Challenging Conventional Views on Mobile Telecommunications Investment: *Evidence from Conflict Zones*

Agnieszka Konkel & Richard Heeks
Development Informatics Short Paper no.9
Development Informatics Group
IDPM, SED, University of Manchester, UK
2008

What do you need to facilitate investment in mobile telecommunications?

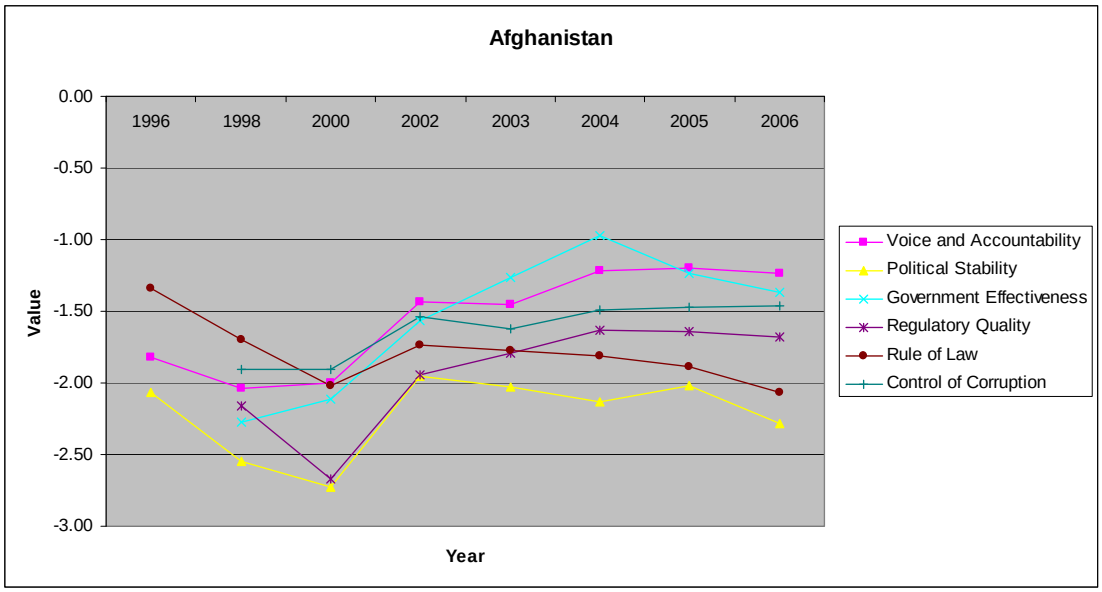
Mobile telecommunications has become the silver bullet *du jour* of international development. And, beyond the hype and alongside some exacerbation of inequities, it can be seen delivering both social and economic development outcomes (Heeks & Jagun 2007). Yet at least half the world's population lack access to this development tool (Kelly 2007).

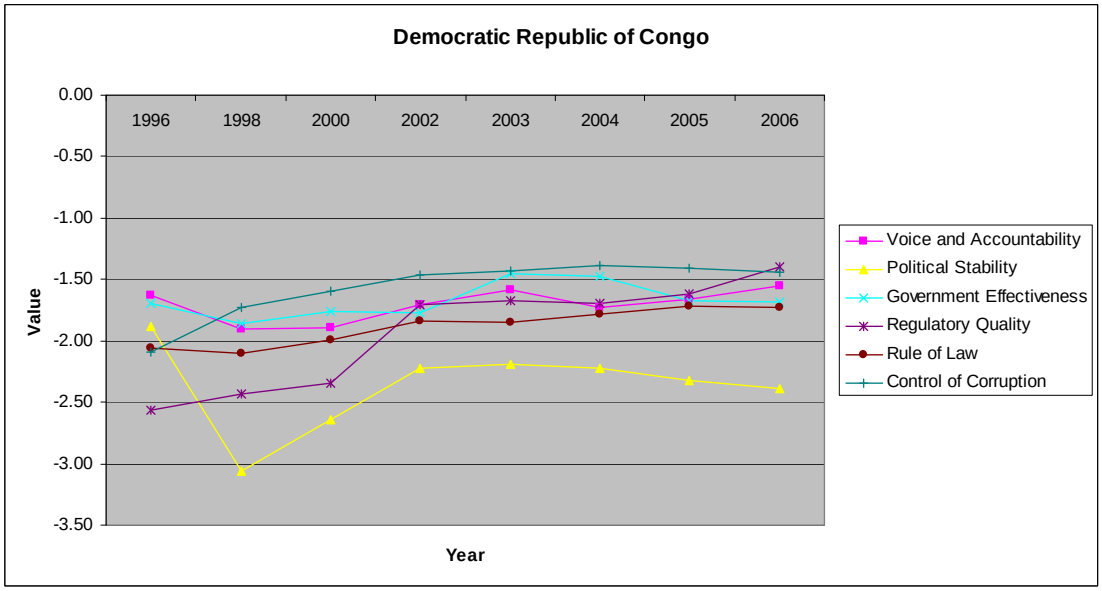
Not surprisingly, then, there is significant interest in understanding those factors which can facilitate greater investment in mobile (and information and communication technologies – ICTs – more broadly). Hence, the initial question. To which the standard answer has been that the "investment climate" – the factors that shape opportunities and incentives for investment (Miglorisi & Galmarini 2004) – rests on a series of investment "pillars" (Mills & Fan 2006).

