Korean Model for IT ODA, Korea Agency for Digital Opportunity and Promotion, Seoul.

Kang, D. and Segal, A. (2006) The Siren Song of Technonationalism, *Far Eastern Economic Review*, 1 March, http://www.hktdc.com/econforum/dj/feer060301.htm

KOICA (2006) KOICA Annual Report 2006, Korea International Cooperation Agency, Seoul.

KOICA (2007) Evaluation of ICT Projects, Korea International Cooperation Agency, Seoul.

KOICA (2008) KOICA Statistics, Korea International Cooperation Agency, Seoul. http://stat.koica.go.kr/

Kwon, Y. (2006) Korea's ODA Policy: Paradigm Shifts and Reforms in Korea's ODA, Research Report 06-03, Korea Institute for International Economic Policy, Seoul.

Land, R. and Hirschheim, R. (1983) Participative Systems Design: Rationale, Tools and Techniques, *Journal of Applied Systems Analysis*, **10**, 91-107.

Lumsdain, D. and Schopf, J.C. (2007) Changing Values and the Recent Rise in Korean Development Assistance, *The Pacific Review*, **20**, 2, 221-255.

Madon, S. (2000) The Internet and Socio-economic Development: Exploring the Interaction, *Information Technology & People*, **13**, 2, 85-101.

Morales-Gómez, D. and Melesse, M. (1998) Utilising Information and Communication Technologies for Development: the Social Dimensions, *Information Technology for Development*, **8**, 1, 3-13.

Odedra, M. (1993) Enforcement of Foreign Technology on Africa, in: Beardon, C. and Whitehouse, D. (Eds.) Computers and Society, 138-148, Oxford, UK: Intellect Books.

Rahman, S. (2007) The Korea International Co-operation Agency (KOICA) and its Grants Assistance Policy Toward Bangladesh: An Analysis, paper presented at the Korea Study Forum.

Sen, A. (1999) Development as Freedom, New York: Knopf.

Schech, S. (2002) Wired for Change, *Journal of International Development*, **14**, 1, 13-23.

Souter, D. (2007) Internet Governance and Development: Another Digital Divide?, *Information Polity*, **12**, 1/2, 29-38.

UNDP (2000) Driving Information and Communications Technology for Development, United Nations Development Programme, New York.

Wade, R.H. (2002) Bridging the Digital Divide: New Route to Development or New Form of Dependency?, *Global Governance*, **8**, 4, 443-466.

Walsham, G., Symons, V. and Waema, T. (1990) Information Systems as Social Systems: Implications for Developing Countries, in: Bhatnagar, S. and Bjorn-Andersen, N. (Eds.) Information Technology in Developing Countries, 51-61, Amsterdam: North-Holland.