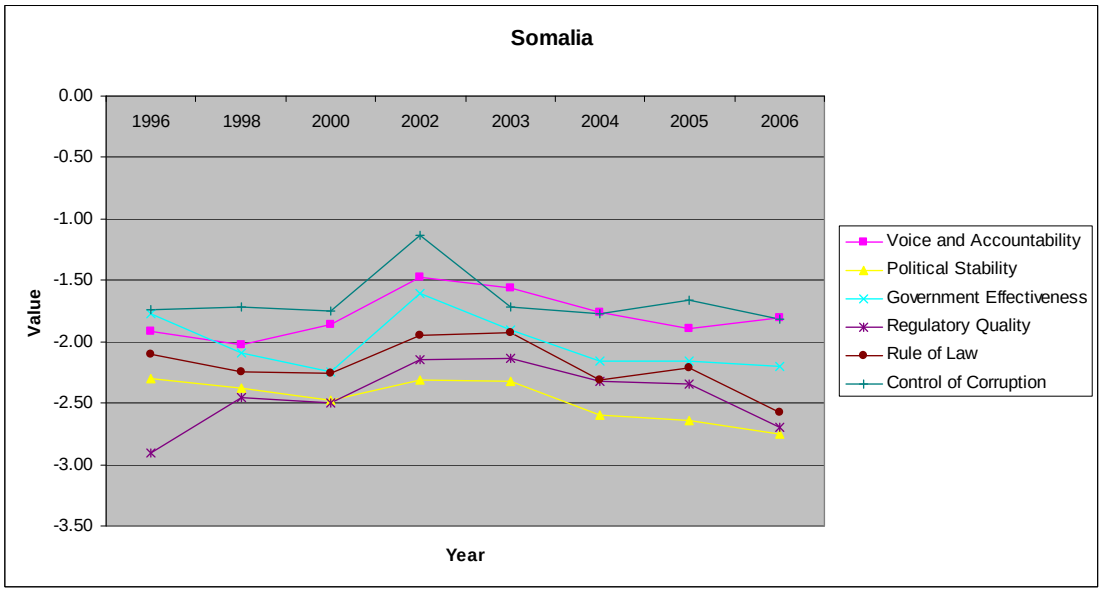
Those pillars are security and stability, finance and infrastructure, workers and labour markets, and the regulatory framework and tax. Overarching all of these, the view is that good, stable governance forms the crucial basis for investment. In its absence, investment will be curtailed (Hope 2002, EU & UN 2007). This conventional view, emanating from the main international development agencies such as the World Bank, is seen as similar whether considering developing countries generally (World Bank 2005) or those that have been conflict-affected (Mills & Fan 2006).

We therefore decided to investigate further, picking out security and good governance as two key elements seen as necessary for facilitating investment, and looking at investment in mobile telecommunications in three countries that had neither during the initial years of the 21st century: Afghanistan, Democratic Republic of Congo, and Somalia.

Measures of governance were assessed for the period up to 2006 via the Worldwide Governance Index (Kaufman et al 2007). All three countries were in the bottom 10th percentile rank (and, for most measures in the bottom 5% of countries worldwide) throughout the 2000s, and were listed as "governance crisis" countries (Kaufman 2006). Their governance charts are shown below (developed from Kaufman et al 2007).


Afghanistan
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
Value
1996
1998
2000
2002
2003
2004
2005
2006
Year
Voice and Accountability
Political Stability
Government Effectiveness
Regulatory Quality
Rule of Law
Control of Corruption


Democratic Republic of Congo
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
Value
1996
1998
2000
2002
2003
2004
2005
2006
Year
Voice and Accountability
Political Stability
Government Effectiveness
Regulatory Quality
Rule of Law
Control of Corruption


Somalia
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
Value
1996
1998
2000
2002
2003
2004
2005
2006
Year
Voice and Accountability
Political Stability
Government Effectiveness
Regulatory Quality
Rule of Law
Control of Corruption

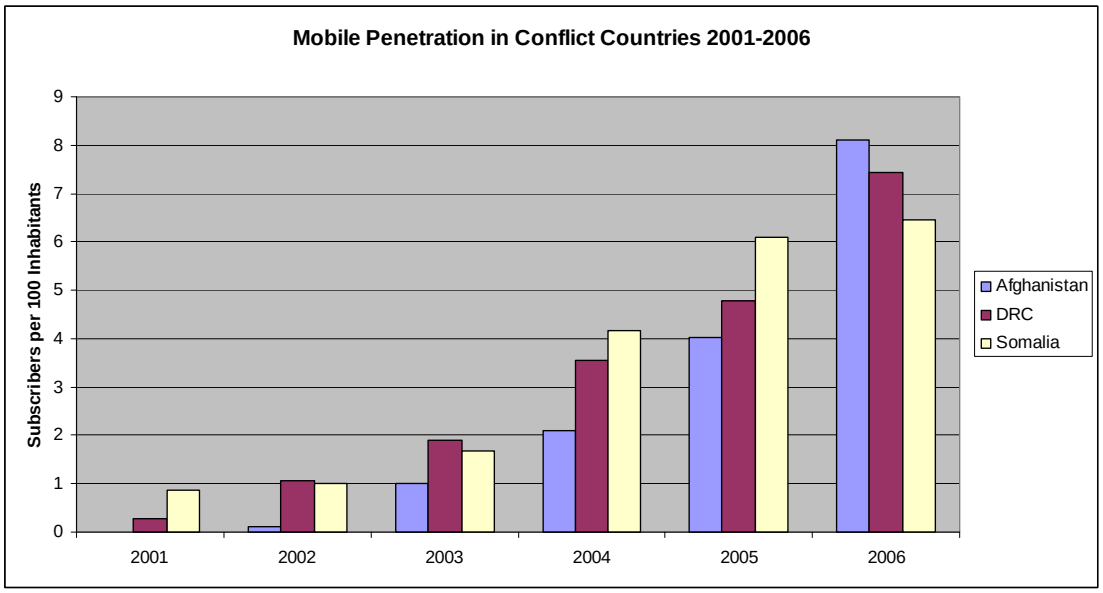
Indicators of security were a bit harder to identify. For all three countries, one could chart a continuing series of reports on armed conflict, killing of civilians and general insecurity throughout the 2000s (e.g. HRW 2000, HRW 2003, MSF 2005, HRW 2007, MSF 2007). They were three of the five countries listed by the UN as violating children's rights in relation to armed conflict (HRW 2004). All three were sites of international peace-keeping interventions. And they were three of the six sites worldwide identified statistically as the most-violent and least-secure for aid operations (Stoddard et al 2006). It therefore seems reasonable to conclude that – just as with governance – the three countries were among the bottom 5% (and possibly the bottom 2%) of countries worldwide in terms of security.

Given this, we may conclude that Afghanistan, Democratic Republic of Congo, and Somalia are investment "basket cases" according to conventional investment models. They were among the most insecure, violent, unstable, corrupt, unregulated, unlawful and generally ungoverned countries on earth. No-one in their right mind would ever invest in such places. Or would they?

We have no direct figures for the level of investment. Therefore we have to rely on proxies. Looking at the period from the end of 2000, we find a plethora of mobile telecommunication company launches; all of which led on to investments that created active GSM networks (GSM 2007, GSM 2007a, GSM 2007b):

Launch Date	**Country**	**Company**
December 2000	DRC	Celtel Congo
December 2000	DRC	Oasis SPRL (SAIT Telecom)
July 2001	Somalia	Nationlink
October 2001	Somalia	Telsom Mobile Somalia
December 2001	DRC	Congo Chine Telecom
December 2001	DRC	Vodacom Congo (RDC)
April 2002	Afghanistan	Afghan Wireless Communication Company (AWCC)
January 2003	Somalia	Hormud Telecom Somalia
June 2003	Afghanistan	Telecom Development Company Afghanistan (ROSHAN)
June 2003	DRC	Supercell SPRL
March 2005	Somalia	Somafone FZLLC
April 2005	Somalia	Golis Telecommunication Company
July 2006	Afghanistan	Areeba Afghanistan

Arising from this investment, we see a rapid growth in mobile phone penetration, as shown in the figure below (from ITU 2006 and ITU 2008):



The average annual mobile penetration growth rate in the three countries from 2001-2006 was 111%[i]. That compares to an average figure across Africa of 52% and across Asia of 28% (ITU 2008). These countries are therefore outperforming the average.

We can add a few more "outperforming the average" tidbits in terms of the individual countries:

- Afghanistan: mobile telephony is acclaimed as "the most impressive economic success" (*Middle East Times* 2006). It had the third-highest growth rate in the world, pipped only by two other conflict-affected countries – Iraq and Liberia.
- Democratic Republic of Congo: 70% of the country had mobile coverage by the end of the period; a figure well above the average for Africa (Conteh 2006, Kelly 2007).
- Somalia: seen as the market leader in East Africa (UNOCHA 2005, Davis 2007), with below-average call costs following a price fall of some 90% in less than a decade (Nenova & Harford 2004, CIA 2007).

Of course, high growth rates could be put down to the very low baseline figures, and also the absence of mainline telephony alternatives. That may be part of the story but even here there is some balancing evidence. Afghanistan's 2002 baseline figure is regionally and continentally very low (of countries providing data only Myanmar, Nepal and Iraq scored lower in Asia). But DRC and Somalia's 2001 baselines are not dissimilar to much of sub-Saharan Africa – for example, they are both higher than the figure for Nigeria (ITU 2008).

Mainline telephony was in a parlous state in Afghanistan and DRC in 2001 – both registered declines from levels in the mid-1990s; and each was the lowest recorded on its continent. On the other hand, mainline penetration in Somalia was very much on a par with other sub-Saharan countries including, again, Nigeria. And 2001-2006

mainline penetration growth rates for Afghanistan and Somalia were among the highest continent-wide (Afghanistan was second-highest in Asia; Somalia was third-highest in Africa) (ITU 2008).

What, then, can we conclude? First, that any conclusions must be tentative. We looked at only three countries; we have no direct figures on our key dependent variable – investment levels; and we have made use of only secondary, largely quantitative data. We also have limited evidence about the source of investment. Some is likely to come from aid flows; for example, the ITU had assistance programmes in all three countries during the 2000s (ITU 2006). However, much more is likely to have come from foreign investment, particularly from non-resident citizens of the country (Zant 2005, Uldal & Marjan 2006, World Bank 2007).

The conventional wisdom would say that insecurity deters investment (Mills & Fan 2006). Our modest study finds no basis to support this statement in the case of mobile telecommunications investment. Investment has occurred despite significant insecurity and there are signs that it may have been higher than average in per capita terms. One might hypothesise why: insecure countries are places of great uncertainty, and uncertainty pushes up the value of information. Thus citizens will be willing to invest a greater-than-average amount of income on information and communication technologies; particularly those – like mobile phones – which can help provide just the kind of information (safe/unsafe locations, approaching dangers, places to find scarce commodities, etc) that addresses their main uncertainties.

This idea is supported by the finding that personal safety is a key driver behind diffusion of mobile telephony (Castells et al 2007), and by other data: for example, the 2006 outbreak of violence in the Lebanon was associated with a 40% rise in mobile phone traffic (MTC 2006). We might also consider other drivers to mobile phone use in these countries: the military and quasi-military uses of mobile telephony; for example, to coordinate attacks; and uses to coordinate other illegal activities that tend to spring up in insecure situations (e.g. *The Economist* 2007). This partly explains why mobile telecommunications is much less likely to be targetted for attack than other parts of the infrastructure (Bray 2005).

The conventional wisdom would say that "bad governance" deters investment (Mills & Fan 2006). Again, our study finds no basis to support this in relation to mobile telecommunications investment. Investment has occurred despite a widespread breakdown in governance and there are signs that it may have been higher than average.

Three possible hypotheses come to mind. One is that the lure of high demand and profits may be sufficient to pull investors through the obstacles posed by bad governance (though some diaspora investors might also have been motivated by service-provision and nationalist purposes). The second is that, as with lack of security, lack of governance may create a premium for information and hence an investment premium for the tools – such as mobile phones – that handle information.

The third hypothesis is that "governance" presents more of a barrier to ICT investors than is normally supposed. Certainly, in Somalia – the least-governed of the three – investment has gone ahead in the almost total absence of governance. Instead, the

investors/mobile operators have self-organised; for example, sorting out their own interconnection between networks in a way often argued will only happen through the intervention of a government-appointed regulator (Vasquez 2005). They have therefore demonstrated that self-regulation can happen.

Finally, we note one other possible attraction for investment in insecure, barely-governed countries: the level of competition may be less than in other countries; partly because of the level of insecurity and risk (Bray 2005). Investors may therefore be able to invest at their own pace rather than be driven by forces of a well-functioning competitive market (Hale 2002).

In conclusion, we have neither the breadth nor depth of data here to overturn the entire applecart of conventional wisdom about investment. At best, we have "scrumped" a few of those apples. We have shown that significant investment does still occur in insecure countries with bad governance; at least in relation to some ICTs. We have suggested reasons why ICT investment could be higher-than-average in such countries. And we have questioned whether security and governance are quite so important as they are often made out as factors facilitating investment in mobiles and, perhaps, in other information- and communication-related tools of development.

References

Bray, J. (2005) *International Companies and Post-Conflict Reconstruction*, Social Development Papers No 22, World Bank, Washington, DC http://go.worldbank.org/J923JUDPT0

Castells, M., Fernandez-Ardevol, M., Qiu, J. & Sey A. (2007) *Mobile Communication and Society*, MIT Press, Cambridge, MA

CIA (2007) *The World Factbook. Somalia*, Central Intelligence Agency, Washington, DC https://www.cia.gov/library/publications/the-world-factbook/geos/so.html

Conteh, B. (2006) *Overcoming the Vast Challenge of Deploying a Mobile Network in the Democratic Republic of Congo*, World Bank, Washington, DC

Davis, P. (2007) Politics: business in Somalia – stateless but not lawless: step forward anarcho-capitalism, *Ethical Corporation*, 4 Apr http://www.ethicalcorp.com/content.asp?ContentID=4994&rss=41.xml

EU and UN (2007) *EU Presidency Speaking Points*, European Commission, Brussels http://www.europa-eu-un.org/articles/en/article_7201_en.htm

GSMA (2007) *Afghanistan*, GSM Association, Atlanta, GA http://www.gsmworld.com/roaming/gsminfo/cou_af.shtml

GSMA (2007a) *Democratic Republic of Congo*, GSM Association, Atlanta, GA http://www.gsmworld.com/roaming/gsminfo/cou_cd.shtml

GSMA (2007b) *Somalia*, GSM Association, Atlanta, GA http://www.gsmworld.com/roaming/gsminfo/cou_so.shtml

Hale, B. (2002) The hotspots of African investment, *BBC News:Business*, 25 Jun http://news.bbc.co.uk/1/hi/business/2031423.stm

Heeks, R.B. & Jagun, A. (2007) *Mobile Phones and Development: The Future in New Hands?*, ID21 Insights Special Issue, no.69 http://www.id21.org/insights/insights69/insights69.pdf

Hope K. (2002) *Shaping the Enabling Environment for Private Financial Flows in Africa*, DAC Development Partnership Forum, 27-28 Feb http://www.oecd.org/dataoecd/24/41/2756649.pdf

HRW (2000) *Human Rights Watch World Report 2000*, Human Rights Watch, New York, NY http://www.hrw.org/wr2k/

HRW (2003) *Human Rights Watch World Report 2003*, Human Rights Watch, New York, NY http://www.hrw.org/wr2k3/download.html

HRW (2004) *Human Rights Watch World Report 2004*, Human Rights Watch, New York, NY http://hrw.org/wr2k4/download/wr2k4.pdf

HRW (2007) *Human Rights Watch World Report 2007*, Human Rights Watch, New York, NY http://www.hrw.org/wr2k7/wr2007master.pdf

ITU (2006) *ICT and Telecommunications in the Least Developed Countries*, International Telecommunication Union, Geneva http://www.itu.int/ITU-D/ldc/pdf/ictand_telinldc-e.pdf

ITU (2008) *ICT Statistics Database*, International Telecommunication Union, Geneva http://www.itu.int/ITU-D/ICTEYE/Indicators/Indicators.aspx

Kaufman, D. (2006) Worldwide governance indicators, *ODI & World Bank Discussion Event*, Overseas Development Institute, London, 25 Sep

Kaufman, D., Kraay, A. & Mastruzzi, M. (2007) *Governance Matters V: Aggregate and Individual Governance Indicators for 1996–2005*, Policy Research Working Paper 4012, World Bank, Washington, DC http://info.worldbank.org/governance/wgi/resources.htm

Kelly, T. (2007) Beyond the three billion mark, *Mobile Phones and Development*, ID21 Insights, no.69, p4 http://www.id21.org/insights/insights69/insights69.pdf

Middle East Times (2006) Afghanistan mobile operator enters market on auspicious note, *Middle East Times*, 25 Jul http://www.metimes.com/storyview.php?StoryID=20060725-093111-5810r

Migliorisi, S. & Galmarini, R. (2004),*Donor Assistance for Investment Climate Reforms and for Direct Support of Firms*, World Bank, Washington, DC http://siteresources.worldbank.org/INTWDR2005/Resources/donor_assistance_investment_climate.pdf

Mills, R. & Fan, Q. (2006) *The Investment Climate in Post-Conflict Situations*, Research Working Paper No 4055, World Bank, Washington, DC

MSF (2005) *Voice from the Field*, Medecins Sans Frontieres, New York, NY http://www.doctorswithoutborders.org/news/article.cfm?id=1580

MSF (2007) *Somalia*, Medecins Sans Frontieres, New York, NY http://www.doctorswithoutborders.org/news/country.cfm?id=2267

MTC (2006) *MENA Region: Mobility for One Language, Diverse Cultures*, Mobile Telecommunications Co, Kuwait http://www.zain.com/muse/obj/portal/files/MTC%20report/part1

Nenova, T. & Harford, T. (2004) *Anarchy and Invention*, Public Policy Journal no. 280, World Bank, Washington, DC http://rru.worldbank.org/Documents/publicpolicyjournal/280-nenova-harford.pdf

Stoddard, A., Harmer, A. & Haver, K. (2006) *Providing Aid in Insecure Environments*, HPG Report 23, Overseas Development Institute, London http://www.odi.org.uk/hpg/papers/hpgreport23.pdf

The Economist (2007) Shining a light, *The Economist*, 8 Mar

Uldal, B. & Marjan, A. (2006) Computing in post-war Afghanistan. Reflecting on recent history and the context of current events, *Communications of the ACM*, 49(2), 19-24

UNOCHA (2005) *Mogadishu. Overview of Humanitarian Environment in Mogadishu*, UN Office for Humanitarian Affairs, New York, NY http://www.reliefweb.int/library/documents/2005/ocha-som-22nov4.pdf

Vasquez, V. (2007) Somalia: the rubble and the blossom, *The Liberty*, 21(9) http://www.libertyunbound.com/archive/2007_09/vasquez-somalia.html

World Bank (2005) *World Development Report 2005*, World Bank, Washington, DC http://siteresources.worldbank.org/INTWDR2005/Resources/complete_report.pdf

World Bank (2007) *IDA at Work. Afghanistan*, World Bank, Washington, DC http://siteresources.worldbank.org/IDA/Resources/IDA-Afghanistan.pdf

Zant, E. (2005) *Tapping the Private Sector*, Asian Development Bank, Bangkok http://www.adb.org/Documents/Periodicals/ADB_Review/2005/vol37-6/private-sector.asp

[i] 2002-2006 for Afghanistan to avoid producing an infinite percentage result.